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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
1	(1) Scientific processes.	(A) demonstrate safe practices during laboratory and field investigations	(i) demonstrate safe practices during laboratory investigations	TX2_US200101CD	Laboratory Safety (TX2_US200101CD)	Sections 3 and 4 of the Activity Object demonstrate safe practices during laboratory investigations.	Questions 1 through 9 of the Activity Sheet ask students to demonstrate safe practices during laboratory investigations.
2	(1) Scientific processes.	(A) demonstrate safe practices during laboratory and field investigations	(ii) demonstrate safe practices during field investigations	TX2_US200101CD	Laboratory Safety (TX2_US200101CD)	Enrichment Sheet 2 teaches students to demonstrate safe practices during field investigations.	Enrichment Sheet 2 asks students to demonstrate safe practices during field investigations.
3	(1) Scientific processes.	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	(i) demonstrate an understanding of the use of resources	TX2_US200101CD	Laboratory Safety (TX2_US200101CD)	The Activity Object demonstrates the appropriate use of resources.	
4	(1) Scientific processes.	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	(i) demonstrate an understanding of the use of resources	TX2_US200101CD	Laboratory Safety (TX2_US200101CD)	Enrichment Sheet 2 teaches students to demonstrate an understanding of the use of resources.	Enrichment Sheet 2 asks students to demonstrate an understanding of the use of resources.
5	(1) Scientific processes.	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	(ii) demonstrate an understanding of the conservation of resources	TX2_US200101CD	Laboratory Safety (TX2_US200101CD)	The Activity Object demonstrates an understanding of the conservation of resources, and teaches this to the student.	
6	(1) Scientific processes.	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	(ii) demonstrate an understanding of the conservation of resources	TX2_US200101CD	Laboratory Safety (TX2_US200101CD)	Enrichment Sheet 2 teaches students to demonstrate an understanding of the conservation of resources.	Enrichment Sheet 2 asks students to demonstrate an understanding of the conservation of resources.
7	(1) Scientific processes.	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	(iii) demonstrate an understanding of the proper disposal or recycling of materials	TX2_US200101CD	Laboratory Safety (TX2_US200101CD)	After clicking on the unsafe trash can in Part 3 of the Activity Object, students are presented with a description of the proper disposal or recycling of materials.	
8	(1) Scientific processes.	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	(iii) demonstrate an understanding of the proper disposal or recycling of materials	TX2_US200101CD	Laboratory Safety (TX2_US200101CD)	Enrichment Sheet 2 demonstrates an understanding of the proper disposal of materials.	Enrichment Sheet 2 asks students to demonstrate an understanding of the proper disposal of materials.
9	(2) Scientific processes.	(A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section	(i) know the definition of science, as specified in subsection (b)(2) [above]	TX2_US2801A12	What is Science? (TX2_US2801A12)	In the Animation, students are presented with a definition of science, as well as other aspects of science.	Q1 of the "Before the Animation" section of the Question-Answer Sheet, and Q1 of the "After the Animation" section of the Question-Answer Sheet, ask students to provide the definition of science.
10	(2) Scientific processes.	(A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section	(ii) understand that [science] has limitations, as specified in subsection (b)(2) [above]	TX2_US2801A12	What is Science? (TX2_US2801A12)	After reading the "Description of Concepts" section of Enrichment Sheet 2, students understand that science has limitations.	Q1 of Enrichment Sheet 2 asks students to understand that science has limitations.
11	(2) Scientific processes.	(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	(i) know that hypotheses are tentative statements that must be capable of being supported or not supported by observational evidence	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	In the Animation, students are presented with the definition of "hypothesis" and the role of hypotheses in the scientific process. Students learn that hypotheses are tentative statements that must be capable of being supported or not supported by observational evidence.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
12	(2) Scientific processes.	(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	(i) know that hypotheses are tentative statements that must be capable of being supported or not supported by observational evidence	TX2_US2801A12	What is Science? (TX2_US2801A12)		Q3 of the Question-Answer Sheet asks students to define hypotheses as tentative statements that must be capable of being supported or not supported by observational evidence.
13	(2) Scientific processes.	(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	(i) know that hypotheses are tentative statements that must be capable of being supported or not supported by observational evidence	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	Enrichment Sheet 1 and Enrichment Sheet 2 describe hypotheses as tentative statements that must be capable of being supported or not supported by observational evidence.	Q4 of Enrichment Sheet 2 asks students to define hypotheses as tentative statements that must be capable of being supported or not supported by observational evidence.
14	(2) Scientific processes.	(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	(ii) know that hypotheses are testable statements that must be capable of being supported or not supported by observational evidence	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	In the Animation, students are presented with the definition of "hypothesis" and told that hypotheses are testable statements capable of being supported or not supported by observational evidence.	Q3 of the Question-Answer Sheet asks students to define hypotheses as testable statements that must be capable of being supported or not supported by observational evidence.
15	(2) Scientific processes.	(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	(iii) [know that] hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	In the Animation, students are presented with the definition of "hypothesis" and the role of hypotheses in the scientific process, including how the testing of hypotheses may lead to theory generation if tested over a wide variety of conditions.	Q3 of the Question-Answer Sheet asks students to define hypotheses as being capable of leading to theory generation if tested over a wide variety of conditions.
16	(2) Scientific processes.	(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	(iii) [know that] hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	Enrichment Sheet 1 and 2 describe hypotheses as tentative statements that must be capable of being supported or not supported by observational evidence.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
17	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(i) know that scientific theories are based on natural and physical phenomena	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	The Animation explains that scientific theories are based on natural and physical phenomena.	Q3 of Enrichment Sheet 2 asks students to explain that scientific theories are based on natural and physical phenomena.
18	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(i) know that scientific theories are based on natural and physical phenomena	TX2_US4201A19	Particle Nature of Light (TX2_US4201A19)	The Enrichment Sheet discusses that scientific theories are based on natural and physical phenomena.	
19	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(i) know that scientific theories are based on natural and physical phenomena	TX2_US2801A12	What is Science? (TX2_US2801A12)		Q2 of Enrichment Sheet 2 asks students to know that scientific theories are based on natural and physical phenomena.
20	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(ii) know that scientific theories are capable of being tested by multiple independent researchers	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	The Animation explains that scientific theories are based on natural and physical phenomena, are capable of being tested by multiple researchers, and are highly reliable.	Q4 of Enrichment Sheet 2 asks students to know that scientific theories are capable of being tested by multiple independent researchers.
21	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(ii) know that scientific theories are capable of being tested by multiple independent researchers	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	The Enrichment Sheet explains that scientific theories are capable of being tested by multiple independent researchers.	The Question-Answer Sheet includes a question that requires students to know that scientific theories are capable of being tested by multiple independent researchers.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
22	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(ii) know that scientific theories are capable of being tested by multiple independent researchers	TX2_US4201A19	Particle Nature of Light (TX2_US4201A19)	The Animation describes the influence of different researchers' theories and research on the evolving theory of the nature of light.	
23	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(iii) [know that], unlike hypotheses, scientific theories are well-established explanations	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	The Animation explains that, unlike hypotheses, scientific theories are well-established explanations.	Q3 of the Question-Answer Sheet asks students to know that, unlike hypotheses, scientific theories are well-established explanations.
24	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(iii) [know that], unlike hypotheses, scientific theories are well-established explanations	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	Enrichment Sheet 1 and 2 describe that, unlike hypotheses, scientific theories are well-established explanations.	
25	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(iii) [know that], unlike hypotheses, scientific theories are well-established explanations	TX2_US4201A19	Particle Nature of Light (TX2_US4201A19)	The Enrichment Sheet explains that, unlike hypotheses, scientific theories are well-established explanations.	
26	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(iv) [know that], unlike hypotheses, scientific theories are highly-reliable explanations	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	The Animation explains that, unlike hypotheses, scientific theories are highly-reliable explanations.	Q3 of the Question-Answer Sheet asks students to know that, unlike hypotheses, scientific theories are highly-reliable explanations.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
27	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(iv) [know that], unlike hypotheses, scientific theories are highly-reliable explanations	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	Enrichment Sheets 1 and 2 describe the fact that, unlike hypotheses, scientific theories are highly reliable.	
28	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(v) [know that] scientific theories may be subject to change as new areas of science are developed	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	The Animation explains that scientific theories may be subject to change as new areas of science are developed.	Q2 of the Question-Answer Sheet asks students to know that scientific theories may be subject to change as new areas of science are developed.
29	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(v) [know that] scientific theories may be subject to change as new areas of science are developed	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	The Enrichment Sheet discusses the fact that scientific theories may be subject to change as new areas of science are developed.	
30	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(vi) [know that] scientific theories may be subject to change as new technologies are developed	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	The Animation explains that scientific theories may be subject to change as new areas of science and technology are developed.	Q2 of the Question-Answer Sheet asks students to know that scientific theories may be subject to change as new areas of science and technology are developed.
31	(2) Scientific processes.	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed	(vi) [know that] scientific theories may be subject to change as new technologies are developed	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	Enrichment Sheets 1 and 2 discuss the fact that scientific theories may be subject to change as new technologies are developed.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
32	(2) Scientific processes.	(D) distinguish between scientific hypotheses and scientific theories		TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	In the Animation, students are presented with the definition of "hypothesis," how hypotheses lead to theories, and the role of hypotheses and theories in the scientific process.	Q3 of the Question-Answer Sheet asks students to distinguish between scientific hypotheses and scientific theories.
33	(2) Scientific processes.	(D) distinguish between scientific hypotheses and scientific theories		TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	Enrichment Sheets 1 and 2 discuss the distinction between scientific hypotheses and scientific theories.	
34	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(i) design investigative procedures, including making observations	TX2_US210224XP	Free Fall (TX2_US210224XP)	In Part 2 and Part 3 of the Activity Object, students design different conditions and procedures to investigate the effects of mass, gravitational force, and "height of drop" on aspects of free fall (such as duration of fall).	In the Activity Sheet, students are instructed to make observations and record them in a chart.
35	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(i) design investigative procedures, including making observations	TX2_US210215CD	Projectiles Launched Vertically (TX2_US210215CD)		The Investigation Sheet asks students to design investigative procedures, including making observations.
36	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(i) design investigative procedures, including making observations	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	The Lab Sheet involves an investigative procedure in which students must make observations.	Q5 and Q12 In the Lab Sheet ask students to make observations.
37	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(ii) design investigative procedures, including asking well-defined questions	TX2_US210224XP	Free Fall (TX2_US210224XP)	In Part 3 of the Activity Object, students design different conditions and procedures for investigations of the effect of mass, gravitational force, and "height of drop." They also learn to create well-defined questions to obtain the necessary and quantifiable results.	
38	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(ii) design investigative procedures, including asking well-defined questions	TX2_US210215CD	Projectiles launched Vertically (TX2_US210215CD)	In Q1 of the "Plan and Design" section of the Investigation Sheet, students design investigative procedures by asking well-defined questions.	In the Investigation Sheet, students design investigative procedures, including asking well-defined questions.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
39	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(ii) design investigative procedures, including asking well-defined questions	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	At the end of Part 1, and in Part 2 of the Activity Object, students observe the effect of manipulating the mass, length, gravitational acceleration, and release angle of a pendulum on the period of a pendulum's motion. Students must answer well-defined questions to do so.	Q4 in the "Plan the Investigation" section of the Lab Sheet asks students to record their observations.
40	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(ii) design investigative procedures, including asking well-defined questions	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students must design a series of experiments by selecting the appropriate equipment to answer well-defined research questions, which are derived from Newton's law of universal gravitation.	
41	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(iii) design investigative procedures, including formulating testable hypotheses	TX2_US210217CD	Projectiles Launched Horizontally (TX2_US210217CD)	In the second half of Part 1 of the Activity Object, students formulate a prediction (a hypothesis) and investigate whether or not the hypothesis is supported.	
42	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(iii) design investigative procedures, including formulating testable hypotheses	TX2_US210215CD	Projectiles Launched Vertically (TX2_US210215CD)	In the second half of Part 1, and in Part 2 of the Activity Object, students formulate a prediction (a hypothesis) and investigate whether or not the hypothesis is supported.	
43	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(iii) design investigative procedures, including formulating testable hypotheses	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	The Lab Sheet involves an investigative procedure in which students must formulate testable hypotheses.	Q6 and Q8 in the "Plan the Investigation" section of the Lab Sheet ask students to formulate testable hypotheses.
44	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(iv) design investigative procedures, including identifying variables	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students must identify and manipulate variables in a systematic manner to investigate Newton's law of universal gravitation.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
45	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(iv) design investigative procedures, including identifying variables	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	At the end of Part 1 of the Activity Object, students observe the effect of manipulating the mass, length, gravitational acceleration, and release angle of a pendulum on the period of a pendulum's motion. Students must also identify the variables that affect the pendulum's motion, and those that do not have an effect.	Q1 in the "Plan the Investigation" section of the Lab Sheet asks students to identify variables in designed investigative procedures.
46	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(v) design investigative procedures, including selecting appropriate equipment	TX2_US210224XP	Free Fall (TX2_US210224XP)	In Part 2 and Part 3 of the Activity Object, students select spheres of different mass and manipulate gravitational force and "height of drop" to design conditions in an investigation of different aspects of free fall (including duration of fall).	
47	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(v) design investigative procedures, including selecting appropriate equipment	TX2_US420103DM	Photoelectric Effect (TX2_US420103DM)	In Part 2 of the Activity Object, students manipulate a number of variables including the metal used in the cathode in an examination of the photoelectric effect.	
48	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(v) design investigative procedures, including selecting appropriate equipment	TX2_US230105DM	Motion of Charged Particles In an Electric Field (TX2_US230105DM)	In Part 2 of the Activity Object, students must select the correct battery for a charged particle to hit a detector and travel across two conductor plates.	
49	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(v) design investigative procedures, including selecting appropriate equipment	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	The Lab Sheet involves an investigative procedure in which students select appropriate equipment.	Q2 in the "Plan the Investigation" section of the Lab Sheet asks students to select appropriate equipment for designed investigative procedures.
50	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(vi) design investigative procedures, including selecting appropriate technology	TX2_US420103DM	Photoelectric Effect (TX2_US420103DM)	In Part 2 of the Activity Object, students manipulate a number of variables using different types of technology in an examination of the photoelectric effect.	

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51	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(vi) design investigative procedures, including selecting appropriate technology	TX2_US230302CD	Designing an Electric Motor (TX2_US230302CD)	In the Activity Object, students design an electric motor by selecting appropriate parts to investigate how a motor works.	
52	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(vi) design investigative procedures, including selecting appropriate technology	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	The Lab Sheet involves an investigative procedure in which students select appropriate technology.	Q3 in the "Plan the Investigation" section of the Lab Sheet asks students to select appropriate technology for designed investigative procedures.
53	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(vii) design investigative procedures, including evaluating numerical answers for reasonableness	TX2_US210224XP	Free Fall (TX2_US210224XP)	In Part 3 of the Activity Object, students select spheres of different mass before manipulating gravitational force and "height of drop" to design conditions in investigations of different aspects of free fall (including duration of fall). Students then are able to answer questions based on the evaluation of numerical data.	
54	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(vii) design investigative procedures, including evaluating numerical answers for reasonableness	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 2 and Part 3 of the Activity Object, students respond to numerical questions to determine the reasonable answer in an examination of projectile motion.	
55	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(vii) design investigative procedures, including evaluating numerical answers for reasonableness	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	The Lab Sheet involves an investigative procedure in which students investigate the factors that affect the period of a pendulum. Students collect data and then evaluate their numerical answers for reasonableness.	Q19 in the "Plan the Investigation" section of the Lab Sheet asks students to evaluate numerical answers for reasonableness.
56	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(viii) implement investigative procedures, including making observations	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	In the Activity Object, students manipulate the force applied to objects of different masses in a frictionless environment. Students then observe the relation between mass, the magnitude of applied force, and motion.	In the Lab Sheet, students are asked to implement investigative procedures, including making observations.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
57	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(viii) implement investigative procedures, including making observations	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	At the end of Part 1, and in Part 2 of the Activity Object, students observe the effect of manipulating the mass, length, gravitational acceleration, and release angle of a pendulum on the period of a pendulum's motion.	In the Lab Sheet, students are asked to implement investigative procedures, including making observations.
58	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(ix) implement investigative procedures, including asking well-defined questions	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	In the Activity Object, students investigate the manipulation of the force applied to objects of different masses in a frictionless environment. In order to do this, they must identify and ask well-defined questions regarding the relationship between mass, the magnitude of applied force, and motion.	During the Activity Object, as part of the investigative procedures, students must identify and ask well-defined questions in order to define the relationships between mass, the magnitude of applied force, and motion. The Activity Object software assesses the students' answers as they proceed, and students are informed if their answers are correct/incorrect as they are guided through the exercises.
59	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(ix) implement investigative procedures, including asking well-defined questions	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	At the end of Part 1, and in Part 2 of the Activity Object, students investigate the manipulation of mass, length, gravitational acceleration, and release angle of a pendulum to answer well-defined questions related to the period of a pendulum's motion.	In the Lab Sheet, students are asked to create a well-defined question as part of implementing investigative procedures.
60	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(x) implement investigative procedures, including formulating testable hypotheses	TX2_US210217CD	Projectiles Launched Horizontally (TX2_US210217CD)	In the second half of Part 1 of the Activity Object, students formulate a prediction (a testable hypothesis) and investigate whether or not the hypothesis is supported.	During the Activity Object, the correct formulation, and validity of, a testable hypothesis is assessed by the Activity Object software. Appropriate feedback is provided as to the correctness/incorrectness of the students' responses as they are guided through the exercises.
61	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(x) implement investigative procedures, including formulating testable hypotheses	TX2_US210215CD	Projectiles Launched Vertically (TX2_US210215CD)	In the second half of Part 1, and in Part 2 of the Activity Object, students formulate a prediction (a hypothesis) and investigate whether or not the hypothesis is supported.	During the Activity Object, the correct formulation of, and validity of, a hypothesis is assessed by the Activity Object software. Students are informed if their answers are correct/incorrect as they are guided through the exercises.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
62	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xi) implement investigative procedures, including identifying variables	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	In the Activity Object, students investigate the force applied to objects of different masses in a frictionless environment and manipulate three variables: (1) the relation between mass, (2) the magnitude of applied force, and (3) motion.	The correct identification of variables affecting the movement of objects under force is assessed by the Activity Object software. Students are informed if their answers are correct/incorrect as they are guided through the exercises.
63	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xi) implement investigative procedures, including identifying variables	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	At the end of Part 1 of the Activity Object, students must identify which variables affect the period of a pendulum's motion: (1) mass, (2) length, (3) gravitational acceleration, and (4) release angle of the pendulum.	The correct identification of variables affecting the period of a pendulum is assessed by the Activity Object software. Students are informed if their answers are correct/incorrect as they are guided through the exercises.
64	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xii) implement investigative procedures, including selecting appropriate equipment	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	In the Activity Object, students investigate the force applied to objects of different masses in a frictionless environment by selecting blocks of differing mass and by stretching the spring of the scale to different lengths. Depending on the investigation, students must select the block of an appropriate mass or stretch the scale to an appropriate length to answer the research question.	The appropriateness of the masses selected is assessed by the Activity Object software. Students are informed if their selections are correct/incorrect as they are guided through the exercises.
65	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xii) implement investigative procedures, including selecting appropriate equipment	TX2_US210224XP	Free Fall (TX2_US210224XP)	In Part 2 and Part 3 of the Activity Object, students select spheres of different mass to investigate aspects of free fall (including gravitational acceleration, duration of fall, etc.).	In Part 2 and Part 3 of the Activity Object, students select spheres of different masses to investigate aspects of free fall. The appropriateness of the spheres selected is assessed by the Activity Object software. Students are informed if their selections are correct/incorrect as they are guided through the exercises.
66	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xii) implement investigative procedures, including selecting appropriate equipment	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	In Part 2 of the Activity Object, students must select the appropriate equipment to conduct the experiments.	In Part 2 of the Activity Object, the appropriateness of the equipment selected is assessed by the Activity Object software. Students are informed if their selections are correct/incorrect as they are guided through the exercises.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
67	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xiii) implement investigative procedures, including selecting appropriate technology	TX2_US230302CD	Designing an Electric Motor (TX2_US230302CD)	In Part 1 of the Activity Object, students select appropriate technology (a battery, magnet, coil) to achieve certain results in the design of an electric motor.	
68	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xiii) implement investigative procedures, including selecting appropriate technology	TX2_US230302CD	Designing an Electric Motor (TX2_US230302CD)	In Part 2 of the Activity Object, students must purchase appropriate technology (a battery, magnet, coil) to design an electric motor and win a race under budgetary constraints.	
69	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xiii) implement investigative procedures, including selecting appropriate technology	TX2_US420103DM	Photoelectric Effect (TX2_US420103DM)	In Part 4 of the Activity Object, students select metal plating, adjust the wavelength and frequency of light, and adjust the potential difference between the cathode and the anode.	
70	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xiii) implement investigative procedures, including selecting appropriate technology	TX2_US230105DM	Motion of Charged Particles In an Electric Field (TX2_US230105DM)	In Part 2 of the Activity Object, students must select the correct battery for a charged particle to hit a detector and travel across two conductor plates.	In the Activity Object, the appropriateness of the technology selected is assessed by the Activity Object software. Students are informed if their selections are correct/incorrect as they are guided through the exercises.
71	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xiii) implement investigative procedures, including selecting appropriate technology	TX2_US230105DM	Motion of Charged Particles In an Electric Field (TX2_US230105DM)		In the Activity Sheet, students are asked to select appropriate technology as part of implementing investigative procedures.
72	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xiv) implement investigative procedures, including evaluating numerical answers for reasonableness	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	In the Activity Object, students investigate the force applied to objects of different masses in a frictionless environment by selecting blocks of differing mass and by stretching a spring of a scale to different lengths. students analyze the results of investigations that are recorded in an experiment report to answer questions posed by the system.	In the Lab Sheet, students evaluate the numerical reasonableness of their answers.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
73	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xiv) implement investigative procedures, including evaluating numerical answers for reasonableness	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	At the end of Part 1, and in Part 2 of the Activity Object, students respond to questions based on evaluating numerical data obtained from the manipulation of the mass, length, gravitational acceleration, and release angle of a pendulum.	
74	(2) Scientific processes.	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness	(xiv) implement investigative procedures, including evaluating numerical answers for reasonableness	TX2_US210217CD	Projectiles Launched Horizontally (TX2_US210217CD)	In Part 2 of the Activity Object, students complete the construction of a concept map based on observations and the evaluation of numerical data.	
75	(2) Scientific processes.	(F) demonstrate the use of course apparatus, equipment, techniques, and procedures, including multimeters (current, voltage, resistance), triple beam balances, batteries, clamps, dynamics demonstration equipment, collision apparatus, data acquisition probes, discharge tubes with power supply (H, He, Ne, Ar), hand-held visual spectroscopes, hot plates, slotted and hooked lab masses, bar magnets, horseshoe magnets, plane mirrors, convex lenses, pendulum support, power supply, ring clamps, ring stands, stopwatches, trajectory apparatus, tuning forks, carbon paper, graph paper, magnetic compasses, polarized film, prisms, protractors, resistors, friction blocks, mini lamps (bulbs) and sockets, electrostatics kits, 90-degree rod clamps, metric rulers, spring scales, knife blade switches, Celsius thermometers, meter sticks, scientific calculators, graphing technology, computers, cathode ray tubes with horseshoe magnets, ballistic carts or equivalent, resonance tubes, spools of nylon thread or string, containers of iron filings, rolls of white craft paper, copper wire, Periodic Table, electromagnetic spectrum charts, slinky springs, wave motion ropes, and laser pointers	(i) demonstrate the use of course apparatus [and] equipment, including multimeters (current, voltage, resistance)	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	In Part 1 of the Activity Object, students are presented with a summary of the application of Ohm's Law on a circuit, which includes the use of a voltmeter and ammeter to measure voltage and current of point(s) on a circuit.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
76	(2) Scientific processes.	(F) demonstrate the use of course apparatus, equipment, techniques, and procedures, including multimeters (current, voltage, resistance), triple beam balances, batteries, clamps, dynamics demonstration equipment, collision apparatus, data acquisition probes, discharge tubes with power supply (H, He, Ne, Ar), hand-held visual spectroscopes, hot plates, slotted and hooked lab masses, bar magnets, horseshoe magnets, plane mirrors, convex lenses, pendulum support, power supply, ring clamps, ring stands, stopwatches, trajectory apparatus, tuning forks, carbon paper, graph paper, magnetic compasses, polarized film, prisms, protractors, resistors, friction blocks, mini lamps (bulbs) and sockets, electrostatics kits, 90-degree rod clamps, metric rulers, spring scales, knife blade switches, Celsius thermometers, meter sticks, scientific calculators, graphing technology, computers, cathode ray tubes with horseshoe magnets, ballistic carts or equivalent, resonance tubes, spools of nylon thread or string, containers of iron filings, rolls of white craft paper, copper wire, Periodic Table, electromagnetic spectrum charts, slinky springs, wave motion ropes, and laser pointers.	(i) demonstrate the use of course apparatus [and] equipment, including multimeters (current, voltage, resistance)	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	The Animation teaches how to use multimeters.	Q3 of the Question-Answer Sheet assesses the use of multimeters.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
77	(2) Scientific processes.	(F) demonstrate the use of course apparatus, equipment, techniques, and procedures, including multimeters (current, voltage, resistance), triple beam balances, batteries, clamps, dynamics demonstration equipment, collision apparatus, data acquisition probes, discharge tubes with power supply (H, He, Ne, Ar), hand-held visual spectroscopes, hot plates, slotted and hooked lab masses, bar magnets, horseshoe magnets, plane mirrors, convex lenses, pendulum support, power supply, ring clamps, ring stands, stopwatches, trajectory apparatus, tuning forks, carbon paper, graph paper, magnetic compasses, polarized film, prisms, protractors, resistors, friction blocks, mini lamps (bulbs) and sockets, electrostatics kits, 90-degree rod clamps, metric rulers, spring scales, knife blade switches, Celsius thermometers, meter sticks, scientific calculators, graphing technology, computers, cathode ray tubes with horseshoe magnets, ballistic carts or equivalent, resonance tubes, spools of nylon thread or string, containers of iron filings, rolls of white craft paper, copper wire, Periodic Table, electromagnetic spectrum charts, slinky springs, wave motion ropes, and laser pointers.	(i) demonstrate the use of course apparatus [and] equipment, including multimeters (current, voltage, resistance)	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	In Part 2 of the Activity Object, students use a voltmeter and ammeter to measure the current and voltage, and they also calculate the resistance of point(s) on a circuit.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
78	(2) Scientific processes.	(F) demonstrate the use of course apparatus, equipment, techniques, and procedures, including multimeters (current, voltage, resistance), triple beam balances, batteries, clamps, dynamics demonstration equipment, collision apparatus, data acquisition probes, discharge tubes with power supply (H, He, Ne, Ar), hand-held visual spectroscopes, hot plates, slotted and hooked lab masses, bar magnets, horseshoe magnets, plane mirrors, convex lenses, pendulum support, power supply, ring clamps, ring stands, stopwatches, trajectory apparatus, tuning forks, carbon paper, graph paper, magnetic compasses, polarized film, prisms, protractors, resistors, friction blocks, mini lamps (bulbs) and sockets, electrostatics kits, 90-degree rod clamps, metric rulers, spring scales, knife blade switches, Celsius thermometers, meter sticks, scientific calculators, graphing technology, computers, cathode ray tubes with horseshoe magnets, ballistic carts or equivalent, resonance tubes, spools of nylon thread or string, containers of iron filings, rolls of white craft paper, copper wire, Periodic Table, electromagnetic spectrum charts, slinky springs, wave motion ropes, and laser pointers.	(i) demonstrate the use of course apparatus [and] equipment, including multimeters (current, voltage, resistance)	TX2_US420103DM	Photoelectric Effect (TX2_US420103DM)	Part 4 of the Activity Object demonstrates the use of an ammeter.	

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
79	(2) Scientific processes.	(F) demonstrate the use of course apparatus, equipment, techniques, and procedures, including multimeters (current, voltage, resistance), triple beam balances, batteries, clamps, dynamics demonstration equipment, collision apparatus, data acquisition probes, discharge tubes with power supply (H, He, Ne, Ar), hand-held visual spectroscopes, hot plates, slotted and hooked lab masses, bar magnets, horseshoe magnets, plane mirrors, convex lenses, pendulum support, power supply, ring clamps, ring stands, stopwatches, trajectory apparatus, tuning forks, carbon paper, graph paper, magnetic compasses, polarized film, prisms, protractors, resistors, friction blocks, mini lamps (bulbs) and sockets, electrostatics kits, 90-degree rod clamps, metric rulers, spring scales, knife blade switches, Celsius thermometers, meter sticks, scientific calculators, graphing technology, computers, cathode ray tubes with horseshoe magnets, ballistic carts or equivalent, resonance tubes, spools of nylon thread or string, containers of iron filings, rolls of white craft paper, copper wire, Periodic Table, electromagnetic spectrum charts, slinky springs, wave motion ropes, and laser pointers.	(i) demonstrate the use of course apparatus [and] equipment, including multimeters (current, voltage, resistance)	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	The Animation teaches how to use multimeters.	Q3 of the Question-Answer Sheet assesses the use of multimeters.
80	(2) Scientific processes.	See (2)(F)	(ii) demonstrate the use of course apparatus [and] equipment, including triple beam balances	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	The Animation demonstrates the use of a triple beam balance.	The Question-Answer Sheet assesses the use of a triple beam balance.
81	(2) Scientific processes.	See (2)(F)	(ii) demonstrate the use of course apparatus [and] equipment, including triple beam balances	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Enrichment Sheet 1 demonstrates the use of a triple beam balance.	Enrichment Sheet 1 assesses the use of a triple beam balance.
82	(2) Scientific processes.	See (2)(F)	(ii) demonstrate the use of course apparatus [and] equipment, including triple beam balances	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Enrichment Sheet 2 demonstrates the use of a triple beam balance.	Enrichment Sheet 2 assesses the use of a triple beam balance.
83	(2) Scientific processes.	See (2)(F)	(iii) demonstrate the use of course apparatus [and] equipment, including batteries	TX2_US230207CD	Building Circuits: Light Bulbs in Series (TX2_US230207CD)	In the Activity Object, students utilize apparatus and equipment, including a battery, to construct circuits in series.	
84	(2) Scientific processes.	See (2)(F)	(iii) demonstrate the use of course apparatus [and] equipment, including batteries	TX2_US230208CD	Building Circuits: Light Bulbs in Parallel (TX2_US230208CD)	In the Activity Object, students utilize a battery to construct circuits in parallel.	In the Activity Sheet, students answer questions about apparatus and equipment, including questions involving the construction of a circuit with one or more batteries.
85	(2) Scientific processes.	See (2)(F)	(iii) demonstrate the use of course apparatus [and] equipment, including batteries	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	In Part 1 of the Activity Object, students are presented with a description of the role of a battery in a circuit.	

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86	(2) Scientific processes.	See (2)(F)	(iii) demonstrate the use of course apparatus [and] equipment, including batteries	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	In Part 2 of the Activity Object, students use a voltmeter and ammeter to measure the voltage and current of a circuit that includes a battery.	The Activity Sheet assesses the use of batteries.
87	(2) Scientific processes.	See (2)(F)	(iv) demonstrate the use of course apparatus [and] equipment, including clamps	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 1, Investigation 4 describes the use of clamps.	
88	(2) Scientific processes.	See (2)(F)	(iv) demonstrate the use of course apparatus [and] equipment, including clamps	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	In the Lab Sheet, Investigation 1 demonstrates the use of clamps.	Q7 of Investigation 1 in the Lab Sheet assesses the use of clamps.
89	(2) Scientific processes.	See (2)(F)	(iv) demonstrate the use of course apparatus [and] equipment, including clamps	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	In the Lab Sheet, Investigation 4 demonstrates the use of clamps.	Q16 of Investigation 4 in the Lab Sheet assesses the use of clamps.
90	(2) Scientific processes.	See (2)(F)	(v) demonstrate the use of course apparatus [and] equipment, including dynamics demonstration equipment	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	Part 1 of the Activity Object demonstrates the use of dynamics demonstration equipment, including a toy electric race car and a ticker tape machine.	
91	(2) Scientific processes.	See (2)(F)	(v) demonstrate the use of course apparatus [and] equipment, including dynamics demonstration equipment	TX2_US210308CD	Conservation of Momentum in One Dimension (TX2_US210308CD)	The Investigation Sheet demonstrates the use of a photogate.	The Investigation Sheet assesses the use of a photogate.
92	(2) Scientific processes.	See (2)(F)	(v) demonstrate the use of course apparatus [and] equipment, including dynamics demonstration equipment	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Enrichment Sheet 2 describes the use of dynamics demonstration equipment.	Enrichment Sheet 2 assesses the use of dynamics demonstration equipment.
93	(2) Scientific processes.	See (2)(F)	(vi) demonstrate the use of course apparatus [and] equipment, including collision apparatus	TX2_US210308CD	Conservation of Momentum in One Dimension (TX2_US210308CD)	In Part 2 of the Activity Object, students are presented with a real-life representation of a collision (a basketball player on ice skates catching a basketball) as well as the real-life representation presented with apparatus and equipment. Also, at the end of Part 2 of the Activity Object, students observe a collision between two different blocks on a frictionless table.	
94	(2) Scientific processes.	See (2)(F)	(vi) demonstrate the use of course apparatus [and] equipment, including collision apparatus	TX2_US210308CD	Conservation of Momentum in One Dimension (TX2_US210308CD)	The Enrichment Sheet demonstrates the use of collision apparatus.	The Enrichment Sheet asks questions that require the student to demonstrate the use of collision apparatus.
95	(2) Scientific processes.	See (2)(F)	(vi) demonstrate the use of course apparatus [and] equipment, including collision apparatus	TX2_US210308CD	Conservation of Momentum in One Dimension (TX2_US210308CD)	The Investigation Sheet demonstrates the use of collision apparatus.	The Investigation Sheet asks questions that require the student to demonstrate the use of collision apparatus.
96	(2) Scientific processes.	See (2)(F)	(vii) demonstrate the use of course apparatus [and] equipment, including data acquisition probes	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	The Animation demonstrates the use of data acquisition probes.	
97	(2) Scientific processes.	See (2)(F)	(vii) demonstrate the use of course apparatus [and] equipment, including data acquisition probes	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	The Enrichment Sheet describes the use of data acquisition probes.	The Enrichment Sheet assesses the use of data acquisition probes.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
98	(2) Scientific processes.	See (2)(F)	(vii) demonstrate the use of course apparatus [and] equipment, including data acquisition probes	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	In Lab Sheet 1, Investigation 6 describes the use of data acquisition probes.	Q4 of Investigation 6 in Lab Sheet 1 assesses the use of data acquisition probes.
99	(2) Scientific processes.	See (2)(F)	(viii) demonstrate the use of course apparatus [and] equipment, including discharge tubes with power supply (H, He, Ne, Ar)	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	The Animation demonstrates the use of discharge tubes with a power supply.	The Question-Answer Sheet asks a question about the use of discharge tubes with a power supply.
100	(2) Scientific processes.	See (2)(F)	(viii) demonstrate the use of course apparatus [and] equipment, including discharge tubes with power supply (H, He, Ne, Ar)	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)		The Enrichment Sheet describes the use of discharge tubes with a power supply.
101	(2) Scientific processes.	See (2)(F)	(viii) demonstrate the use of course apparatus [and] equipment, including discharge tubes with power supply (H, He, Ne, Ar)	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	Lab Sheet 1 describes the use of discharge tubes with a power supply.	Q5 of Investigation 4 in Lab Sheet 1 assesses the use of discharge tubes with a power supply.
102	(2) Scientific processes.	See (2)(F)	(ix) demonstrate the use of course apparatus [and] equipment, including hand-held visual spectroscopes	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Animation demonstrates the use of hand-held visual spectroscopes.	The Question-Answer Sheet assesses the use of spectroscopes.
103	(2) Scientific processes.	See (2)(F)	(ix) demonstrate the use of course apparatus [and] equipment, including hand-held visual spectroscopes	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Enrichment Sheet describes the use of hand-held visual spectroscopes.	The Enrichment Sheet asks questions to assess the use of spectroscopes.
104	(2) Scientific processes.	See (2)(F)	(ix) demonstrate the use of course apparatus [and] equipment, including hand-held visual spectroscopes	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Lab Sheet describes the use of hand-held visual spectroscopes.	The Lab Sheet assesses the use of hand-held visual spectroscopes.
105	(2) Scientific processes.	See (2)(F)	(ix) demonstrate the use of course apparatus [and] equipment, including hand-held visual spectroscopes	TX2_US4201A20	The Wave Nature of Light (TX2_US4201A20)	The Lab Sheet describes the use of hand-held visual spectroscopes.	The Lab Sheet assesses the use of hand-held visual spectroscopes.
106	(2) Scientific processes.	See (2)(F)	(x) demonstrate the use of course apparatus [and] equipment, including hot plates	TX2_US440403CD	Specific Heat (TX2_US440403CD)	In Part 2 of the Activity Object, students use a hot plate to heat water to examine the relationships among temperature, mass, and temperature change.	
107	(2) Scientific processes.	See (2)(F)	(x) demonstrate the use of course apparatus [and] equipment, including hot plates	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	In Lab Sheet 1, Investigation 5 demonstrates the use of a hot plate.	Q8 of Investigation 5 in Lab Sheet 1 assesses the use of a hot plate.
108	(2) Scientific processes.	See (2)(F)	(x) demonstrate the use of course apparatus [and] equipment, including hot plates	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 1, Investigation 6 demonstrates the use of a hot plate.	Q1 of Investigation 6 in Lab Sheet 1 assesses the use of a hot plate.
109	(2) Scientific processes.	See (2)(F)	(xi) demonstrate the use of course apparatus [and] equipment, including slotted lab masses	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	In the Lab Sheet, Investigation 5 demonstrates the use of hooked or slotted lab masses.	Q16 of Investigation 5 in the Lab Sheet assesses the use of hooked/slotted lab masses.
110	(2) Scientific processes.	See (2)(F)	(xi) demonstrate the use of course apparatus [and] equipment, including slotted lab masses	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 2, Investigations 1 & 4 demonstrate the use of slotted lab masses.	Q1 of Investigation 1 in Lab Sheet 2 assesses the use of slotted lab masses.

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111	(2) Scientific processes.	See (2)(F)	(xii) demonstrate the use of course apparatus [and] equipment, including hooked lab masses	TX2_US210105XP	Balanced and Unbalanced Forces (TX2_US210105XP)	In Part 1 of the Activity Object, students are presented with, and interact with, a set of masses (scale weights) that are placed on a hook.	
112	(2) Scientific processes.	See (2)(F)	(xii) demonstrate the use of course apparatus [and] equipment, including hooked lab masses	TX2_US210105XP	Balanced and Unbalanced Forces (TX2_US210105XP)	In Part 2 of the Activity Object, students interact with a set of masses (scale weights) that are placed on a hook.	
113	(2) Scientific processes.	See (2)(F)	(xii) demonstrate the use of course apparatus [and] equipment, including hooked lab masses	TX2_US210105XP	Balanced and Unbalanced Forces (TX2_US210105XP)	In Part 3 of the Activity Object, students interact with a set of masses (scale weights) that are placed on a hook.	
114	(2) Scientific processes.	See (2)(F)	(xii) demonstrate the use of course apparatus [and] equipment, including hooked lab masses	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	In the Lab Sheet, Investigation 5 demonstrates the use of hooked or slotted masses.	Q16 in Investigation 5 of the Lab Sheet assesses the use of hooked/slotted lab masses.
115	(2) Scientific processes.	See (2)(F)	(xii) demonstrate the use of course apparatus [and] equipment, including hooked lab masses	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 1, Investigations 1 & 4 demonstrate the use of hooked lab masses.	Q1 of Investigation 1 in Lab Sheet 1 assesses the use of hooked lab masses.
116	(2) Scientific processes.	See (2)(F)	(xiii) demonstrate the use of course apparatus [and] equipment, including bar magnets	TX2_US230403CD	Magnetic Force on a Current-Carrying Wire (TX2_US230403CD)	Part 2 of the Activity Object demonstrates the use of a bar magnet.	
117	(2) Scientific processes.	See (2)(F)	(xiii) demonstrate the use of course apparatus [and] equipment, including bar magnets	TX2_US2304A02	Induced Current (TX2_US2304A02)	The Animation demonstrates the use of a bar magnet.	Q3 and Q5 of the Question-Answer Sheet assess the use of bar magnets.
118	(2) Scientific processes.	See (2)(F)	(xiii) demonstrate the use of course apparatus [and] equipment, including bar magnets	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	In Lab Sheet 2, Investigation 4 demonstrates the use of bar magnets.	Lab Sheet 2 assesses the use of bar magnets.
119	(2) Scientific processes.	See (2)(F)	(xiv) demonstrate the use of course apparatus [and] equipment, including horseshoe magnets	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	The Animation demonstrates the use of horseshoe magnets.	The Question-Answer Sheet asks a question about the use of horseshoe magnets.
120	(2) Scientific processes.	See (2)(F)	(xiv) demonstrate the use of course apparatus [and] equipment, including horseshoe magnets	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	The Enrichment Sheet describes the use of horseshoe magnets.	Q1 of the Enrichment Sheet assesses the use of horseshoe magnets.
121	(2) Scientific processes.	See (2)(F)	(xiv) demonstrate the use of course apparatus [and] equipment, including horseshoe magnets	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	In Lab Sheet 1, Investigation 3 demonstrates the use of horseshoe magnets.	Q18-Q19-Q20 of Investigation 3 in Lab Sheet 1 assesses the use of horseshoe magnets.
122	(2) Scientific processes.	See (2)(F)	(xiv) demonstrate the use of course apparatus [and] equipment, including horseshoe magnets	TX2_US230302CD	Designing an Electric Motor (TX2_US230302CD)	Part 1 of the Activity Object demonstrates the use of a horseshoe magnet in the design of an electric motor.	
123	(2) Scientific processes.	See (2)(F)	(xiv) demonstrate the use of course apparatus [and] equipment, including horseshoe magnets	TX2_US230302CD	Designing an Electric Motor (TX2_US230302CD)	Part 3 of the Activity Object demonstrates the use of a horseshoe magnet in the design of an electric motor.	
124	(2) Scientific processes.	See (2)(F)	(xv) demonstrate the use of course apparatus [and] equipment, including plane mirrors	TX2_US2403A02	Image Formation on Plane Mirror (TX2_US2403A02)	The Animation describes how images are formed on plane mirrors.	The Question-Answer Sheet asks a question about how images are formed on plane mirrors.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
125	(2) Scientific processes.	See (2)(F)	(xv) demonstrate the use of course apparatus [and] equipment, including plane mirrors	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	In the Lab Sheet, Investigation 2 demonstrates the use of a plane mirrors.	Q7 of Investigation 2 in the Lab Sheet assesses the use of a plane mirrors.
126	(2) Scientific processes.	See (2)(F)	(xv) demonstrate the use of course apparatus [and] equipment, including plane mirrors	TX2_US240306XP	Reflection of Light from Plane Mirrors (TX2_US240306XP)	Part 1 of the Activity Object provides a description of a plane mirror, and it also demonstrates how light reflects off of a plane mirror.	The Activity Sheet asks a question about plane mirrors.
127	(2) Scientific processes.	See (2)(F)	(xv) demonstrate the use of course apparatus [and] equipment, including plane mirrors	TX2_US240306XP	Reflection of Light from Plane Mirrors (TX2_US240306XP)	In Part 2 of the Activity Object, students complete an activity with a plane mirror, which demonstrates how light reflects off of a plane mirror.	
128	(2) Scientific processes.	See (2)(F)	(xvi) demonstrate the use of course apparatus [and] equipment, including convex lenses	TX2_US240303CD	Image Formation with Convex Lenses (TX2_US240303CD)	Part 1 of the Activity Object describes the properties of a convex lens, and demonstrates how it refracts light.	
129	(2) Scientific processes.	See (2)(F)	(xvi) demonstrate the use of course apparatus [and] equipment, including convex lenses	TX2_US240303CD	Image Formation with Convex Lenses (TX2_US240303CD)	In Part 2 of the Activity Object, students examine the refraction of light emanating from a laser pointing at different angles toward a convex lens.	
130	(2) Scientific processes.	See (2)(F)	(xvi) demonstrate the use of course apparatus [and] equipment, including convex lenses	TX2_US240303CD	Image Formation with Convex Lenses (TX2_US240303CD)	Part 5 of the Activity Object demonstrates various applications of a convex lens.	
131	(2) Scientific processes.	See (2)(F)	(xvi) demonstrate the use of course apparatus [and] equipment, including convex lenses	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Lab Sheet demonstrates the use of a convex lens.	The Lab Sheet assesses the use of a convex lens in investigations.
132	(2) Scientific processes.	See (2)(F)	(xvii) demonstrate the use of course apparatus [and] equipment, including pendulum support	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	The Animation demonstrates the use of a pendulum support.	The Question-Answer Sheet asks a question about the use of a pendulum support.
133	(2) Scientific processes.	See (2)(F)	(xvii) demonstrate the use of course apparatus [and] equipment, including pendulum support	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	Enrichment Sheet 2 demonstrates the use of a pendulum support.	Q5 of Enrichment Sheet 2 assesses the use of a pendulum support.
134	(2) Scientific processes.	See (2)(F)	(xviii) demonstrate the use of course apparatus [and] equipment, including power supply	TX2_US230402CD	Magnetic Field of a Current-Carrying Infinite Wire (TX2_US230402CD)	Part 2 of the Activity Object demonstrates the use of a power supply in an investigation of the relationship between electricity and magnetism.	The Activity Sheet assesses the use of power supplies as carried out in the investigation in the Activity Object.
135	(2) Scientific processes.	See (2)(F)	(xviii) demonstrate the use of course apparatus [and] equipment, including power supply	TX2_US230402CD	Magnetic Field of a Current-Carrying Infinite Wire (TX2_US230402CD)	Part 4 of the Activity Object demonstrates the use of a power supply in an investigation of the relationship between electricity and magnetism. In one investigation, students manipulate the amount of current from a power supply.	
136	(2) Scientific processes.	See (2)(F)	(xviii) demonstrate the use of course apparatus [and] equipment, including power supply	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	In the Lab Sheet, Investigation 1 demonstrates the use of a power supply.	Q5 of Investigation 1 in the Lab Sheet assesses the use of a power supply.
137	(2) Scientific processes.	See (2)(F)	(xviii) demonstrate the use of course apparatus [and] equipment, including power supply	TX2_US230302CD	Designing an Electric Motor (TX2_US230302CD)	Part 1 of the Activity Object describes how a battery (a power supply) operates in an electric motor.	
138	(2) Scientific processes.	See (2)(F)	(xviii) demonstrate the use of course apparatus [and] equipment, including power supply	TX2_US230302CD	Designing an Electric Motor (TX2_US230302CD)	Part 3 of the Activity Object describes how a battery (a power supply) operates in an electric motor.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
139	(2) Scientific processes.	See (2)(F)	(xix) demonstrate the use of course apparatus [and] equipment, including ring clamps	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	In the Lab Sheet, Investigation 1 teaches the use of ring clamps.	Q7 of Investigation 1 in the Lab Sheet assesses the use of ring clamps.
140	(2) Scientific processes.	See (2)(F)	(xix) demonstrate the use of course apparatus [and] equipment, including ring clamps	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 1, Investigation 1 demonstrates the use of ring clamps.	Q4 of Investigation 1 in Lab Sheet 1 assesses the use of ring clamps.
141	(2) Scientific processes.	See (2)(F)	(xx) demonstrate the use of course apparatus [and] equipment, including ring stands	TX2_US450207CD	Separation of Mixtures (TX2_US450207CD)	In Part 4 of the Activity Object, students are presented with pictures of pieces of equipment, including the typical use of ring stands.	
142	(2) Scientific processes.	See (2)(F)	(xx) demonstrate the use of course apparatus [and] equipment, including ring stands	TX2_US450102CD	Separation Methods: Density Difference (TX2_US450102CD)	After selecting the beaker and separation funnel in the second section of Part 2 of the Activity Object, a ring stand is used as part of a support for the two pieces of equipment.	
143	(2) Scientific processes.	See (2)(F)	(xx) demonstrate the use of course apparatus [and] equipment, including ring stands	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	In the Lab Sheet, Investigation 1 teaches the use of ring stands.	Q7 of Investigation 1 in the Lab Sheet assesses the use of ring stands.
144	(2) Scientific processes.	See (2)(F)	(xx) demonstrate the use of course apparatus [and] equipment, including ring stands	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 1, Investigation 1 demonstrates the use of a ring stand.	Q3 of Investigation 1 in Lab Sheet 1 assesses the use of a ring stand.
145	(2) Scientific processes.	See (2)(F)	(xx) demonstrate the use of course apparatus [and] equipment, including ring stands	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	In the Lab Sheet, Investigations 2 & 4 demonstrate the use of a ring stand.	
146	(2) Scientific processes.	See (2)(F)	(xxi) demonstrate the use of course apparatus [and] equipment, including stopwatches	TX2_US2102A08	Uniform Circular Motion I: An Overview (TX2_US2102A08)	The Animation demonstrates the use of a stop watch to measure a time interval of a period.	
147	(2) Scientific processes.	See (2)(F)	(xxi) demonstrate the use of course apparatus [and] equipment, including stopwatches	TX2_US2102A03	Velocity-Time Graph of One Dimensional Motion and Displacement (TX2_US2102A03)	The Animation demonstrates the use of a stopwatch.	
148	(2) Scientific processes.	See (2)(F)	(xxi) demonstrate the use of course apparatus [and] equipment, including stopwatches	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 2, Investigation 1 demonstrates the use of a stopwatch.	Q5 of Investigation 1 in Lab Sheet 2 assesses the use of a stopwatch.
149	(2) Scientific processes.	See (2)(F)	(xxi) demonstrate the use of course apparatus [and] equipment, including stopwatches	TX2_US210215CD	Projectiles launched Vertically (TX2_US210215CD)	The Investigation Sheet teaches the use of stopwatches.	Q5 of the Investigation Sheet assesses the use of stopwatches.
150	(2) Scientific processes.	See (2)(F)	(xxi) demonstrate the use of course apparatus [and] equipment, including stopwatches	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Enrichment Sheet 2 demonstrates the use of a stopwatch.	Q17 of Enrichment Sheet 2 assesses the use of a stopwatch.
151	(2) Scientific processes.	See (2)(F)	(xxii) demonstrate the use of course apparatus [and] equipment, including trajectory apparatus	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	The Animation demonstrates the use of trajectory apparatus.	Q5 of the Question-Answer Sheet assesses the use of trajectory apparatus.
152	(2) Scientific processes.	See (2)(F)	(xxii) demonstrate the use of course apparatus [and] equipment, including trajectory apparatus	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Enrichment Sheet 2 teaches the use of trajectory apparatus.	Q12 of Enrichment Sheet 2 assesses the use of trajectory apparatus.
153	(2) Scientific processes.	See (2)(F)	(xxii) demonstrate the use of course apparatus [and] equipment, including trajectory apparatus	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 2, Investigation 2 teaches the use of trajectory apparatus.	Q1 of Investigation 2 of Lab Sheet 2 assesses the use of trajectory apparatus.

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154	(2) Scientific processes.	See (2)(F)	(xxiii) demonstrate the use of course apparatus [and] equipment, including tuning forks	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	The Animation demonstrates the use of tuning forks.	Q3 of the Question-Answer Sheet assesses the use of tuning forks.
155	(2) Scientific processes.	See (2)(F)	(xxiii) demonstrate the use of course apparatus [and] equipment, including tuning forks	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	Enrichment Sheet 1 teaches the use of tuning forks.	
156	(2) Scientific processes.	See (2)(F)	(xxiii) demonstrate the use of course apparatus [and] equipment, including tuning forks	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	In the Lab Sheet, Investigation 2 demonstrates the use of tuning forks.	Q9 of Investigation 2 in the Lab Sheet assesses the use of tuning forks.
157	(2) Scientific processes.	See (2)(F)	(xxiv) demonstrate the use of course apparatus [and] equipment, including carbon paper	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	The Animation demonstrates the use of carbon paper.	The Question-Answer Sheet contains a question that assesses the use of carbon paper.
158	(2) Scientific processes.	See (2)(F)	(xxiv) demonstrate the use of course apparatus [and] equipment, including carbon paper	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Enrichment Sheet 1 explains the use of carbon paper.	Q1 of Enrichment Sheet 1 assesses the use of carbon paper.
159	(2) Scientific processes.	See (2)(F)	(xxiv) demonstrate the use of course apparatus [and] equipment, including carbon paper	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 1, Investigation 2 teaches the use of carbon paper.	Q3 of Investigation 2 in Lab Sheet 1 assesses the use of carbon paper.
160	(2) Scientific processes.	See (2)(F)	(xxv) demonstrate the use of course apparatus [and] equipment, including graph paper	TX2_US240302CD	Image Formation with Concave Mirrors (TX2_US240302CD)		In the Activity Sheet, students demonstrate the use of graph paper by responding to a variety of questions on the physics of concave mirrors that require the use of graph paper.
161	(2) Scientific processes.	See (2)(F)	(xxv) demonstrate the use of course apparatus [and] equipment, including graph paper	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	At the very end of Part 1 of the Activity Object, several graphs are presented on graph paper to represent several aspects of projectile motion, including velocity, acceleration, position, and time. In Part 2 of the Activity Object, graph paper is used in several places to examine aspects of projectile motion, including time, velocity, and change in velocity (acceleration).	
162	(2) Scientific processes.	See (2)(F)	(xxv) demonstrate the use of course apparatus [and] equipment, including graph paper	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 3 of the Activity Object, graph paper is used in several places to examine aspects of projectile motion, including time, velocity, and position.	
163	(2) Scientific processes.	See (2)(F)	(xxv) demonstrate the use of course apparatus [and] equipment, including graph paper	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 4 of the Activity Object, several graphs are presented on graph paper to represent several aspects of projectile motion.	In the Activity Sheet, students must answer questions about the use of graph paper.
164	(2) Scientific processes.	See (2)(F)	(xxvi) demonstrate the use of course apparatus [and] equipment, including magnetic compasses	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 1, Investigation 5 demonstrates the use of a magnetic compass.	Q1 of Investigation 5 in Lab Sheet 1 assesses the use of a magnetic compass.
165	(2) Scientific processes.	See (2)(F)	(xxvi) demonstrate the use of course apparatus [and] equipment, including magnetic compasses	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	In Lab Sheet 1, Investigation 1 demonstrates the use of a magnetic compass.	Q12 of Investigation 1 in Lab Sheet 1 assesses the use of a magnetic compass.
166	(2) Scientific processes.	See (2)(F)	(xxvi) demonstrate the use of course apparatus [and] equipment, including magnetic compasses	TX2_US230402CD	Magnetic Field of a Current-Carrying Infinite Wire (TX2_US230402CD)	Part 1 of the Activity Object describes aspects of a magnetic compass and uses a compass to describe the discovery of the relationship between electricity and magnetism.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
167	(2) Scientific processes.	See (2)(F)	(xxvi) demonstrate the use of course apparatus [and] equipment, including magnetic compasses	TX2_US230402CD	Magnetic Field of a Current-Carrying Infinite Wire (TX2_US230402CD)	After the initial animation sequence in Part 2 of the Activity Object, compasses are used to investigate the relationship between electricity and magnetism.	
168	(2) Scientific processes.	See (2)(F)	(xxvi) demonstrate the use of course apparatus [and] equipment, including magnetic compasses	TX2_US230402CD	Magnetic Field of a Current-Carrying Infinite Wire (TX2_US230402CD)	Part 3 of the Activity Object describes the relationship between electricity and magnetism, and incorporates a compass into this description.	
169	(2) Scientific processes.	See (2)(F)	(xxvi) demonstrate the use of course apparatus [and] equipment, including magnetic compasses	TX2_US230402CD	Magnetic Field of a Current-Carrying Infinite Wire (TX2_US230402CD)	In Part 5 of the Activity Object, compasses are used to investigate the relationship between electricity and magnetism.	
170	(2) Scientific processes.	See (2)(F)	(xxvi) demonstrate the use of course apparatus [and] equipment, including magnetic compasses	TX2_US230403CD	Magnetic Force on a Current-Carrying Wire (TX2_US230403CD)	Part 1 of the Activity Object describes how a magnetic compass led to the discovery of the relationship between electricity and magnetism.	
171	(2) Scientific processes.	See (2)(F)	(xxvii) demonstrate the use of course apparatus [and] equipment, including polarized film	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Animation demonstrates the use of polarized film.	
172	(2) Scientific processes.	See (2)(F)	(xxvii) demonstrate the use of course apparatus [and] equipment, including polarized film	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Enrichment Sheet explains the use of polarizing film.	The Enrichment Sheet asks questions that assess the use of polarizing film.
173	(2) Scientific processes.	See (2)(F)	(xxvii) demonstrate the use of course apparatus [and] equipment, including polarized film	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Lab Sheet explains the use of polarizing film.	Q8 and Q9 of the Lab Sheet assess the use of polarizing film.
174	(2) Scientific processes.	See (2)(F)	(xxviii) demonstrate the use of course apparatus [and] equipment, including prisms	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Animation demonstrates the use of prisms.	The Question-Answer Sheet assesses the use of prisms.
175	(2) Scientific processes.	See (2)(F)	(xxviii) demonstrate the use of course apparatus [and] equipment, including prisms	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Enrichment Sheet explains the use of prisms.	The Enrichment Sheet assesses the use of prisms.
176	(2) Scientific processes.	See (2)(F)	(xxviii) demonstrate the use of course apparatus [and] equipment, including prisms	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	In the Lab Sheet, Investigation 1 teaches the use of prisms.	Q1 of Investigation 1 in the Lab Sheet assesses the use of prisms.
177	(2) Scientific processes.	See (2)(F)	(xxix) demonstrate the use of course apparatus [and] equipment, including protractors	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Animation demonstrates the use of protractors.	The Question-Answer Sheet asks a question about the use of protractors.
178	(2) Scientific processes.	See (2)(F)	(xxix) demonstrate the use of course apparatus [and] equipment, including protractors	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Enrichment Sheet demonstrates the use of protractors.	Q7 in the Enrichment Sheet assesses the use of protractors.
179	(2) Scientific processes.	See (2)(F)	(xxix) demonstrate the use of course apparatus [and] equipment, including protractors	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 1, Investigation 2 demonstrates the use of protractors.	Q2 of Investigation 2 in Lab Sheet 1 assesses the use of protractors.
180	(2) Scientific processes.	See (2)(F)	(xxx) demonstrate the use of course apparatus [and] equipment, including resistors	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	In Part 1 of the Activity Object, students are presented with a summary of the application of Ohm's law on a circuit, which includes the influence of a resistor on the voltage, current, and resistance.	The Activity Sheet assesses the use of resistors.

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181	(2) Scientific processes.	See (2)(F)	(xxx) demonstrate the use of course apparatus [and] equipment, including resistors	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	In Part 2 of the Activity Object, students use a voltmeter and ammeter to measure the current and voltage. Students also calculate the resistance of circuits with one or more resistors.	
182	(2) Scientific processes.	See (2)(F)	(xxx) demonstrate the use of course apparatus [and] equipment, including resistors	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	In Part 3 of the Activity Object, students are presented with a summary of the application of Ohm's law on a circuit, which includes the influence of a resistor on the voltage, current, and resistance.	
183	(2) Scientific processes.	See (2)(F)	(xxx) demonstrate the use of course apparatus [and] equipment, including resistors	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	The Animation teaches the use of resistors.	The Question-Answer Sheet asks a question that assesses the use of resistors.
184	(2) Scientific processes.	See (2)(F)	(xxxi) demonstrate the use of course apparatus [and] equipment, including friction blocks	TX2_US210109CD	Friction (TX2_US210109CD)	Part 1 of the Activity Object uses a friction block to demonstrate properties of friction.	
185	(2) Scientific processes.	See (2)(F)	(xxxi) demonstrate the use of course apparatus [and] equipment, including friction blocks	TX2_US210109CD	Friction (TX2_US210109CD)	Part 2 of the Activity Object uses a friction block to demonstrate properties of friction.	
186	(2) Scientific processes.	See (2)(F)	(xxxi) demonstrate the use of course apparatus [and] equipment, including friction blocks	TX2_US210109CD	Friction (TX2_US210109CD)	Part 3 of the Activity Object uses a friction block to demonstrate properties of friction.	
187	(2) Scientific processes.	See (2)(F)	(xxxi) demonstrate the use of course apparatus [and] equipment, including friction blocks	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Lab Sheet 1 demonstrates the use of friction blocks.	Lab Sheet 1 assesses the use of friction blocks.
188	(2) Scientific processes.	See (2)(F)	(xxxi) demonstrate the use of course apparatus [and] equipment, including friction blocks	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	The Lab Sheet demonstrates the use of friction blocks.	
189	(2) Scientific processes.	See (2)(F)	(xxxi) demonstrate the use of course apparatus [and] equipment, including friction blocks	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)		Q1 of the Lab Sheet assesses the use of friction blocks.
190	(2) Scientific processes.	See (2)(F)	(xxxii) demonstrate the use of course apparatus [and] equipment, including mini lamps (bulbs) and sockets	TX2_US230207CD	Building Circuits: Light Bulbs in Series (TX2_US230207CD)	In the Activity Object, students utilize apparatus and equipment, including mini lamps (bulbs) and a socket, to construct a circuit in series.	In the Activity Sheet, students answer questions about apparatus and equipment, including questions involving mini lamps (bulbs) and sockets.
191	(2) Scientific processes.	See (2)(F)	(xxxii) demonstrate the use of course apparatus [and] equipment, including mini lamps (bulbs) and sockets	TX2_US230208CD	Building Circuits: Light Bulbs in Parallel (TX2_US230208CD)	In the Activity Object, students utilize apparatus and equipment, including mini lamps (bulbs) and a socket, to construct a circuit in parallel.	In the Activity Sheet, students answer questions about apparatus and equipment, including questions involving mini lamps (bulbs) and sockets.
192	(2) Scientific processes.	See (2)(F)	(xxxiii) demonstrate the use of course apparatus [and] equipment, including electrostatics kits	TX2_US2301A14	Using Electrostatic Kits (TX2_US2301A14)	The Animation describes the use of electrostatics kits.	The Question-Answer Sheet asks a question about the use of electrostatics kits.
193	(2) Scientific processes.	See (2)(F)	(xxxiii) demonstrate the use of course apparatus [and] equipment, including electrostatics kits	TX2_US2301A14	Using Electrostatic Kits (TX2_US2301A14)	The Enrichment Sheet describes the use of electrostatics kits.	Q1 of the Enrichment Sheet assesses the use of electrostatics kits.
194	(2) Scientific processes.	See (2)(F)	(xxxiv) demonstrate the use of course apparatus [and] equipment, including 90-degree rod clamps	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	The Animation demonstrates the use of 90-degree rod clamps.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
195	(2) Scientific processes.	See (2)(F)	(xxxiv) demonstrate the use of course apparatus [and] equipment, including 90-degree rod clamps	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 1, Investigations 1 & 4 teach the use of 90- degree rod clamps.	Q7 of Lab Sheet 1 assesses the use of 90-degree rod clamps.
196	(2) Scientific processes.	See (2)(F)	(xxxiv) demonstrate the use of course apparatus [and] equipment, including 90-degree rod clamps	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Enrichment Sheet 2 teaches the use of 90-degree rod clamps.	Q9 of Enrichment Sheet 2 assesses the use of 90-degree rod clamps.
197	(2) Scientific processes.	See (2)(F)	(xxxv) demonstrate the use of course apparatus [and] equipment, including metric rulers	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	The Animation demonstrates the use of metric rulers.	
198	(2) Scientific processes.	See (2)(F)	(xxxv) demonstrate the use of course apparatus [and] equipment, including metric rulers	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Enrichment Sheet 1 describes the use of metric rulers.	Enrichment Sheet 1 assesses the use of metric rulers.
199	(2) Scientific processes.	See (2)(F)	(xxxv) demonstrate the use of course apparatus [and] equipment, including metric rulers	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	In the Lab Sheet, Investigation 1 involves the use of metric rulers.	Q8 of the Lab Sheet assesses the use metric rulers.
200	(2) Scientific processes.	See (2)(F)	(xxxvi) demonstrate the use of course apparatus [and] equipment, including spring scales	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	The Activity Object uses a spring scale in an investigation.	
201	(2) Scientific processes.	See (2)(F)	(xxxvi) demonstrate the use of course apparatus [and] equipment, including spring scales	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)		Q3 of the Activity Sheet assesses the use of spring scales.
202	(2) Scientific processes.	See (2)(F)	(xxxvi) demonstrate the use of course apparatus [and] equipment, including spring scales	TX2_US210112XP	Buoyancy and Archimedes' Principle (TX2_US210112XP)	Part 1 of the Activity Object demonstrates the use of a spring scale.	Q2 of the Activity Sheet assesses the use of spring scales.
203	(2) Scientific processes.	See (2)(F)	(xxxvi) demonstrate the use of course apparatus [and] equipment, including spring scales	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 2, Investigation 4 describes the use of spring scales.	Q1 of Investigation 4 in Lab Sheet 2 assesses the use of spring scales.
204	(2) Scientific processes.	See (2)(F)	(xxxvi) demonstrate the use of course apparatus [and] equipment, including spring scales	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Enrichment Sheet 2 describes spring scales.	Q21 of Enrichment Sheet 2 assesses the use of spring scales.
205	(2) Scientific processes.	See (2)(F)	(xxxvii) demonstrate the use of course apparatus [and] equipment, including knife blade switches	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	In the "Background Information" section of Lab Sheet 2, the use of knife blade switches is explained.	Q1 of Investigation 1 in the "Implement the Investigation" section of Lab Sheet 2 assesses the use of knife blade switches.
206	(2) Scientific processes.	See (2)(F)	(xxxvii) demonstrate the use of course apparatus [and] equipment, including knife blade switches	TX2_US230207CD	Building Circuits: Light Bulbs in Series (TX2_US230207CD)	The Activity Object demonstrates the use of knife blade switches on a circuit board.	Q3 of the Activity Sheet assesses the use of knife blade switches.
207	(2) Scientific processes.	See (2)(F)	(xxxvii) demonstrate the use of course apparatus [and] equipment, including knife blade switches	TX2_US230208CD	Building Circuits: Light Bulbs in Parallel (TX2_US230208CD)	The Activity Object demonstrates the use of knife blade switches on a circuit board.	Q3 of the Activity Sheet assesses the use of knife blade switches.
208	(2) Scientific processes.	See (2)(F)	(xxxviii) demonstrate the use of course apparatus [and] equipment, including Celsius thermometers	TX2_US440403CD	Specific Heat (TX2_US440403CD)	In Part 2 of the Activity Object, students use a Celsius thermometer to measure the temperature of water after heating it on a hot plate.	The Activity Sheet assesses the use of Celsius thermometers.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
209	(2) Scientific processes.	See (2)(F)	(xxxviii) demonstrate the use of course apparatus [and] equipment, including Celsius thermometers	TX2_US440403CD	Specific Heat (TX2_US440403CD)	In Part 4 of the Activity Object, students use a Celsius thermometer to measure the temperature of two different substances (water and oil) after heating them on a hot plate.	In Section 2 of the Activity Object, the correct use of the thermometer is assessed by the Activity Object software. Students receive feedback as to whether they are using the thermometer correctly as they are led through the exercises.
210	(2) Scientific processes.	See (2)(F)	(xxxviii) demonstrate the use of course apparatus [and] equipment, including Celsius thermometers	TX2_US440403CD	Specific Heat (TX2_US440403CD)	In Part 5 of the Activity Object, students use a Celsius thermometer to measure the temperature of two different phases of the same substances (water and ice) after heating them on a hot plate.	
211	(2) Scientific processes.	See (2)(F)	(xxxviii) demonstrate the use of course apparatus [and] equipment, including Celsius thermometers	TX2_US240101XP	Light Intensity and Distance from the Source (TX2_US240101XP)	Part 3 of the Activity Object demonstrates the use of Celsius thermometers.	The Activity Sheet asks a question about the use of Celsius thermometers.
212	(2) Scientific processes.	See (2)(F)	(xxxix) demonstrate the use of course apparatus [and] equipment, including meter sticks	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	The Animation demonstrates the use of meter sticks.	The Question-Answer Sheet asks a question about the use of meter sticks.
213	(2) Scientific processes.	See (2)(F)	(xxxix) demonstrate the use of course apparatus [and] equipment, including meter sticks	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Lab Sheet 1 describes the use of meter sticks.	Q4 of Investigation 2 in Lab Sheet 1 assesses the use of meter sticks.
214	(2) Scientific processes.	See (2)(F)	(xxxix) demonstrate the use of course apparatus [and] equipment, including meter sticks	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	In the Lab Sheet, Investigation 4 demonstrates the use of a meter stick.	
215	(2) Scientific processes.	See (2)(F)	(xxxix) demonstrate the use of course apparatus [and] equipment, including meter sticks	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	In the Lab Sheet, Investigations 1,3 & 5 demonstrate the use of a meter stick.	Q16 of the Lab Sheet assesses the use of a meter stick.
216	(2) Scientific processes.	See (2)(F)	(xl) demonstrate the use of course apparatus [and] equipment, including scientific calculators	TX2_US2102A12	Graphing Calculators (TX2_US2102A12)	The Enrichment Sheet describes the use of a scientific calculator.	
217	(2) Scientific processes.	See (2)(F)	(xl) demonstrate the use of course apparatus [and] equipment, including scientific calculators	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)		Q5 of the "Implement the Investigation" section of the Lab Sheet asks a question that assesses the use of scientific calculators.
218	(2) Scientific processes.	See (2)(F)	(xl) demonstrate the use of course apparatus [and] equipment, including scientific calculators	TX2_US2102A12	Graphing Calculators (TX2_US2102A12)	The Animation demonstrates the use of a graphing calculator, which is a type of scientific calculator.	The Question-Answer Sheet asks a question about the use of a graphing calculator, which is a type of scientific calculator.
219	(2) Scientific processes.	See (2)(F)	(xli) demonstrate the use of course apparatus [and] equipment, including graphing technology	TX2_US2102A12	Graphing Calculators (TX2_US2102A12)	The Animation demonstrates the use of a graphing calculator.	The Question-Answer Sheet asks a question about the use of a graphing calculator.
220	(2) Scientific processes.	See (2)(F)	(xli) demonstrate the use of course apparatus [and] equipment, including graphing technology	TX2_US2102A12	Graphing Calculators (TX2_US2102A12)	The Enrichment Sheet describes the use of a graphing calculator.	
221	(2) Scientific processes.	See (2)(F)	(xli) demonstrate the use of course apparatus [and] equipment, including graphing technology	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	In Lab Sheet 1, Investigations 2 & 5 demonstrate the use of graphing technology.	Q2 and Q3 of Investigation 2 in Lab Sheet 1 assess the use of graphing technology

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222	(2) Scientific processes.	See (2)(F)	(xlii) demonstrate the use of course apparatus [and] equipment, including computers	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Enrichment Sheet 2 describes the use of computers.	Q10 of Enrichment Sheet 2 assesses the use of computers.
223	(2) Scientific processes.	See (2)(F)	(xlii) demonstrate the use of course apparatus [and] equipment, including computers	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)		Q9 of Enrichment Sheet 1 assesses the use of computers.
224	(2) Scientific processes.	See (2)(F)	(xlii) demonstrate the use of course apparatus [and] equipment, including computers	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	The Enrichment Sheet describes the use of computers.	Q10 of the Enrichment Sheet assesses the use of computers.
225	(2) Scientific processes.	See (2)(F)	(xlii) demonstrate the use of course apparatus [and] equipment, including computers	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Enrichment Sheet describes the use of computers.	Q8 of the Enrichment Sheet assesses the use of computers.
226	(2) Scientific processes.	See (2)(F)	(xliii) demonstrate the use of course apparatus [and] equipment, including cathode ray tubes with horseshoe magnets	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	The Animation demonstrates the use of horseshoe magnets with cathode ray tubes.	Q5 of the Question-Answer Sheet assesses the use of horseshoe magnets with cathode ray tubes.
227	(2) Scientific processes.	See (2)(F)	(xliii) demonstrate the use of course apparatus [and] equipment, including cathode ray tubes with horseshoe magnets	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	The Enrichment Sheet describes the use of cathode ray tubes with horseshoe magnets.	Q9 of the Enrichment Sheet assesses the use of horseshoe magnets with cathode ray tubes.
228	(2) Scientific processes.	See (2)(F)	(xliii) demonstrate the use of course apparatus [and] equipment, including cathode ray tubes with horseshoe magnets	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	In Lab Sheet 1, Investigation 6 demonstrates the use of cathode ray tubes with horseshoe magnets.	Q1 of Investigation 6 in the "Implement the Investigation" section of Lab Sheet 1 assesses the use of cathode ray tubes with horseshoe magnets.
229	(2) Scientific processes.	See (2)(F)	(xliv) demonstrate the use of course apparatus [and] equipment, including ballistic carts or equivalent	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Lab Sheet 2 demonstrates the use of ballistics carts.	Q1 of Investigation 7 in Lab Sheet 2 assesses the use of ballistics carts.
230	(2) Scientific processes.	See (2)(F)	(xliv) demonstrate the use of course apparatus [and] equipment, including ballistic carts or equivalent	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Enrichment Sheet 2 demonstrates the use of ballistics carts.	Q15 in Enrichment Sheet 2 assesses the use of ballistics carts.
231	(2) Scientific processes.	See (2)(F)	(xliv) demonstrate the use of course apparatus [and] equipment, including ballistic carts or equivalent	TX2_US210215CD	Projectiles Launched Vertically (TX2_US210215CD)	The Investigation Sheet demonstrates the use of ballistics carts.	In the Investigation Sheet, Q2 of the "Plan and Design Section," and Q1 of the "Implement" section, assess the use of ballistics carts.
232	(2) Scientific processes.	See (2)(F)	(xlv) demonstrate the use of course apparatus [and] equipment, including resonance tubes	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	The Animation demonstrates the use of resonance tubes.	
233	(2) Scientific processes.	See (2)(F)	(xlv) demonstrate the use of course apparatus [and] equipment, including resonance tubes	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	Enrichment Sheet 1 demonstrates the use of resonance tubes.	
234	(2) Scientific processes.	See (2)(F)	(xlv) demonstrate the use of course apparatus [and] equipment, including resonance tubes	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	In the Lab Sheet, Investigation 3 demonstrates the use of resonance tubes.	Q10-Q11-Q12 of Investigation 3 in the Lab Sheet assess the use of resonance tubes.

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235	(2) Scientific processes.	See (2)(F)	(xlvi) demonstrate the use of course apparatus [and] equipment, including spools of nylon thread or string	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Lab Sheet 1 demonstrates the use of spools of nylon thread.	Q3 of Investigation 1 in the "Implement the Investigation" section of Lab Sheet 1 assess the use of nylon string.
236	(2) Scientific processes.	See (2)(F)	(xlvi) demonstrate the use of course apparatus [and] equipment, including spools of nylon thread or string	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Lab Sheet 2 demonstrates the use of spools of nylon thread.	Q3 of Investigation 1 in the "Implement the Investigation" section of Lab Sheet 2 assesses the use of string.
237	(2) Scientific processes.	See (2)(F)	(xlvi) demonstrate the use of course apparatus [and] equipment, including spools of nylon thread or string	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	In the Lab Sheet, Investigation 5 demonstrates the use of spools of nylon thread.	Q16 of Investigation 5 in the Lab Sheet demonstrates the use of spools of nylon thread.
238	(2) Scientific processes.	See (2)(F)	(xlvii) demonstrate the use of course apparatus [and] equipment, including containers of iron filings	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)		In Investigation 4 of Lab Sheet 2, students are asked about the use of iron filings.
239	(2) Scientific processes.	See (2)(F)	(xlvii) demonstrate the use of course apparatus [and] equipment, including containers of iron filings	TX2_US230402CD	Magnetic Field of a Current-Carrying Infinite Wire (TX2_US230402CD)	Part 1 of the Activity Object demonstrates a use of iron filings that involves magnets.	Q2 of the Activity Sheet assesses the use of iron filings, as it relates to magnets.
240	(2) Scientific processes.	See (2)(F)	(xlvii) demonstrate the use of course apparatus [and] equipment, including containers of iron filings	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	The Enrichment Sheet teaches the use of iron filings with magnets.	Q11 of the Enrichment Sheet assesses the use of iron filings, as it relates to magnets..
241	(2) Scientific processes.	See (2)(F)	(xlviii) demonstrate the use of course apparatus [and] equipment, including rolls of white craft paper	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	The Animation demonstrates the use of rolls of white craft paper.	Q5 of the Question-Answer Sheet assesses the use of white craft paper.
242	(2) Scientific processes.	See (2)(F)	(xlviii) demonstrate the use of course apparatus [and] equipment, including rolls of white craft paper	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 1, Investigation 3 demonstrates the use of white craft paper.	Q2 of Investigation 3 in Lab Sheet 1 assesses the use of white craft paper.
243	(2) Scientific processes.	See (2)(F)	(xlix) demonstrate the use of course apparatus [and] equipment, including copper wire	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	In Lab Sheet 2, Investigation 4 involves copper wire.	Q5 in the "Plan the Investigation" section of Lab Sheet 2 assesses the use of copper wire.
244	(2) Scientific processes.	See (2)(F)	(xlix) demonstrate the use of course apparatus [and] equipment, including copper wire	TX2_US230207CD	Building Circuits: Light Bulbs in Series (TX2_US230207CD)	In the Activity Object, students use wire to construct circuits in series on a circuit board.	Q4 of the Activity Sheet assesses the use of copper wire.
245	(2) Scientific processes.	See (2)(F)	(xlix) demonstrate the use of course apparatus [and] equipment, including copper wire	TX2_US230208CD	Building Circuits: Light Bulbs in Parallel (TX2_US230208CD)	In the Activity Object, students use wire to construct circuits in series on a circuit board.	Q4 of the Activity Sheet assesses the use of copper wire.
246	(2) Scientific processes.	See (2)(F)	(xlix) demonstrate the use of course apparatus [and] equipment, including copper wire	TX2_US4204A08	Properties of d-Block Elements (TX2_US4204A08)	The Animation discusses copper wire in a review of the physical and chemical behaviors of d-block elements.	
247	(2) Scientific processes.	See (2)(F)	(l) demonstrate the use of course apparatus [and] equipment, including [the] Periodic Table	TX2_US4204A02	Trends in Metallic and Nonmetallic Properties in the Periodic Table (TX2_US4204A02)	The Animation demonstrates uses of the Periodic Table of Elements.	
248	(2) Scientific processes.	See (2)(F)	(l) demonstrate the use of course apparatus [and] equipment, including [the] Periodic Table	TX2_US420401CD	Atomic Radius in the Periodic Table (TX2_US420401CD)	Part 2 of the Activity Object demonstrates the use of the Periodic Table of Elements.	

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249	(2) Scientific processes.	See (2)(F)	(I) demonstrate the use of course apparatus [and] equipment, including [the] Periodic Table	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)	Lab Sheet 2 involves an investigation using the Periodic Table of Elements.	Q7 of Investigation 5 of Lab Sheet 2 assesses the use of the Periodic Table of Elements.
250	(2) Scientific processes.	See (2)(F)	(I) demonstrate the use of course apparatus [and] equipment, including [the] Periodic Table	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)		Q5 of the Enrichment Sheet assesses the use of the Periodic Table of Elements.
251	(2) Scientific processes.	See (2)(F)	(I) demonstrate the use of course apparatus [and] equipment, including [the] Periodic Table	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)		Q3 of Investigation 1 in the Lab Sheet assesses the correct use of the Periodic Table of Elements.
252	(2) Scientific processes.	See (2)(F)	(Ii) demonstrate the use of course apparatus [and] equipment, including electromagnetic spectrum charts	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	In the Lab Sheet, Investigation 1 involves the use of an electromagnetic spectrum chart.	Q1 of Investigation 1 in the Lab Sheet assesses the use of an electromagnetic spectrum chart.
253	(2) Scientific processes.	See (2)(F)	(Ii) demonstrate the use of course apparatus [and] equipment, including electromagnetic spectrum charts	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Lab Sheet involves the use of an electromagnetic spectrum chart.	
254	(2) Scientific processes.	See (2)(F)	(Ii) demonstrate the use of course apparatus [and] equipment, including electromagnetic spectrum charts	TX2_US4201A20	The Wave Nature of Light (TX2_US4201A20)	The Animation presents a chart of the electromagnetic spectrum and uses it to describe properties of light.	Q10 of the Lab Sheet assesses the use of electromagnetic spectrum charts.
255	(2) Scientific processes.	See (2)(F)	(Ii) demonstrate the use of course apparatus [and] equipment, including electromagnetic spectrum charts	TX2_US4201A16	Frequency, Wavelength, and Energy (TX2_US4201A16)	The Animation demonstrates the use of an electromagnetic spectrum chart.	
256	(2) Scientific processes.	See (2)(F)	(Ii) demonstrate the use of course apparatus [and] equipment, including electromagnetic spectrum charts	TX2_US420106CD	Electromagnetic Spectrum (TX2_US420106CD)	Part 1 and Part 3 of the Activity Object demonstrate the use of an electromagnetic spectrum chart.	
257	(2) Scientific processes.	See (2)(F)	(Ii) demonstrate the use of course apparatus [and] equipment, including electromagnetic spectrum charts	TX2_US4201A03	Beam Types in Electromagnetic Spectrum (TX2_US4201A03)	The Animation demonstrates the use of an electromagnetic spectrum chart.	
258	(2) Scientific processes.	See (2)(F)	(Iii) demonstrate the use of course apparatus [and] equipment, including slinky springs	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	The Animation demonstrates the use of slinky springs.	Q7 of the Question-Answer Sheet assesses the use of slinky springs.
259	(2) Scientific processes.	See (2)(F)	(Iii) demonstrate the use of course apparatus [and] equipment, including slinky springs	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	Enrichment Sheet 1 teaches the use of slinky springs.	Enrichment Sheet 1 assesses the use of slinky springs.
260	(2) Scientific processes.	See (2)(F)	(Iiii) demonstrate the use of course apparatus [and] equipment, including wave motion ropes	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	The Animation demonstrates the use of wave motion ropes.	The Lab Sheet assesses the use of wave motion ropes.

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261	(2) Scientific processes.	See (2)(F)	(liii) demonstrate the use of course apparatus [and] equipment, including wave motion ropes	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	Enrichment Sheet 1 describes the use of wave motion ropes.	Q2 of Enrichment Sheet 1 assesses the use of wave motion ropes.
262	(2) Scientific processes.	See (2)(F)	(liii) demonstrate the use of course apparatus [and] equipment, including wave motion ropes	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)		The Question-Answer Sheet asks a question that assesses the use of wave motion ropes.
263	(2) Scientific processes.	See (2)(F)	(liv) demonstrate the use of course apparatus [and] equipment, including laser pointers	TX2_US240307CD	Light Reflection Puzzle (TX2_US240307CD)	In Part 2 of the Activity Object, students operate a laser pointer to examine the reflection of light on a plane mirror.	
264	(2) Scientific processes.	See (2)(F)	(liv) demonstrate the use of course apparatus [and] equipment, including laser pointers	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Animation demonstrates how a laser pointer can be used to measure light reflection angles.	The Lab Sheet involves an investigation using a laser pointer. Students are assessed by recording reflection angles of the beam, in a table.
265	(2) Scientific processes.	See (2)(F)	(liv) demonstrate the use of course apparatus [and] equipment, including laser pointers	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)		The Lab Sheet involves an investigation using a laser pointer. Students are assessed by recording data in a table.
266	(2) Scientific processes.	See (2)(F)	(liv) demonstrate the use of course apparatus [and] equipment, including laser pointers	TX2_US240305CD	Image Formation with Concave Lenses (TX2_US240305CD)	In Part 2 of the Activity Object, students manipulate the angle of a beam of light emitted from a laser beam to observe the angle of refraction as the light travels through a concave lens.	
267	(2) Scientific processes.	See (2)(F)	(liv) demonstrate the use of course apparatus [and] equipment, including laser pointers	TX2_US240302CD	Image Formation with Concave Mirrors (TX2_US240302CD)	In Part 2 of the Activity Object, students manipulate the angle of a beam of light emitted from a laser beam to observe the angle of reflection from a concave mirror.	
268	(2) Scientific processes.	See (2)(F)	(lv) demonstrate the use of course techniques	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	Part 2 of the Activity Object demonstrates the procedures necessary to conduct an experiment on inertia.	
269	(2) Scientific processes.	See (2)(F)	(lv) demonstrate the use of course techniques	TX2_US200101CD	Laboratory Safety (TX2_US200101CD)	The Activity Object demonstrates the techniques required to work safely in a laboratory.	The Activity Sheet assesses techniques for safe lab work.
270	(2) Scientific processes.	See (2)(F)	(lv) demonstrate the use of course techniques	TX2_US200101CD	Laboratory Safety (TX2_US200101CD)	The Activity Object demonstrates the techniques required to work safely in a laboratory.	In Section 3, the Activity Object software assesses the student regarding choices they make about conducting safe lab work. The student is told whether their choices are correct or incorrect as they are guided through the exercises.
271	(2) Scientific processes.	See (2)(F)	(lv) demonstrate the use of course techniques	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Lab Sheet 1 teaches techniques necessary for the study of motion of objects.	Lab Sheet 1 assesses understanding of the techniques necessary for the study of motion of objects.
272	(2) Scientific processes.	See (2)(F)	(lv) demonstrate the use of course techniques	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	Lab Sheet 2 teaches techniques necessary for the study of motion of objects.	Lab Sheet 2 assesses understanding of the techniques necessary for the study of motion of objects.
273	(2) Scientific processes.	See (2)(F)	(lvi) demonstrate the use of course procedures	TX2_US230101CD	Coulomb's Law (TX2_US230101CD)	Part 1 of the Activity Object demonstrates how to make a balloon stick to a wall using static electricity.	
274	(2) Scientific processes.	See (2)(F)	(lvi) demonstrate the use of course procedures	TX2_US230101CD	Coulomb's Law (TX2_US230101CD)	Part 2 of the Activity Object demonstrates a method to measure the electrostatic force between two charged spheres using a balanced scale.	

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
275	(2) Scientific processes.	See (2)(F)	(lvi) demonstrate the use of course procedures	TX2_US220304CD	Refraction of Water Waves (TX2_US220304CD)	Part 2 of the Activity Object demonstrates how to create a wave pattern from a fixed linear source. Part 4 of the Activity Object demonstrates how an object can interrupt water waves.	
276	(2) Scientific processes.	See (2)(F)	(lvi) demonstrate the use of course procedures	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	The Animation demonstrates the use of carbon paper for studying motion.	In Investigation 2 of Lab Sheet 1, students are assessed by using carbon paper and then answering questions about the use of carbon paper to measure motion.
277	(2) Scientific processes.	See (2)(F)	(lvi) demonstrate the use of course procedures	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	The Animation demonstrates the use of a meter stick to make measurements.	In Lab Sheet 1, students are assessed by using a meter stick to make measurements of the length of a pendulum, and then recording their measurements.
278	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(i) use a wide variety of additional course apparatus [and] equipment as appropriate	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Part 2 of the Activity Object demonstrates the use of an apparatus used to test Newton's law of universal gravitation.	
279	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(i) use a wide variety of additional course apparatus [and] equipment as appropriate	TX2_US230302CD	Designing an Electric Motor (TX2_US230302CD)	Part 1 of the Activity Object provides a description of an electric motor and students interact with components of the motor.	In the Activity Sheet, students are assessed by answering questions about the parts of a motor and their effects on the performance of a motor. It is necessary to have studied a motor during the interaction to understand the parts and their functions.
280	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(i) use a wide variety of additional course apparatus [and] equipment as appropriate	TX2_US210315CD	Solar Energy: Design a Solar Car (TX2_US210315CD)	Part 1 of the Activity Object describes the design of a solar cell, and in Part 2 of the Activity Object, students construct a solar car using three components.	In the Activity Sheet, students are assessed by answering questions related to optimizing performance of a solar car, which requires the use of the solar car and its components in the interaction.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
281	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(i) use a wide variety of additional course apparatus [and] equipment as appropriate	TX2_US220303CD	Superposition: Crossing Pulses (TX2_US220303CD)	Part 1 and Part 2 of the Activity Object demonstrate the use of noise-canceling head sets.	In the Activity Sheet, students are assessed by answering questions related to noise-canceling head sets, which requires the use of the headsets in the interaction.
282	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(ii) use a wide variety of additional techniques as appropriate	TX2_US210104CD	Flying Using Vector Addition (TX2_US210104CD)	In Part 2 of the Activity Object, students calculate the resultant velocity of an airplane after accounting for the velocity of the plane and wind.	
283	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(ii) use a wide variety of additional techniques as appropriate	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Animation describes how to compute the average velocity of an object with a constant velocity.	In the Question-Answer Sheet, students are asked to indicate the techniques that can be used to calculate instantaneous velocity.
284	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(ii) use a wide variety of additional techniques as appropriate	TX2_US220203MS	Exercises with Wave Properties (TX2_US220203MS)	Part 2 of the Activity Object demonstrates a technique for solving a word problem.	In Part 3, the Activity Object software assesses the correct use of the problem-solving techniques taught in Part 2 of the Activity Object. Students are told whether their choices are correct or incorrect as they are guided through the exercises.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
285	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(ii) use a wide variety of additional techniques as appropriate	TX2_US210209MS	Solving Problems with Newton's Second Law (TX2_US210209MS)	Part 3 of the Activity Object demonstrates a technique for solving problems with Newton's second law of motion.	In Part 3, the Activity Object software assesses the correct use of the problem-solving techniques taught earlier in the lesson. Students are told whether their choices are correct or incorrect as they are guided through the exercises.
286	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(ii) use a wide variety of additional techniques as appropriate	TX2_US4101A24	Scientific Notation and Significant Figures (TX2_US4101A24)	The Animation demonstrates the technique of rounding numbers, as well as expressing numbers in scientific notation.	Enrichment Sheet 1 presents questions in which numbers need to be expressed in scientific notation.
287	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(iii) use a wide variety of additional course materials as appropriate	TX2_US240306XP	Reflection of Light from Plane Mirrors (TX2_US240306XP)	In Part 2 of the Activity Object, students use an optical disk to measure the reflection of a laser beam, using a plane mirror to reflect the light.	
288	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(iii) use a wide variety of additional course materials as appropriate	TX2_US230403CD	Magnetic Force on a Current-Carrying Wire (TX2_US230403CD)	Part 2 of the Activity Object demonstrates how to use a counter balance mass.	

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
289	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(iii) use a wide variety of additional course materials as appropriate	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Lab Sheet teaches how to use prisms, and how to see spectral lines using gas discharge tubes and hand-held spectroscopes.	The Lab Sheet includes assessment items that require the use of prisms and hand-held spectroscopes.
290	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(iv) use a wide variety of additional procedures as appropriate	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	Part 2 of the Activity Object demonstrates the procedures Newton used to investigate what is now known as inertia.	
291	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(iv) use a wide variety of additional procedures as appropriate	TX2_US230101CD	Coulomb's Law (TX2_US230101CD)	Part 1 of the Activity Object demonstrates the procedure for making a balloon stick to the wall using static electricity.	
292	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(iv) use a wide variety of additional procedures as appropriate	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)	The Lab Sheet teaches how to use prisms, and how to see spectral lines using gas discharge tubes and hand-held spectroscopes.	The Lab Sheet includes assessment items that require the use of prisms and hand-held spectroscopes.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
293	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(iv) use a wide variety of additional procedures as appropriate	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)	In Lab Sheet 1, Investigation 1 teaches the procedure for how to measure the period of a pendulum.	Lab Sheet 1 includes assessment items that require the measurement of the period of a pendulum.
294	(2) Scientific processes.	(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer	(iv) use a wide variety of additional procedures as appropriate	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	The Activity Object teaches the procedure for measuring current with an ammeter, and voltage with a voltmeter.	The Activity Sheet asks students to explain how voltmeters and ammeters are used.
295	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(i) make measurements with accuracy	TX2_US2801A08	Experimental Error (TX2_US2801A08)	The Animation describes error, and methods for making measurements with accuracy.	The Question-Answer Sheet asks a question about making measurements with accuracy.
296	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(i) make measurements with accuracy	TX2_US4101A18	Accuracy and Precision (TX2_US4101A18)	The Animation defines accurate measurement quantitatively.	The Question-Answer Sheet asks a question about making measurements with accuracy.
297	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(i) make measurements with accuracy	TX2_US4101A18	Accuracy and Precision (TX2_US4101A18)	The Lab Sheet involves an activity that teaches how to make measurements with accuracy.	In the Lab Sheet, students must make measurements of objects with accuracy.
298	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(ii) make measurements with precision	TX2_US4101A18	Accuracy and Precision (TX2_US4101A18)	The Animation defines precise measurement quantitatively.	The Question-Answer Sheet asks a question about making measurements with precision.
299	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(ii) make measurements with precision	TX2_US2801A08	Experimental Error (TX2_US2801A08)	The Animation describes error, and methods for making measurements with precision.	The Question-Answer Sheet asks a question about making measurements with precision.
300	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(ii) make measurements with precision	TX2_US4101A18	Accuracy and Precision (TX2_US4101A18)	The Lab Sheet involves an activity that teaches how to make measurements with precision.	In the Lab Sheet, students must make measurements of objects with precision.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
301	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(iii) record data using scientific notation	TX2_US4101A24	Scientific Notation and Significant Figures (TX2_US4101A24)	In the Animation, data is recorded using scientific notation.	In Enrichment Sheet 1, students record data using scientific notation.
302	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(iii) record data using scientific notation	TX2_US4101A18	Accuracy and Precision (TX2_US4101A18)	The Lab Sheet includes an activity that involves recording measurements with scientific notation.	In the Lab Sheet, students must record measurements using scientific notation.
303	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(iv) record data using International System (SI) units	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	The Lab Sheet includes activities that involve making measurements using the SI system of units (meters, Hz, etc.)	In the Lab Sheet, students must record data using the SI system of units (meters, Hz, etc.).
304	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(iv) record data using International System (SI) units	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	Section 2 of the Activity Object teaches how to measure the length of a pendulum in meters.	In the Activity Sheet, students must record their measurements of pendula in SI units (meters).
305	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(iv) record data using International System (SI) units	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 2 and Part 3 of the Activity Object use International System (SI) units, including meters, kilograms, and seconds, to record data.	
306	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(iv) record data using International System (SI) units	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 2 of the Activity Object, length and time are measured in SI units.	
307	(2) Scientific processes.	(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units	(iv) record data using International System (SI) units	TX2_US210214MS	SI Units and Dimensional Analysis (TX2_US210214MS)	In Part 3 of the Activity Object, students convert data using International System (SI) Units.	
308	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(i) identify causes of uncertainties in measured data	TX2_US2801A08	Experimental Error (TX2_US2801A08)	The Animation identifies causes of uncertainties (including errors) in measured data.	In the Question-Answer Sheet, students answer a question about identifying causes of uncertainties in measured data.
309	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(i) identify causes of uncertainties in measured data	TX2_US4101A18	Accuracy and Precision (TX2_US4101A18)	The Animation identifies a lack of replication, the use of different types of equipment, and a lack of calibration as causes of uncertainty in measured data.	In the Question-Answer Sheet, students answer a question about identifying causes of uncertainties in measured data.
310	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(i) identify causes of uncertainties in measured data	TX2_US210215CD	Projectiles launched Vertically (TX2_US210215CD)		Q6 in the "Implementation" section of the Investigation Sheet asks the student to identify the causes of uncertainties in an experiment.
311	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(i) identify causes of uncertainties in measured data	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)		Q9 in the "Plan the Investigation" section of Lab Sheet 2 asks the student to identify the causes of uncertainties in an experiment.
312	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(i) identify causes of uncertainties in measured data	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)		Q4 of Investigation 1 in the "Implement the Investigation" section of Lab Sheet 2 asks students to identify the causes of uncertainties in an experiment.
313	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(ii) identify effects of uncertainties in measured data	TX2_US2801A08	Experimental Error (TX2_US2801A08)	The Animation identifies the effects of uncertainties (including errors) in measured data.	In the Question-Answer Sheet, students answer a question about identifying the effects of uncertainties in measured data.
314	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(ii) identify effects of uncertainties in measured data	TX2_US4101A18	Accuracy and Precision (TX2_US4101A18)	The Animation discusses the effect of uncertainties on the accuracy and precision of measured data.	In the Question-Answer Sheet, students answer a question about identifying the effects of uncertainties in measured data.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
315	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(ii) identify effects of uncertainties in measured data	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)		Q5 of Investigation 1 in the "Implement the Investigation" section of Lab Sheet 2 asks the student to identify the effects of uncertainties in an experiment.
316	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(ii) identify effects of uncertainties in measured data	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)		Q10 in the "Plan the Investigation" section of Lab Sheet 2 asks students to identify the effects of uncertainties in an experiment.
317	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(ii) identify effects of uncertainties in measured data	TX2_US210215CD	Projectiles launched Vertically (TX2_US210215CD)		Q7 of the "Implementation" section of the Investigation Sheet asks the student to identify the effects of uncertainties in an experiment.
318	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(iii) quantify causes of uncertainties in measured data	TX2_US2801A08	Experimental Error (TX2_US2801A08)	The Animation identifies the causes of uncertainties (including errors) in measured data.	In the Question-Answer Sheet, students answer a question about quantifying causes of uncertainties in measured data.
319	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(iii) quantify causes of uncertainties in measured data	TX2_US4101A18	Accuracy and Precision (TX2_US4101A18)	The Animation shows how to quantitatively identify a lack of accuracy and precision in measured data.	In the Question-Answer Sheet, students answer a question about quantifying causes of uncertainties in measured data.
320	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(iii) quantify causes of uncertainties in measured data	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)		Q3 of Investigation 4 in the "Implement the Investigation" section of Lab Sheet 2 asks the student to quantify causes of uncertainties in measured data.
321	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(iii) quantify causes of uncertainties in measured data	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)		Q4 of Investigation 2 in the "Implement the Investigation" section of Lab Sheet 2 asks the student to quantify causes of uncertainties in measured data.
322	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(iii) quantify causes of uncertainties in measured data	TX2_US210215CD	Projectiles launched Vertically (TX2_US210215CD)		Q3 in the "Critique" section of the Investigation Sheet asks the student to quantify causes of uncertainties in measured data.
323	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(iv) quantify effects of uncertainties in measured data	TX2_US2801A08	Experimental Error (TX2_US2801A08)	The Animation identifies the effects of uncertainties (including errors) in measured data.	In the Question-Answer Sheet, students answer a question about quantifying the effects of uncertainties in measured data.
324	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(iv) quantify effects of uncertainties in measured data	TX2_US4101A18	Accuracy and Precision (TX2_US4101A18)	The Animation shows how a lack of accuracy and precision from uncertainties may affect measured data.	In the Question-Answer Sheet, students answer a question about quantifying the effects of uncertainties in measured data.
325	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(iv) quantify effects of uncertainties in measured data	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)		Q4 of Investigation 4 in the "Implement the Investigation" section of Lab Sheet 2 asks the student to quantify the effects of uncertainties in measured data.
326	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(iv) quantify effects of uncertainties in measured data	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)		Q5 of Investigation 2 in the "Implement the Investigation" section of Lab Sheet 2 asks the student to quantify the effects of uncertainties in measured data.
327	(2) Scientific processes.	(I) identify and quantify causes and effects of uncertainties in measured data	(iv) quantify effects of uncertainties in measured data	TX2_US210215CD	Projectiles launched Vertically (TX2_US210215CD)		Q4 in the "Critique" section of the Investigation Sheet asks the student to quantify the effects of uncertainties in measured data.
328	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(i) organize data, including the use of tables	TX2_US230103DM	Electric Fields (TX2_US230103DM)	In Section 3 of the Activity Object, students must organize their data in a table.	In the Activity Sheet, students must organize and record their data in a table.
329	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(i) organize data, including the use of tables	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)		In Lab Sheet 1, students must organize data using tables.

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330	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(i) organize data, including the use of tables	TX2_US480304XP	Conservation of Mass in Chemical Reactions (TX2_US480304XP)	In the Lab Sheet, students must organize their data in a table.	In the Lab Sheet, students must organize and record their data in a table.
331	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(i) organize data, including the use of tables	TX2_US4101A19	Applying and Communicating Scientific Information (TX2_US4101A19)	Enrichment Sheet 1 involves an activity in which students organize data in tables.	In Enrichment Sheet 1, students organize data in a table, and report on the trends that are revealed.
333	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(ii) organize data, including the use of charts	TX2_US4101A19	Applying and Communicating Scientific Information (TX2_US4101A19)	Enrichment Sheet 2 involves an activity in which students organize data in a chart.	In Enrichment Sheet 2, students organize data in a chart and report on the trends that are revealed.
334	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(iii) organize data, including the use of graphs	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 3 of the Activity Object, students collect data and organize it in a graph.	
335	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(iii) organize data, including the use of graphs	TX2_US440401XP	Heating Curves (TX2_US440401XP)	Parts 2 and 3 of the Activity Object demonstrate how to organize data in both the experiment report and a graph.	
336	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(iii) organize data, including the use of graphs	TX2_US4101A19	Applying and Communicating Scientific Information (TX2_US4101A19)	Enrichment Sheet 1 involves an activity in which students graph data.	In Enrichment Sheet 1, students graph data and report on the trends that are revealed.
337	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(iv) evaluate data, including the use of tables	TX2_US410302CD	Physical Properties (TX2_US410302CD)	Part 1 of the Activity Object demonstrates how to evaluate data by using a data table.	
338	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(iv) evaluate data, including the use of tables	TX2_US210230CD	Uniform Linear Motion (TX2_US210230CD)	In Part 2 of the Activity Object, students must evaluate data in a table in order to generate a graph.	In Part 2 of the Activity Object, students must evaluate data in a table in order to generate a graph. The Activity Object software assesses the correctness of student responses and provides appropriate feedback as students work through the exercises.
339	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(iv) evaluate data, including the use of tables	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)		In the Activity Sheet, students record their experimental data from the interaction in a table. Students must evaluate the table to verify a hypothesis.
340	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(v) evaluate data, including the use of charts	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	In Part 2 of the Activity Object, students collect data, which is summarized in a chart. Students must evaluate the chart to verify a hypothesis.	In the Activity Sheet, students collect data, which is summarized in a chart. Students must evaluate the chart to verify a hypothesis.
341	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(vi) evaluate data, including the use of graphs	TX2_US210230CD	Uniform Linear Motion (TX2_US210230CD)		In the Activity Sheet, students must evaluate data in graphs in order to answer questions.
342	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(vi) evaluate data, including the use of graphs	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	In Part 2 of the Activity Object, students must evaluate data presented in a graph in order to determine the affect of gravitational acceleration on the period of a pendulum.	In Part 2 of the Activity Object, students must evaluate data presented in a graph in order to determine the affect of gravitational acceleration on the period of a pendulum. The Activity Object software assesses the correctness of student responses and provides appropriate feedback as students work through the exercises.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
343	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(vi) evaluate data, including the use of graphs	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 3 of the Activity Object, students collect data in a graph during a virtual interaction. The graphs are then evaluated to reach conclusions about the motion of the object. The Activity Object software assesses the correctness of student responses and provides appropriate feedback as students work through the exercises.	In Part 3 of the Activity Object, students collect data in a graph during a virtual interaction. The graphs are then evaluated to reach conclusions about the motion of the object. The Activity Object software assesses the correctness of student responses and provides appropriate feedback as students work through the exercises.
344	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(vi) evaluate data, including the use of graphs	TX2_US220201CD	Properties of Waves (TX2_US220201CD)		In the Activity Sheet, students evaluate data in a graph to determine the amplitude and wavelength of a wave.
345	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(vii) make inferences from data, including the use of tables	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)		In the Activity Sheet, students must make inferences about data in a table in order to answer a question about the length of time needed to play a soccer game on different planets.
346	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(vii) make inferences from data, including the use of tables	TX2_US210224XP	Free Fall (TX2_US210224XP)	In Part 2 of the Activity Object, students make observations, and data are recorded in a table. Students must make inferences from this data to determine if heavy objects fall faster than light objects.	In Part 2 of the Activity Object, students make inferences and provide responses based on data in a table. The Activity Object software assesses the correctness of student responses and provides appropriate feedback as students work through the exercises.
347	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(vii) make inferences from data, including the use of tables	TX2_US210224XP	Free Fall (TX2_US210224XP)		In the Activity Sheet, students record data in a table, from their virtual experiments. Students must make inferences from this data to determine if heavy objects fall faster than light objects.
348	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(viii) make inferences from data, including the use of charts	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 2 of the Activity Object uses several charts to depict kinetic energy, potential energy, mechanical energy, and energy lost as heat. Students must make inferences from the charts in order to complete the interaction.	
349	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(viii) make inferences from data, including the use of charts	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 2 of the Activity Object, a virtual ticker tape type machine creates a chart, from which students must infer acceleration.	
350	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(viii) make inferences from data, including the use of charts	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	In the Animation, students learn how to infer wavelength from an electromagnetic spectrum chart.	
351	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(viii) make inferences from data, including the use of charts	TX2_US4201A16	Frequency, Wavelength, and Energy (TX2_US4201A16)	In the Animation, students learn how to infer frequency and energy from an electromagnetic spectrum chart.	
352	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(viii) make inferences from data, including the use of charts	TX2_US4201A20	The Wave Nature of Light (TX2_US4201A20)	In the Animation, students learn how to infer frequency and energy from an electromagnetic spectrum chart.	The Lab Sheet includes a question in which students must make inferences from data, including the use of a chart.
353	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(ix) make inferences from data, including the use of graphs	TX2_US210230CD	Uniform Linear Motion (TX2_US210230CD)	The Activity Object teaches how to make inferences from motion (distance-time) graphs.	In the Activity Sheet, students must be able to make inferences from information contained in a distance-time graph.
354	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(ix) make inferences from data, including the use of graphs	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	The Activity Object teaches the use of graphs to understand projectile motion.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
355	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(ix) make inferences from data, including the use of graphs	TX2_US2102A02	Position-Time Graph of Uniform One-Dimensional Motion (TX2_US2102A02)	The Animation teaches how to infer velocity from a distance-time graph from the magnitude of the slope.	
356	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(ix) make inferences from data, including the use of graphs	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 3 and Part 4 of the Activity Object, several types of graphs are used so that students can infer the motion and acceleration of objects.	In the Activity Sheet, students must be able to make inferences from information contained in a position-time graph.
357	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(ix) make inferences from data, including the use of graphs	TX2_US2102A03	Velocity-Time Graph of One Dimensional Motion and Displacement (TX2_US2102A03)	The Animation teaches how to infer features of motion from graphs.	Several questions found in the Question-Answer Sheet assess student understanding of what can be inferred from a velocity-time graph.
358	(2) Scientific processes.	(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs	(ix) make inferences from data, including the use of graphs	TX2_US210221CD	Graphs of Accelerated Motion: Projectiles Launched Vertically (TX2_US210221CD)	The Animation teaches how to infer aspects of projectile motion from various types of graphs.	In the Activity Sheet, students must be able to make inferences by looking at a speed and distance graph.
359	(2) Scientific processes.	(K) communicate valid conclusions supported by the data through various methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology- based reports	(i) communicate valid conclusions supported by the data through various methods	TX2_US2801A05	Scientific Hypotheses and Theories (TX2_US2801A05)	In the Animation, students are presented with the role of conclusions and data in the scientific process.	
360	(2) Scientific processes.	(K) communicate valid conclusions supported by the data through various methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology- based reports	(i) communicate valid conclusions supported by the data through various methods	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	In Part 2 of the Activity Object, students must collect data and draw conclusions by manipulating the length and gravitational acceleration of a pendulum to answer questions related to the period of the pendulum's motion.	
361	(2) Scientific processes.	(K) communicate valid conclusions supported by the data through various methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology- based reports	(i) communicate valid conclusions supported by the data through various methods	TX2_US210224XP	Free Fall (TX2_US210224XP)	In Part 2 of the Activity Object, data is recorded into an experiment report, and students must form conclusions based on the results of the experiments.	In the Activity Sheet, students record data from the Activity Object and communicate the results of the experiment they conducted in the Activity Object through an experiment report.
362	(2) Scientific processes.	(K) communicate valid conclusions supported by the data through various methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology- based reports	(i) communicate valid conclusions supported by the data through various methods	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)		In Lab Sheet 1, students communicate conclusions about data by using tables.
363	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(i) express relationships among physical variables quantitatively, including the use of graphs	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	In Part 2 of the Activity Object, students collect quantitative data from physical variables and answer questions regarding the relationship between the variables using a graphic representation of the data.	
364	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(i) express relationships among physical variables quantitatively, including the use of graphs	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	In the Activity Object, students collect quantitative data from physical variables and answer questions regarding the relationship between the variables using a graphic representation of the data.	
365	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(i) express relationships among physical variables quantitatively, including the use of graphs	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 2 of the Activity Object, relationships among physical variables are graphed.	In the Activity Object, the correct creation of a graph is assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
366	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(i) express relationships among physical variables quantitatively, including the use of graphs	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)		The Activity Sheet asks students to complete a graph.
367	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(ii) express relationships among physical variables quantitatively, including the use of charts	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 2 of the Activity Object uses several charts to depict kinetic energy, potential energy, mechanical energy, and energy lost as heat.	The Activity Sheet asks students to complete a chart.
368	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(ii) express relationships among physical variables quantitatively, including the use of charts	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 2 of the Activity Object, relationships among physical variables are expressed on a chart.	The Activity Sheet asks students to complete a chart.
369	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(ii) express relationships among physical variables quantitatively, including the use of charts	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 3 of the Activity Object, relationships among physical variables are expressed using a graph (a type of chart).	
370	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(ii) express relationships among physical variables quantitatively, including the use of charts	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 4 of the Activity Object, relationships among physical variables are expressed using a graph (a type of chart).	
371	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(iii) express relationships among physical variables quantitatively, including the use of equations	TX2_US210209MS	Solving Problems with Newton's Second Law (TX2_US210209MS)	Part 2 of the Activity Object expresses the relationship among physical variables quantitatively, and presents an equation in a lesson on Newton's second law of motion.	The Enrichment Sheet presents problems that must be solved using equations.
372	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(iii) express relationships among physical variables quantitatively, including the use of equations	TX2_US210209MS	Solving Problems with Newton's Second Law (TX2_US210209MS)	In Part 3 of the Activity Object, students examine the relationship among physical variables quantitatively in an interactive activity on an equation from Newton's second law of motion.	In Part 3 of the Activity Object, students examine the relationship among physical variables quantitatively in an interactive activity about an equation from Newton's second law of motion. Equations are evaluated by the Activity Object software, which provides appropriate feedback as students work through the exercises.
373	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(iii) express relationships among physical variables quantitatively, including the use of equations	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, a data table is used to express the relationship among physical variables quantitatively, and it includes the use of an equation based on Newton's second law of motion, which was presented in Part 1 of the Activity Object.	
374	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(iii) express relationships among physical variables quantitatively, including the use of equations	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Part 3 of the Activity Object expresses the relationship among physical variables quantitatively and includes the use of an equation based on Newton's second law of motion.	
375	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(iii) express relationships among physical variables quantitatively, including the use of equations	TX2_US210105XP	Balanced and Unbalanced Forces (TX2_US210105XP)		The Activity Sheet involves the use of equations.
376	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(iv) manipulate relationships among physical variables quantitatively, including the use of graphs	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)	In Part 2 of the Activity Object, students collect quantitative data by manipulating physical variables. Students also answer questions regarding the relationship between the variables, using a graphic representation of the data.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
377	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(iv) manipulate relationships among physical variables quantitatively, including the use of graphs	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	In the Activity Object, students collect quantitative data by manipulating physical variables. Students also answer questions regarding the relationship between the variables, using a graphic representation of the data.	
378	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(iv) manipulate relationships among physical variables quantitatively, including the use of graphs	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 3 of the Activity Object, students manipulate the velocity and acceleration of a device quantitatively. Students also observe the creation of several graphs in real time.	The Activity Sheet assesses graphing.
379	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(iv) manipulate relationships among physical variables quantitatively, including the use of graphs	TX2_US210230CD	Uniform Linear Motion (TX2_US210230CD)	In Part 2 of the Activity Object, students create a graph.	In Part 2 of the Activity Object, the students create a graph. The graph is assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
380	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(iv) manipulate relationships among physical variables quantitatively, including the use of graphs	TX2_US210230CD	Uniform Linear Motion (TX2_US210230CD)	In Part 3 of the Activity Object, students create a graph.	The Activity Sheet assesses graphing.
381	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(v) manipulate relationships among physical variables quantitatively, including the use of charts	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	Part 3 of the Activity Object generates graphs (a type of chart) describing different types of motion, based on students' manipulation of velocity and acceleration.	The Activity Sheet asks students to complete a chart.
382	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(v) manipulate relationships among physical variables quantitatively, including the use of charts	TX2_US420103DM	Photoelectric Effect (TX2_US420103DM)	In Part 4 of the Activity Object, physical variables are manipulated and charts are used to graph the relationship among the variables.	
383	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(v) manipulate relationships among physical variables quantitatively, including the use of charts	TX2_US420103DM	Photoelectric Effect (TX2_US420103DM)	In Part 6 of the Activity Object, physical variables are manipulated and charts are used to graph the relationship among the variables.	
384	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(v) manipulate relationships among physical variables quantitatively, including the use of charts	TX2_US210202CD	Period of a Pendulum (TX2_US210202CD)		The Activity Sheet asks students to complete a chart made from their observations during an interaction in the Activity Object.
385	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(v) manipulate relationships among physical variables quantitatively, including the use of charts	TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)		Lab Sheet 1 and Lab Sheet 2 include the manipulation of variables and the completion of charts, which are then evaluated.
386	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(vi) manipulate relationships among physical variables quantitatively, including the use of equations	TX2_US230403CD	Magnetic Force on a Current-Carrying Wire (TX2_US230403CD)	In Part 2 of the Activity Object, students manipulate the relationships among physical variables quantitatively, and data is recorded into a data table. Part 3 of the Activity Object discusses the equations used to calculate some of the values in the data table.	
387	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(vi) manipulate relationships among physical variables quantitatively, including the use of equations	TX2_US210308CD	Conservation of Momentum in One Dimension (TX2_US210308CD)	In Part 2 of the Activity Object, students manipulate the relationships among physical variables in an investigation of the law of conservation of momentum, and this includes the use of equations.	In the Enrichment Sheet, students must manipulate relationships among physical variables quantitatively, and use equations (v=d/t).

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
388	(2) Scientific processes.	(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations	(vi) manipulate relationships among physical variables quantitatively, including the use of equations	TX2_US210213MS	Metric System And Dimensional Analysis (TX2_US210213MS)	In Part 2 of the Activity Object, students select from one of three objects to measure, and students attempt to predict the measurement of the last two objects. In Part 3, students utilize equations to convert values into different units of measurement in the metric system.	In the Independent Practice Sheet, students are assessed on their ability to manipulate relationships among physical variables quantitatively.
389	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(i) in all fields of science, analyze scientific explanations by using empirical evidence	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	In the Activity Object, students collect empirical evidence to investigate how the force applied to objects of different masses in a frictionless environment affects the relationship between mass, the magnitude of applied force, and motion.	In the Activity Object, students analyze empirical data that they collect using a spring scale and various masses. Responses to questions are analyzed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
390	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(i) in all fields of science, analyze scientific explanations by using empirical evidence	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students analyze Newton's second law of motion by collecting empirical evidence in an investigation.	In Part 2 of the Activity Object, students perform an exercise to collect empirical data that they then use to analyze the effect of mass on gravitational force. Their hypotheses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
391	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(i) in all fields of science, analyze scientific explanations by using empirical evidence	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Part 3 of the Activity Object analyzes Newton's second law of motion by reviewing the empirical evidence collected in Part 2 of the Activity Object.	
392	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(ii) in all fields of science, analyze scientific explanations by using logical reasoning	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	In the Activity Object, students must analyze the results from investigations of the force applied to objects of different masses in a frictionless environment. Students must use deductive reasoning (a form of logical reasoning) to respond to questions posed in the Activity Object.	In the Activity Object, students use logical reasoning to analyze data collected using a spring scale and various masses. Responses to questions are analyzed by the Activity Object software, which provides appropriate feedback as students work through the exercises.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
393	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(ii) in all fields of science, analyze scientific explanations by using logical reasoning	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 4 of the Activity Object, students must analyze aspects of Newton's law of universal gravitation to answer a logical-reasoning question related to the law.	In the Activity Sheet, students must use logical reasoning to analyze how Newton correctly explained that apples accelerate as they fall.
394	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(iii) in all fields of science, analyze scientific explanations by using experimental testing	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	In the Activity Object, students conduct empirical tests to analyze the results from investigations of the force applied to objects of different masses in a frictionless environment.	In the Activity Object, students conduct empirical tests to analyze the results from investigations of the force applied to objects of different masses in a frictionless environment. Students respond to questions posed within the Activity Object, and the Activity Object software assesses the answers and provides appropriate feedback as students work through the exercises.
395	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(iii) in all fields of science, analyze scientific explanations by using experimental testing	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students conduct a series of experiments to test aspects of Newton's second law of motion.	In Part 2 of the Activity Object, students analyze the effect of mass on gravitational force. Their hypotheses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
396	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(iv) in all fields of science, analyze scientific explanations by using observational testing	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	In Part 2 of the Activity Object, students test the layout of a circuit and the inclusion of resistors, and observe the effects on current and voltage.	In Part 2 of the Activity Object, students test the layout of a circuit and inclusion of resistors, and observe the effects on current and voltage. Students make measurements, calculate values and compare these with what is expected by Ohm's law. The Activity Object software assesses the student responses and provides appropriate feedback as students work through the exercises.
397	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(iv) in all fields of science, analyze scientific explanations by using observational testing	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Part 1 of the Activity Object presents how Newton's observation of a falling apple lead him to apply his second law of motion to develop the law of universal gravitation.	

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
398	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(iv) in all fields of science, analyze scientific explanations by using observational testing	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students observe the gravitational attraction between two sets of objects to investigate Newton's law of universal gravitation.	In Part 2 of the Activity Object, students observe and analyze the effect of mass on gravitational force. Their hypotheses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
399	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(v) in all fields of science, analyze scientific explanations, including examining all sides of scientific evidence of those scientific explanations	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students conduct a series of experiments to analyze different sides of Newton's law of universal gravitation, including the effect of stationary masses, the effect of movable masses, and the distances between the masses.	In Section 2 of the Activity Object, students test the effect of mass on gravitational force, and use the scientific evidence to form a hypothesis about gravitational force. Their hypotheses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
400	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(v) in all fields of science, analyze scientific explanations, including examining all sides of scientific evidence of those scientific explanations	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	In Part 1 of the Activity Object, students are provided with several explanations of motion. In Part 2 of the Activity Object, students conduct an experiment to examine motion and inertia by manipulating the roughness of the incline and the angle of the incline.	In the Activity Sheet, students must use scientific evidence and consider various scientific explanations to analyze Newton's first law.
401	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(vi) in all fields of science, evaluate scientific explanations by using empirical evidence	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students evaluate Newton's law of universal gravitation by collecting empirical evidence.	In Section 2 of the Activity Object, students test the effect of mass on gravitational force, using the empirical evidence to form a hypothesis (and thereby evaluate Newton's law of universal gravitation). Those hypotheses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
402	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(vi) in all fields of science, evaluate scientific explanations by using empirical evidence	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students collect empirical evidence to evaluate the validity of Newton's second law of motion.	In the Activity Sheet, students must use the empirical evidence they collected in the simulation to answer questions about relationships that are suggested by the theory of gravity.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
403	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(vi) in all fields of science, evaluate scientific explanations by using empirical evidence	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 3 of the Activity Object, the empirical evidence collected in Part 2 is used to evaluate the validity of Newton's second law of motion.	
404	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(vii) in all fields of science, evaluate scientific explanations by using logical reasoning	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	Part 1 of the Activity Object presents and evaluates several initial concepts of motion, by using logical reasoning.	In Part 2 of the Activity Object, students complete an investigation of what is now known as inertia, and are asked to answer logical-reasoning questions that evaluate the concept of inertia. The responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
405	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(vii) in all fields of science, evaluate scientific explanations by using logical reasoning	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)		In the Activity Sheet, students are asked to use logical reasoning to evaluate past concepts of motion related to inertia.
406	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(vii) in all fields of science, evaluate scientific explanations by using logical reasoning	TX2_US420103DM	Photoelectric Effect (TX2_US420103DM)	In Part 2 of the Activity Object, students evaluate the photoelectric effect described in Part 1 using observational testing and logical reasoning.	
407	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(vii) in all fields of science, evaluate scientific explanations by using logical reasoning	TX2_US420103DM	Photoelectric Effect (TX2_US420103DM)	In Part 4 of the Activity Object, students evaluate the photoelectric effect described in Part 1 using observational testing and logical reasoning.	

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
408	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(viii) in all fields of science, evaluate scientific explanations by using experimental testing	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students conduct a series of experiments to evaluate the validity of Newton's second law of motion.	
409	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(viii) in all fields of science, evaluate scientific explanations by using experimental testing	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 3 of the Activity Object, the series of experiments conducted in Part 2 are used to evaluate the validity of Newton's second law of motion.	
410	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(viii) in all fields of science, evaluate scientific explanations by using experimental testing	TX2_US2101A16	Lab Equipment: Mechanics (TX2_US2101A16)		In Lab Sheet 1, students perform experiments on the length of a pendulum, and then evaluate the effect of length on its period.
411	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(ix) in all fields of science, evaluate scientific explanations by using observational testing	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	In Part 2 of the Activity Object, students test the layout of a circuit and inclusion of resistors. Students observe their effects on current and voltage to evaluate applications of Ohm's law in terms of the concepts of current, potential difference, and resistance.	
412	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(ix) in all fields of science, evaluate scientific explanations by using observational testing	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students conduct several observational tests to evaluate Newton's law of universal gravitation.	In Section 2 of the Activity Object, students use observational testing to find the effect of mass on gravitational force. Their hypotheses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
413	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(ix) in all fields of science, evaluate scientific explanations by using observational testing	TX2_US210224XP	Free Fall (TX2_US210224XP)	In Part 2 of the Activity Object, students conduct several observational tests to evaluate whether objects of different masses fall at the same rate.	In Section 2 of the Activity Object, students use observational testing to find the effect of mass on acceleration due to gravity. Their hypotheses on this subject are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
414	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(ix) in all fields of science, evaluate scientific explanations by using observational testing	TX2_US210224XP	Free Fall (TX2_US210224XP)		In the Activity Sheet, students record data in a table based on the observations they made from their experiments on freefall. Students then formulate a conclusion, and their conclusions are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
415	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(ix) in all fields of science, evaluate scientific explanations by using observational testing	TX2_US230402CD	Magnetic Field of a Current-Carrying Infinite Wire (TX2_US230402CD)	In Part 2 of the Activity Object, students observe the influence of an electric field on the deflection of a compass.	
416	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(ix) in all fields of science, evaluate scientific explanations by using observational testing	TX2_US420103DM	Photoelectric Effect (TX2_US420103DM)	In Part 2 of the Activity Object, students evaluate the photoelectric effect described in Part 1 using observational testing and logical reasoning.	
417	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(x) in all fields of science, evaluate scientific explanations, including examining all sides of scientific evidence of those scientific explanations	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students examine the influence of objects with a larger mass, the influence of objects with a smaller mass, and the distance between them, on Newton's law of universal gravitation.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
418	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(x) in all fields of science, evaluate scientific explanations, including examining all sides of scientific evidence of those scientific explanations	TX2_US4201A05	Optical Events Explained by the Wave Model (TX2_US4201A05)		In the Question-Answer Sheet, students must evaluate the wave and particle theories of light by considering the conflicting contributions of several scientists.
419	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(x) in all fields of science, evaluate scientific explanations, including examining all sides of scientific evidence of those scientific explanations	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Part 3 of the Activity Object evaluates multiple sides of Newton's law of universal gravitation, including the effect of stationary masses, the effect of movable masses, and the distances between the masses.	
420	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(x) in all fields of science, evaluate scientific explanations, including examining all sides of scientific evidence of those scientific explanations	TX2_US4201A19	Particle Nature of Light (TX2_US4201A19)		In the Question-Answer Sheet, students must evaluate the wave and particle theories of light by considering the evidence and explanatory power from each of them.
421	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xi) in all fields of science, critique scientific explanations by using empirical evidence	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	In Part 2 of the Activity Object, students test and observe how the layout of a circuit and inclusion of resistors affect the current and voltage of a circuit, in order to evaluate applications of Ohm's law.	
422	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xi) in all fields of science, critique scientific explanations by using empirical evidence	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	In Part 2 of the Activity Object, students conduct an experiment by changing several variables to examine inertia.	Part 1 of the Activity Object provides an introduction to several researchers' concepts of motion. In Part 2 of the Activity Object, students conduct an experiment by changing several variables to examine inertia. In the Activity Sheet, students are assessed on their critique of the early concepts of motion, as well as the conclusions drawn from the empirical evidence collected in their experiments.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
423	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xi) in all fields of science, critique scientific explanations by using empirical evidence	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students conduct several experimental tests to examine Newton's law of universal gravitational.	In the Activity Sheet, students critique Newton's law of universal gravitation based on empirical evidence gathered in the Activity Object.
424	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xii) in all fields of science, critique scientific explanations by using logical reasoning	TX2_US4201A04	Bohr's Atomic Model (TX2_US4201A04)	In the Animation, students are presented with flaws found in earlier models of atoms. Students learn that the evolution of the atomic model is based on logical reasoning deduced from theories of atom structure and behavior, and by observations of aspects of atoms themselves.	
425	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xii) in all fields of science, critique scientific explanations by using logical reasoning	TX2_US4201A19	Particle Nature of Light (TX2_US4201A19)	The Animation critiques wave theory as a way to describe the nature of light, for example, based on the following logical reasoning. Wave theory requires a medium for light to travel, yet light can travel through a vacuum; thus, this aspect of the wave theory is not tenable.	The Question-Answer Sheet requires logical reasoning to describe properties of light that the wave theory cannot explain.
426	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xii) in all fields of science, critique scientific explanations by using logical reasoning	TX2_US420105CD	History of the Atomic Model: From Rutherford to Bohr (TX2_US420105CD)		The Activity Sheet asks students to critique scientific explanations based on logical reasoning.
427	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xiii) in all fields of science, critique scientific explanations by using experimental testing	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	Part 1 of the Activity Object provides an introduction to several researchers' concepts of motion. In Part 2 of the Activity Object, students conduct an experiment by varying several variables to examine inertia. In the Activity Sheet, students critique earlier concepts of motion.	In the Activity Sheet, students critique previous scientific concepts of motion based on the experimental testing they conducted in the Activity Object.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
428	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xiii) in all fields of science, critique scientific explanations by using experimental testing	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students conduct several experimental tests to examine Newton's law of universal gravitation.	In the Activity Sheet, students critique Newton's law of universal gravitation based on the experimental testing they conducted in the Activity Object.
429	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xiii) in all fields of science, critique scientific explanations by using experimental testing	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)		In Part 2 of the Activity Object, students conduct several experimental tests to examine Newton's law of universal gravitation. The Activity Object software assesses their findings and provides appropriate feedback as students work through the exercises.
430	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xiv) in all fields of science, critique scientific explanations by using observational testing	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students conduct several observational tests to examine Newton's law of universal gravitation.	In the Activity Sheet, students critique Newton's law of universal gravitation based on the observational testing conducted in the Activity Object.
431	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xiv) in all fields of science, critique scientific explanations by using observational testing	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	In Part 2 of the Activity Object, students conduct several observational tests to examine previous concepts of motion, and Newton's concept, which is now known as inertia.	In the Activity Sheet, students critique previous concepts of motion based on the observation testing conducted in the Activity Object.
432	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xv) in all fields of science, critique scientific explanations, including examining all sides of scientific evidence of those scientific explanations	TX2_US4201A04	Bohr's Atomic Model (TX2_US4201A04)	In the Animation, students are presented with flaws found in earlier models of the atom. These flaws are based on theories of atom structure and behavior, and by observations of aspects of atoms themselves.	In the Question-Answer Sheet, students are asked questions that involve a critique of the Bohr atom. Students must consider various sides of scientific evidence and explanation.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
433	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xv) in all fields of science, critique scientific explanations, including examining all sides of scientific evidence of those scientific explanations	TX2_US4201A19	Particle Nature of Light (TX2_US4201A19)	The Animation critiques the wave theory as a way to describe the nature of light, looking at the various sides of scientific evidence that led to the current scientific explanation.	In the Question-Answer Sheet, students are asked questions that involve a critique of the wave theory of light. Students must consider various sides of scientific evidence and explanation.
434	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xv) in all fields of science, critique scientific explanations, including examining all sides of scientific evidence of those scientific explanations	TX2_US4201A19	Particle Nature of Light (TX2_US4201A19)		In the Enrichment Sheet, students must compare and contrast the evidence for, and the explanatory power of, the wave and particle theories of light.
435	(3) Scientific processes.	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(xv) in all fields of science, critique scientific explanations, including examining all sides of scientific evidence of those scientific explanations	TX2_US420105CD	History of the Atomic Model: From Rutherford to Bohr (TX2_US420105CD)	Throughout the Activity Object, students are presented with flaws found in earlier models of atoms. These flaws are based on theories of atom structure and behavior, and by observations of aspects of atoms themselves.	
436	(3) Scientific processes.	(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials	(i) communicate scientific information extracted from various sources	TX2_US4101A19	Applying and Communicating Scientific Information (TX2_US4101A19)	The Animation describes and demonstrates the application of scientific information extracted from various sources.	The Question-Answer Sheet asks a question about applying scientific information extracted from various sources.
437	(3) Scientific processes.	(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials	(i) communicate scientific information extracted from various sources	TX2_US4101A19	Applying and Communicating Scientific Information (TX2_US4101A19)		In Enrichment Sheet 1, students are given an assignment involving the communication of scientific information extracted from various sources.
438	(3) Scientific processes.	(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials	(i) communicate scientific information extracted from various sources	TX2_US4101A19	Applying and Communicating Scientific Information (TX2_US4101A19)		In Enrichment Sheet 2, students are given an assignment involving the communication of scientific information extracted from various sources.
439	(3) Scientific processes.	(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials	(ii) apply scientific information extracted from various sources	TX2_US4101A19	Applying and Communicating Scientific Information (TX2_US4101A19)	The Animation describes and demonstrates the application of scientific information extracted from various sources.	The Question-Answer Sheet asks a question about applying scientific information extracted from various sources.
440	(3) Scientific processes.	(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials	(ii) apply scientific information extracted from various sources	TX2_US4101A19	Applying and Communicating Scientific Information (TX2_US4101A19)		In Enrichment Sheet 1, students are given an assignment involving the application of scientific information extracted from various sources.

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441	(3) Scientific processes.	(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials	(ii) apply scientific information extracted from various sources	TX2_US4101A19	Applying and Communicating Scientific Information (TX2_US4101A19)		In Enrichment Sheet 2, students are given an assignment involving the application of scientific information extracted from various sources.
442	(3) Scientific processes.	(C) draw inferences based on data related to promotional materials for products and services	(i) draw inferences based on data related to promotional materials for products	TX2_US4803A02	Evaluating Products and Services (TX2_US4803A02)	The Animation draws inferences based on data related to promotional materials for products.	Q1 and Q2 in Enrichment Sheet 1, and Q1 in Enrichment Sheet 2, ask the student to draw inferences based on data related to promotional materials for products.
443	(3) Scientific processes.	(C) draw inferences based on data related to promotional materials for products and services	(ii) draw inferences based on data related to promotional materials for services	TX2_US4803A02	Evaluating Products and Services (TX2_US4803A02)	The Animation draws inferences based on data related to promotional materials for services.	Q2 in Enrichment Sheet 2 asks the student to draw inferences based on data related to promotional materials for services.
444	(3) Scientific processes.	(C) draw inferences based on data related to promotional materials for products and services	(ii) draw inferences based on data related to promotional materials for services	TX2_US4803A02	Evaluating Products and Services (TX2_US4803A02)		Q3 and Q4 in Enrichment Sheet 1 ask the student to draw inferences based on data related to promotional materials for services.
445	(3) Scientific processes.	(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society	(i) explain the impacts of the scientific contributions of a variety of historical scientists on scientific thought	TX2_US2305A03	Historical Development of Electromagnetic Forces (TX2_US2305A03)	Section 1 of the Activity Object describes the impacts and contributions of William Gilbert, Benjamin Franklin, Charles Augustin de Coulomb, Hans Christian Oersted, etc.	The Question-Answer Sheet asks questions about the contributions of several historical scientists.
446	(3) Scientific processes.	(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society	(i) explain the impacts of the scientific contributions of a variety of historical scientists on scientific thought	TX2_US260202CD	Radioactive Decay (TX2_US260202CD)	Section 1 describes the impacts and contributions of Wilhelm Roentgen, Henri Becquerel, and the Curies.	The Activity Sheet asks questions about the contributions of historical scientists in the field of radioactivity.
447	(3) Scientific processes.	(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society	(i) explain the impacts of the scientific contributions of a variety of historical scientists on scientific thought	TX2_US230402CD	Magnetic Field of a Current-Carrying Infinite Wire (TX2_US230402CD)	Section 1 of the Activity Object describes the impacts and contributions of several scientists to the field of electromagnetism.	The Activity Sheet asks questions about the contributions of historical scientists in the field of electromagnetism.
448	(3) Scientific processes.	(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society	(i) explain the impacts of the scientific contributions of a variety of historical scientists on scientific thought	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	Section 1 of the Activity Object describes the contributions of Aristotle, Al Haytham and Galileo.	The Activity Sheet asks questions about the contributions of historical scientists in the field of motion and mechanics.
449	(3) Scientific processes.	(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society	(i) explain the impacts of the scientific contributions of a variety of historical scientists on scientific thought	TX2_US420105CD	History of the Atomic Model: From Rutherford to Bohr (TX2_US420105CD)	The Activity Object details the contributions of several historical scientists to our understanding of the atom.	The Activity Sheet asks questions about the contributions of historical scientists in the field of motion and mechanics.
450	(3) Scientific processes.	(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society	(i) explain the impacts of the scientific contributions of a variety of historical scientists on scientific thought	TX2_US2101A17	History of Physics (TX2_US2101A17)	The Animation explains the impacts of the scientific contributions of a variety of historical scientists on scientific thought.	The Activity Sheet asks students to explain the impacts of the scientific contributions of a variety of historical scientists on scientific thought.
451	(3) Scientific processes.	(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society	(ii) explain the impacts of the scientific contributions of a variety of historical scientists on society	TX2_US420103DM	Photoelectric Effect (TX2_US420103DM)	Section 1 of the Activity Object describes Albert Einstein and the photoelectric effect, and describes the technology that is now available as a result of this discovery.	The Activity Sheet evaluates the impacts of the scientific contributions of a variety of historical scientists on society.
452	(3) Scientific processes.	(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society	(ii) explain the impacts of the scientific contributions of a variety of historical scientists on society	TX2_US260202CD	Radioactive Decay (TX2_US260202CD)	Section 1 describes the contributions that Wilhelm Roentgen, Henri Becquerel, and the Curies made to radiography, which can help detect diseases.	
453	(3) Scientific processes.	(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society	(ii) explain the impacts of the scientific contributions of a variety of historical scientists on society	TX2_US230402CD	Magnetic Field of a Current-Carrying Infinite Wire (TX2_US230402CD)	Section 5 of the Activity Object describes how the contributions of scientists (Galvani, Franking, Volta, etc.) helped to aid the production of electric motors and MRI machines.	The Activity Sheet asks students to explain the impacts of the scientific contributions of a variety of historical scientists on society.

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454	(3) Scientific processes.	(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society	(ii) explain the impacts of the scientific contributions of a variety of historical scientists on society	TX2_US2101A17	History of Physics (TX2_US2101A17)	The Animation explains the impacts of the scientific contributions of a variety of historical scientists on society.	The Activity Sheet asks students to explain the impacts of the scientific contributions of a variety of historical scientists on society.
455	(3) Scientific processes.	(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society	(iii) explain the impacts of the scientific contributions of a variety of contemporary scientists on scientific thought	TX2_US2101A18	Contemporary Physicists (TX2_US2101A18)	The Animation explains the impacts and scientific contributions of a variety of contemporary scientists on scientific thought.	The Question-Answer Sheet assesses the impacts and the scientific contributions of contemporary scientists on scientific thought.
456	(3) Scientific processes.	(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society	(iv) explain the impacts of the scientific contributions of a variety of contemporary scientists on society	TX2_US2101A18	Contemporary Physicists (TX2_US2101A18)	The Animation explains the impacts and scientific contributions of a variety of contemporary scientists on society.	The Question-Answer Sheet assesses the impacts and the scientific contributions of contemporary scientists on society.
457	(3) Scientific processes.	(E) research and describe the connections between physics and future careers	(i) research the connections between physics and future careers	TX2_US2801A13	Physics and Future Careers (TX2_US2801A13)	The Animation talks about the connections between physics and future careers in that field.	The Enrichment Sheet contains activities in which students research the connections between physics and future careers in this field, and students write the results of their research.
458	(3) Scientific processes.	(E) research and describe the connections between physics and future careers	(ii) describe the connections between physics and future careers	TX2_US2801A13	Physics and Future Careers (TX2_US2801A13)	The Animation describes the connections between physics and future careers in that field.	Q2 of the Question-Answer Sheet asks students to describe the connections between physics and future careers in this field.
459	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(i) express relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring proportional reasoning	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students: make predictions; observe the results of investigations of Newton's law of universal gravitation, which are recorded in data tables; and draw conclusions using proportional reasoning to discern mathematical relationships.	
460	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(i) express relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring proportional reasoning	TX2_US210209MS	Solving Problems with Newton's Second Law (TX2_US210209MS)	Part 2 of the Activity Object expresses a relationship between force, mass, and acceleration symbolically in accordance with Newton's second law of motion. The Activity Object also presents problems that are solved mathematically.	In Part 3 of the Activity Object, students are presented with a relationship between force, mass, and acceleration symbolically in accordance with Newton's second law of motion. Students are asked to solve problems mathematically that involve the use of proportional reasoning. Responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
461	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(i) express relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring proportional reasoning	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Part 3 of the Activity Object expresses relationships associated with Newton's law of universal gravitation that require proportional reasoning using quantitative data, and symbolically using mathematical equations. In Part 2 of the Activity Object, students are presented with a data table that solves problems mathematically based on using equations from Newton's second law of motion.	Part 3 of the Activity Object expresses relationships associated with Newton's law of universal gravitation that require proportional reasoning using quantitative data, and symbolically using mathematical equations. In Part 2 of the Activity Object, students are presented with a data table that solves problems mathematically based on using equations from Newton's second law of motion. Responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
462	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(ii) express relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring graphical vector addition	TX2_US210104CD	Flying Using Vector Addition (TX2_US210104CD)	In Part 1 and Part 2 of the Activity Object, students solve graphical vector addition problems to predict the location of an airplane. Part 3 of the Activity Object presents the problem symbolically, in accordance with accepted theories.	In the Activity Sheet, students solve graphical vector addition problems to predict the location of an airplane.
463	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(ii) express relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring graphical vector addition	TX2_US210107PU	Combining Parallel and Perpendicular Forces (TX2_US210107PU)	Part 1 and Part 3 of the Activity Object describe the expression of force based on Newton's Laws of Motion symbolically, and present problems requiring graphical vector addition. Part 2 of the Activity Object requires students to solve problems by using graphical vector addition, and the solutions may be used to make predictions.	Part 2 of the Activity Object requires students to solve problems requiring graphical vector addition, which may be used to make predictions. Responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
464	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(ii) express relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring graphical vector addition	TX2_US210108PU	Combining Non-Perpendicular Forces (TX2_US210108PU)	Part 1 and Part 3 of the Activity Object describe the expression of force based on Newton's laws of motion symbolically, and present problems requiring graphical vector addition. Part 2 of the Activity Object requires students to solve problems requiring graphical vector addition, and the solutions may be used to make predictions.	Part 2 of the Activity Object requires students to solve problems requiring graphical vector addition, which may be used to make predictions. Responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
465	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(ii) express relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring graphical vector addition	TX2_US210219CD	Analyzing Motion in a Medium (TX2_US210219CD)	In Part 2 of the Activity Object, students must navigate a ship to a certain point using the concept of graphical vector addition. Part 3 explains different methods to calculate the vector sum.	The Activity Sheet asks students to express relationships symbolically and to use graphical vector addition.
466	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(iii) express relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students: make predictions; observe the results of investigations of Newton's law of universal gravitation, which are recorded in data tables; and draw conclusions using proportional reasoning to discern mathematical relationships.	Part 3 of the Activity Object expresses relationships associated with Newton's law of universal gravitation that require proportional reasoning using quantitative data, and symbolically using mathematical equations. In Part 2 of the Activity Object, students are presented with a data table that solves problems mathematically based on using equations from Newton's second law of motion. Responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
467	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(iii) express relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning	TX2_US210209MS	Solving Problems with Newton's Second Law (TX2_US210209MS)	Part 2 of the Activity Object expresses a relationship between force, mass, and acceleration symbolically, in accordance with Newton's second law of motion, and presents problems that are solved mathematically.	In Part 3 of the Activity Object, students are presented with a relationship between force, mass, and acceleration symbolically, in accordance with Newton's second law of motion, and are asked to solve problems mathematically that involve the use of proportional reasoning. Responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
468	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(iii) express relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)		In Enrichment Sheet 1 and Enrichment Sheet 2, students express relationships symbolically to make predictions mathematically, including problems requiring proportional reasoning.
469	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(iv) express relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring graphical vector addition	TX2_US210104CD	Flying Using Vector Addition (TX2_US210104CD)	In Part 2 of the Activity Object, students solve problems mathematically using graphical vector addition. Part 3 of the Activity Object provides a summary of the interaction.	In the Activity Sheet, students solve problems mathematically using graphical vector addition.
470	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(iv) express relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring graphical vector addition	TX2_US210107PU	Combining Parallel and Perpendicular Forces (TX2_US210107PU)	Part 1 and Part 3 of the Activity Object describe the expression of force based on Newton's laws of motion symbolically, and students solve problems requiring graphical vector addition.	Part 2 of the Activity Object requires students to solve problems requiring graphical vector addition. Responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
471	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(iv) express relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring graphical vector addition	TX2_US210108PU	Combining Non-Perpendicular Forces (TX2_US210108PU)	Part 1 and Part 3 of the Activity Object describe the expression of force based on Newton's laws of motion symbolically, and students solve problems requiring graphical vector addition.	Part 2 of the Activity Object requires students to solve problems requiring graphical vector addition. Responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
472	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(v) interpret relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring proportional reasoning	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students must manipulate variables in a systematic manner to investigate Newton's law of universal gravitation.	

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
473	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(v) interpret relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring proportional reasoning	TX2_US210209MS	Solving Problems with Newton's Second Law (TX2_US210209MS)	Part 2 of the Activity Object interprets and expresses the relationship between force, mass, and acceleration symbolically in accordance with Newton's second law of motion. Students are presented problems that are solved mathematically.	In Enrichment Sheet 1 and Enrichment Sheet 2, students interpret relationships symbolically to make predictions mathematically, including problems requiring proportional reasoning.
474	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(v) interpret relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring proportional reasoning	TX2_US210209MS	Solving Problems with Newton's Second Law (TX2_US210209MS)	In Part 3 of the Activity Object, students are presented with a relationship between force, mass, and acceleration symbolically in accordance with Newton's second law of motion. Students are asked to solve mathematical problems that involve the use of proportional reasoning.	In Part 3 of the Activity Object, students interpret relationships symbolically with problems requiring proportional reasoning. Responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
475	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(v) interpret relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring proportional reasoning	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students are presented with a data table that solves problems mathematically based on using equations from Newton's second law of motion. Part 3 of the Activity Object expresses relationships associated with Newton's law of universal gravitation, and these relationships require proportional reasoning using quantitative data and symbolic mathematical equations.	In Part 3 of the Activity Object, students interpret relationships symbolically with problems requiring proportional reasoning. Responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
476	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vi) interpret relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring graphical vector addition	TX2_US210104CD	Flying Using Vector Addition (TX2_US210104CD)	In Part 1 and Part 2 of the Activity Object, students interpret and solve graphical vector addition problems to predict the location of a plane. Part 3 of the Activity Object presents the problem symbolically in accordance with accepted theories.	In the Activity Sheet, students interpret and solve graphical vector addition problems to predict the location of a plane.
477	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vi) interpret relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring graphical vector addition	TX2_US210107PU	Combining Parallel and Perpendicular Forces (TX2_US210107PU)	Part 1 of the Activity Object interprets relationships symbolically in accordance with accepted theories, and laws of force and motion. In Part 2 of the Activity Object, students interpret and solve problems mathematically using graphical vector addition.	In Section 2 of the Activity Object, students must interpret relationships symbolically with a problem requiring graphical vector addition. Student responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
478	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vi) interpret relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring graphical vector addition	TX2_US210107PU	Combining Parallel and Perpendicular Forces (TX2_US210107PU)		The Activity Sheet requires students to interpret relationships symbolically with a problem requiring graphical vector addition.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
479	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vi) interpret relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring graphical vector addition	TX2_US210108PU	Combining Non-perpendicular Forces (TX2_US210108PU)	Part 1 of the Activity Object interprets relationships symbolically in accordance with accepted theories, and laws of force and motion. In Part 2 of the Activity Object, students interpret and solve problems mathematically using graphical vector addition.	In Section 2 of the Activity Object, students must interpret relationships symbolically with a problem requiring graphical vector addition. Student responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
480	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vi) interpret relationships symbolically in accordance with accepted theories to make predictions mathematically, including problems requiring graphical vector addition	TX2_US210108PU	Combining Non-perpendicular Forces (TX2_US210108PU)		The Activity Sheet requires students to interpret relationships symbolically with a problem requiring graphical vector addition.
481	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vii) interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning	TX2_US210209MS	Solving Problems with Newton's Second Law (TX2_US210209MS)	In Part 2 of the Activity Object, and based on Newton's second law of motion, students are presented with a symbolical interpretation of the relationship between force, mass, and acceleration. Students solve problems using the applicable mathematical formulas/equations, as well as proportional reasoning.	The Activity Sheet requires students to interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning.
482	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vii) interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning	TX2_US210209MS	Solving Problems with Newton's Second Law (TX2_US210209MS)	In Part 3 of the Activity Object, and based on Newton's second law of motion, students complete an activity in which they must symbolically interpret the relationship between force, mass, and acceleration, and use proportional reasoning to solve problems mathematically.	The Activity Object asks students to interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning. Student responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
483	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vii) interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning	TX2_US210209MS	Solving Problems with Newton's Second Law (TX2_US210209MS)	The Enrichment Sheet interprets relationships symbolically in accordance with accepted theories to solve problems mathematically, including the use of proportional reasoning.	The Enrichment Sheet requires students to interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning.
484	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vii) interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students are presented with a data table that solves problems mathematically based on using equations from Newton's second law of motion, as well as proportional reasoning.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
485	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vii) interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Part 3 of the Activity Object expresses relationships associated with Newton's law of universal gravitation that require proportional reasoning using quantitative data, and symbolically using mathematical equations.	
486	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vii) interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Enrichment Sheet 1 interprets relationships symbolically in accordance with accepted theories to solve problems mathematically, including the use of proportional reasoning.	Enrichment Sheet 1 requires students to interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning.
487	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vii) interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Enrichment Sheet 2 interprets relationships symbolically in accordance with accepted theories to solve problems mathematically, including the use of proportional reasoning.	Enrichment Sheet 2 requires students to interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning.
488	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(vii) interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring proportional reasoning	TX2_US230101CD	Coulomb's Law (TX2_US230101CD)	Part 1 of the Activity Object expresses relationships symbolically in accordance with Coulomb's Law and makes predictions. In Part 2 of the Activity Object, additional predictions are made, and students must solve problems mathematically using proportional reasoning.	
489	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(viii) interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring graphical vector addition	TX2_US210107PU	Combining Parallel and Perpendicular Forces (TX2_US210107PU)	Part 1 of the Activity Object interprets relationships symbolically in accordance with accepted theories and laws of force and motion. In Part 2 of the Activity Object, students solve problems mathematically using graphical vector addition.	In the Activity Sheet, students interpret relationships symbolically in accordance with accepted theories and laws of force and motion to solve problems using graphical vector addition.
490	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(viii) interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring graphical vector addition	TX2_US210108PU	Combining Non-perpendicular Forces (TX2_US210108PU)	Part 1 of the Activity Object interprets relationships symbolically in accordance with accepted theories and laws of force and motion. In Part 2 of the Activity Object, students solve problems mathematically using graphical vector addition.	In the Activity Sheet, students interpret relationships symbolically in accordance with accepted theories and laws of force and motion to solve problems using graphical vector addition.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
491	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(viii) interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring graphical vector addition	TX2_US210104CD	Flying Using Vector Addition (TX2_US210104CD)	In Part 1 and Part 2 of the Activity Object, students interpret and solve graphical vector addition problems. Part 3 of the Activity Object presents the problem symbolically in accordance with accepted theories.	In the Activity Object, students interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring graphical vector addition. Students provide responses throughout the Activity Object, and the software provides appropriate feedback as students work through the exercises.
492	(3) Scientific processes.	(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition	(viii) interpret relationships symbolically in accordance with accepted theories to solve problems mathematically, including problems requiring graphical vector addition	TX2_US210104CD	Flying Using Vector Addition (TX2_US210104CD)		In the Activity Sheet, students interpret relationships symbolically to solve problems mathematically, including problems requiring graphical vector addition.
493	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(i) generate graphs describing different types of motion, including the use of real-time technology	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 2 of the Activity Object, students generate graphs that describe motion under different conditions. Using technology, the graph is produced in real time in accordance with the motion of the object.	In the Activity Sheet, students must generate graphs that describe different types of motion, and this includes knowledge of real-time technology.
494	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(i) generate graphs describing different types of motion, including the use of real-time technology	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 3 of the Activity Object, students manipulate the velocity and acceleration of a device and, using technology, observe the creation of several graphs in real time.	In Parts 2 and Part 3 of the Activity Object, students generate graphs of motion displayed in real-time. Student responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
495	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(i) generate graphs describing different types of motion, including the use of real-time technology	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 2 of the Activity Object, using technology, students generate graphs describing different types of motion in real-time.	
496	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(i) generate graphs describing different types of motion, including the use of real-time technology	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 3 of the Activity Object, using technology, students generate graphs describing different types of motion in real-time.	In the Activity Sheet, students must generate graphs by using data from their interactive explorations of motion in the Activity Object, which includes real-time technology.
497	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(i) generate graphs describing different types of motion, including the use of real-time technology	TX2_US2102A02	Position-Time Graph of Uniform One-Dimensional Motion (TX2_US2102A02)	The Animation generates graphs describing motion in real time, in accordance with the motion of the objects.	
498	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(ii) generate charts describing different types of motion, including the use of real-time technology	TX2_US2102A02	Position-Time Graph of Uniform One-Dimensional Motion (TX2_US2102A02)	The Animation generates a graph (a type of chart) describing different types of motion in real time, in accordance with the motion of the objects.	
499	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(ii) generate charts describing different types of motion, including the use of real-time technology	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 3 of the Activity Object, using technology, students generate graphs (a type of chart) that describe different types of motion in real time, in accordance with the motion of the objects.	In the Activity Sheet, students complete a chart involving average velocity and acceleration. Student interactions in the Activity Object involved technology that displayed charts in real time.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
500	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(ii) generate charts describing different types of motion, including the use of real-time technology	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 2 of the Activity Object, using technology, students generate graphs (a type of chart) that describe projectile motion in real time, in accordance with the motion of the objects.	
501	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(ii) generate charts describing different types of motion, including the use of real-time technology	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 3 of the Activity Object, using technology, students generate graphs (a type of chart) that describe projectile motion in real time, in accordance with the motion of the objects.	
502	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(iii) interpret graphs describing different types of motion, including the use of real-time technology	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	Part 4 of the Activity Object describes different types of motion using graphs that students must interpret. In Part 2 and Part 3 of the Activity Object, the graphs are generated using real-time technology in accordance with the motion of the objects.	In the Activity Sheet, students interpret graphs describing different types of motion, similar to the real- time graphs produced in the Activity Object.
503	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(iii) interpret graphs describing different types of motion, including the use of real-time technology	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 2 of the Activity Object, students must interpret graphs describing different types of motion to answer questions and complete activities.	In the Activity Sheet, students must interpret graphs describing different types of motion in order to answer questions and complete activities.
504	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(iii) interpret graphs describing different types of motion, including the use of real-time technology	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 3 of the Activity Object, students must interpret graphs describing different types of motion to answer questions and complete activities.	In Part 3 of the Activity Object, students must interpret graphs describing different types of motion to answer questions and complete activities. Students responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
505	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(iv) interpret charts describing different types of motion, including the use of real-time technology	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	In Part 2 of the Activity Object, students use and interpret several charts to measure and display in real time the kinetic energy, potential energy, and mechanical energy of a falling sphere.	Part 2 of the Activity Object uses several charts to measure the kinetic energy, potential energy, and mechanical energy of a falling sphere in real-time. Student interpretations / responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
506	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(iv) interpret charts describing different types of motion, including the use of real-time technology	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 4 of the Activity Object uses several charts that change in real time to measure and display the kinetic energy, potential energy, mechanical energy, and energy lost as heat in real time for a ski jumper.	
507	(4) Science concepts.	(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates	(iv) interpret charts describing different types of motion, including the use of real-time technology	TX2_US210104CD	Flying Using Vector Addition (TX2_US210104CD)		In the Activity Sheet, students must interpret a chart showing x and y components of motion.
508	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(i) describe motion in one dimension using equations with the concept of distance	TX2_US2102A01	Position, Displacement, and Average Velocity (TX2_US2102A01)	The Animation describes motion in one dimension using equations with the concept of distance.	

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
509	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(i) describe motion in one dimension using equations with the concept of distance	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Enrichment Sheet describes motion in one dimension using equations with the concept of distance.	The Enrichment Sheet assesses motion in one dimension using equations with the concept of distance.
510	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(ii) describe motion in one dimension using equations with the concept of displacement	TX2_US2102A01	Position, Displacement, and Average Velocity (TX2_US2102A01)	The Animation describes motion in one dimension using equations with the concept of displacement.	
511	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(ii) describe motion in one dimension using equations with the concept of displacement	TX2_US2102A03	Velocity-Time Graph of One Dimensional Motion and Displacement (TX2_US2102A03)	The Animation describes motion in one dimension using equations with the concept of displacement.	
512	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(ii) describe motion in one dimension using equations with the concept of displacement	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Enrichment Sheet describes motion in one dimension using equations with the concept of displacement.	The Enrichment Sheet assesses motion in one dimension using equations with the concept of displacement.
513	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(iii) describe motion in one dimension using equations with the concept of speed	TX2_US210230CD	Uniform Linear Motion (TX2_US210230CD)	Part 4 of the Activity Object describes motion of an object in one dimension using an equation with a variable for speed.	
514	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(iii) describe motion in one dimension using equations with the concept of speed	TX2_US2102A03	Velocity-Time Graph of One Dimensional Motion and Displacement (TX2_US2102A03)	The Animation describes motion of an object in one dimension using an equation with a variable for speed.	
515	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(iii) describe motion in one dimension using equations with the concept of speed	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Enrichment Sheet describes motion in one dimension using equations with the concept of speed.	The Enrichment Sheet assesses motion in one dimension using equations with the concept of speed.
516	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(iv) describe motion in one dimension using equations with the concept of average velocity	TX2_US2102A01	Position, Displacement, and Average Velocity (TX2_US2102A01)	The Animation describes motion in one dimension using an equation and the calculation of average velocity.	
517	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(iv) describe motion in one dimension using equations with the concept of average velocity	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Animation describes motion in one dimension using an equation and the calculation of average velocity.	The Enrichment Sheet assesses motion in one dimension using equations with the concept of average velocity.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
518	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(v) describe motion in one dimension using equations with the concept of instantaneous velocity	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Animation describes motion in one dimension using equations with the concept of instantaneous velocity.	The Enrichment Sheet assesses motion in one dimension using equations with the concept of instantaneous velocity.
519	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(vi) describe motion in one dimension using equations with the concept of acceleration	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	Part 1 of the Activity Object describes motion in one dimension using equations described in Part 4 of the Activity Object, which covers the concept of acceleration.	
520	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(vi) describe motion in one dimension using equations with the concept of acceleration	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 2 of the Activity Object, students create graphs that describe motion in one dimension using equations described in Part 4 of the Activity Object, which covers the concept of acceleration.	
521	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(vi) describe motion in one dimension using equations with the concept of acceleration	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Enrichment Sheet describes motion in one dimension using equations with the concept of acceleration.	The Enrichment Sheet assesses motion in one dimension using equations with the concept of acceleration.
522	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(vii) analyze motion in one dimension using equations with the concept of distance	TX2_US2102A01	Position, Displacement, and Average Velocity (TX2_US2102A01)	The Animation presents an analysis of motion in one dimension using equations with the concept of distance.	
523	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(vii) analyze motion in one dimension using equations with the concept of distance	TX2_US2102A03	Velocity-Time Graph of One Dimensional Motion and Displacement (TX2_US2102A03)	The Animation presents an analysis of motion in one dimension using equations with the concept of distance.	
524	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(vii) analyze motion in one dimension using equations with the concept of distance	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Enrichment Sheet analyzes motion in one dimension using equations with the concept of distance.	The Enrichment Sheet requires students to analyze motion in one dimension using equations with the concept of distance.
525	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(viii) analyze motion in one dimension using equations with the concept of displacement	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	Part 1 of the Activity Object describes motion in one dimension using equations described in Part 4 of the Activity Object, which covers the concept of displacement.	
526	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(viii) analyze motion in one dimension using equations with the concept of displacement	TX2_US2102A03	Velocity-Time Graph of One Dimensional Motion and Displacement (TX2_US2102A03)	The Animation presents the analysis of motion in one dimension using equations and the concept of displacement.	

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
527	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(viii) analyze motion in one dimension using equations with the concept of displacement	TX2_US210219CD	Analyzing Motion in a Medium (TX2_US210219CD)	In Part 2 of the Activity Object, students must navigate a ship to a certain point using the concept of graphical vector addition. Part 3 of the Activity Object explains different methods to calculate the vector sum.	
528	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(viii) analyze motion in one dimension using equations with the concept of displacement	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Enrichment Sheet analyzes motion in one dimension using equations with the concept of displacement.	The Enrichment Sheet requires students to analyze motion in one dimension using equations with the concept of displacement.
529	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(ix) analyze motion in one dimension using equations with the concept of speed	TX2_US2102A01	Position, Displacement, and Average Velocity (TX2_US2102A01)	The Animation presents an analysis of motion in one dimension using equations with the concept of speed.	
530	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(ix) analyze motion in one dimension using equations with the concept of speed	TX2_US2102A03	Velocity-Time Graph of One Dimensional Motion and Displacement (TX2_US2102A03)	The Animation presents an analysis of motion in one dimension using equations with the concept of speed.	
531	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(ix) analyze motion in one dimension using equations with the concept of speed	TX2_US210230CD	Uniform Linear Motion (TX2_US210230CD)	Multiple parts of the Activity Object present an analysis of motion in one dimension using equations with the concept of speed.	
532	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(ix) analyze motion in one dimension using equations with the concept of speed	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Enrichment Sheet analyzes motion in one dimension using equations with the concept of speed.	The Enrichment Sheet requires students to analyze motion in one dimension using equations with the concept of speed.
533	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(x) analyze motion in one dimension using equations with the concept of average velocity	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Animation analyzes motion in one dimension using equations with the concept of average velocity.	The Enrichment Sheet requires students to analyze motion in one dimension using equations with the concept of average velocity.
534	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(x) analyze motion in one dimension using equations with the concept of average velocity	TX2_US2102A01	Position, Displacement, and Average Velocity (TX2_US2102A01)	The Animation presents the analysis of motion in one dimension using equations and the concept of average velocity.	
535	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(xi) analyze motion in one dimension using equations with the concept of instantaneous velocity	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Animation analyzes motion in one dimension using equations with the concept of instantaneous velocity.	The Enrichment Sheet requires students to analyze motion in one dimension using equations with the concept of instantaneous velocity.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
536	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(xii) analyze motion in one dimension using equations with the concept of acceleration	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 2 of the Activity Object, students analyze motion using equations with the concept of acceleration to examine aspects of projectile motion.	In the Activity Sheet, students answer questions related to an analysis of motion using equations with the concept of acceleration.
537	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(xii) analyze motion in one dimension using equations with the concept of acceleration	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 3 of the Activity Object, students analyze motion using equations with the concept of acceleration to examine aspects of projectile motion.	
538	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(xii) analyze motion in one dimension using equations with the concept of acceleration	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	Part 1 of the Activity Object analyzes motion in one dimension using an equation described in Part 4 of the Activity Object, which covers the concept of acceleration.	In the Activity Sheet, students answer questions related to an analysis of motion using equations with the concept of acceleration.
539	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(xii) analyze motion in one dimension using equations with the concept of acceleration	TX2_US210229CD	Motion with Constant Acceleration (TX2_US210229CD)	In Part 2 of the Activity Object, students analyze motion in one dimension using equations described in Part 4 of the Activity Object, which covers the concept of acceleration.	
540	(4) Science concepts.	(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration	(xii) analyze motion in one dimension using equations with the concept of acceleration	TX2_US2102A11	Instantaneous Velocity and Acceleration (TX2_US2102A11)	The Animation analyzes motion in one dimension using equations with the concept of acceleration.	The Enrichment Sheet requires students to analyze motion in one dimension using equations with the concept of acceleration.
541	(4) Science concepts.	(C) analyze and describe accelerated motion in two dimensions using equations, including projectile and circular examples	(i) analyze accelerated motion in two dimensions using equations, including projectile examples	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 2 of the Activity Object, students analyze motion using equations with the concept of acceleration in order to examine aspects of projectile motion.	
542	(4) Science concepts.	(C) analyze and describe accelerated motion in two dimensions using equations, including projectile and circular examples	(i) analyze accelerated motion in two dimensions using equations, including projectile examples	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	In Part 3 of the Activity Object, students analyze motion using equations with the concept of acceleration in order to examine aspects of projectile motion.	
543	(4) Science concepts.	(C) analyze and describe accelerated motion in two dimensions using equations, including projectile and circular examples	(i) analyze accelerated motion in two dimensions using equations, including projectile examples	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	The Enrichment Sheet analyzes accelerated motion in two dimensions using equations, including projectile examples.	Q1-Q2-Q3 in the Enrichment Sheet ask students to analyze accelerated motion in two dimensions using equations, including projectile examples.
544	(4) Science concepts.	(C) analyze and describe accelerated motion in two dimensions using equations, including projectile and circular examples	(ii) analyze accelerated motion in two dimensions using equations, including circular examples	TX2_US2102A10	Uniform Circular Motion II (TX2_US2102A10)	The Animation analyzes the acceleration of circular motion in two dimensions using equations.	The Question-Answer Sheet asks a question that requires an analysis of accelerated motion in two dimensions using equations, including circular examples.
545	(4) Science concepts.	(C) analyze and describe accelerated motion in two dimensions using equations, including projectile and circular examples	(iii) describe accelerated motion in two dimensions using equations, including projectile examples	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	Part 2 of the Activity Object describes motion using equations with the concept of acceleration to examine aspects of projectile motion.	In the Activity Sheet, students answer questions on motion using equations with the concept of acceleration.
546	(4) Science concepts.	(C) analyze and describe accelerated motion in two dimensions using equations, including projectile and circular examples	(iii) describe accelerated motion in two dimensions using equations, including projectile examples	TX2_US210220CD	Graphs of Projectile Motion (TX2_US210220CD)	Part 3 of the Activity Object describes motion using equations with the concept of acceleration in order to examine aspects of projectile motion.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
547	(4) Science concepts.	(C) analyze and describe accelerated motion in two dimensions using equations, including projectile and circular examples	(iv) describe accelerated motion in two dimensions using equations, including circular examples	TX2_US2102A10	Uniform Circular Motion II (TX2_US2102A10)	The Animation describes the acceleration of circular motion in two dimensions using equations.	The Question-Answer Sheet asks a question that requires the analysis of acceleration of circular motion in two dimensions using equations.
548	(4) Science concepts.	(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects	(i) calculate the effect of forces on objects, including the law of inertia	TX2_US210109CD	Friction (TX2_US210109CD)	Part 2 of the Activity Object demonstrates the calculation of maximum static frictional force under a variety of conditions.	
549	(4) Science concepts.	(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects	(i) calculate the effect of forces on objects, including the law of inertia	TX2_US210231XP	Newton's Second Law of Motion (TX2_US210231XP)	In the Activity Object, students manipulate the force applied to objects of different masses in a frictionless environment, and respond to questions that require the calculation of the differences between mass, the magnitude of applied force, and motion.	In the Activity Object, students manipulate the force applied to objects of different masses in a frictionless environment, and respond to questions that require the calculation of the differences between mass, the magnitude of applied force, and motion. Responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
550	(4) Science concepts.	(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects	(i) calculate the effect of forces on objects, including the law of inertia	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	Enrichment Sheet 1 teaches the calculation of the effect of forces on objects, including the law of inertia.	Enrichment Sheet 1 assesses the calculation of the effect of forces on objects, including the law of inertia.
551	(4) Science concepts.	(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects	(i) calculate the effect of forces on objects, including the law of inertia	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	Part 2 of the Activity Object calculates the effect of force on an object, including the law of inertia.	
552	(4) Science concepts.	(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects	(i) calculate the effect of forces on objects, including the law of inertia	TX2_US210218CD	Concept of Inertia (TX2_US210218CD)	Part 3 of the Activity Object demonstrates Galileo's experiments on inertia.	
553	(4) Science concepts.	(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects	(ii) calculate the effect of forces on objects, including the relationship between force and acceleration	TX2_US210109CD	Friction (TX2_US210109CD)	Part 2 of the Activity Object demonstrates the calculation of maximum static frictional force under a variety of conditions.	
554	(4) Science concepts.	(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects	(ii) calculate the effect of forces on objects, including the relationship between force and acceleration	TX2_US210209MS	Solving Problems with Newton's Second Law (TX2_US210209MS)	Part 1 and Part 2 of the Activity Object describe how to calculate the effect of forces on objects, including the relationship between force and acceleration.	In Part 3 of the Activity Object, students calculate the effect of force on objects, including the relationship between force and acceleration. Their calculations are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
555	(4) Science concepts.	(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects	(ii) calculate the effect of forces on objects, including the relationship between force and acceleration	TX2_US210209MS	Solving Problems with Newton's Second Law (TX2_US210209MS)	The Enrichment Sheet teaches how to calculate the effect of forces on objects, including the relationship between force and acceleration.	The Enrichment Sheet asks questions involving the calculation of the effect of forces on objects, including the relationship between force and acceleration

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
556	(4) Science concepts.	(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects	(iii) calculate the effect of forces on objects, including the nature of force pairs between objects	TX2_US210109CD	Friction (TX2_US210109CD)	Part 2 of the Activity Object demonstrates the calculation of maximum static frictional force under a variety of conditions.	
557	(4) Science concepts.	(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects	(iii) calculate the effect of forces on objects, including the nature of force pairs between objects	TX2_US2301A11	Calculation of Coulomb's Law (TX2_US2301A11)	The Animation demonstrates how to calculate the effect of forces on, including the nature of force pairs between, objects.	
558	(4) Science concepts.	(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects	(iii) calculate the effect of forces on objects, including the nature of force pairs between objects	TX2_US2301A11	Calculation of Coulomb's Law (TX2_US2301A11)	The Enrichment Sheet demonstrates how to calculate the effect of forces on, including the nature of force pairs between, objects.	The Enrichment Sheet contains assessment items where students calculate the effect of forces on, including the nature of force pairs between objects.
559	(4) Science concepts.	(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects	(iii) calculate the effect of forces on objects, including the nature of force pairs between objects	TX2_US210216CD	Newton's Third Law of Motion: The Physics of Rockets (TX2_US210216CD)	Parts 3 and 4 of the Activity Object demonstrate the concept of force pairs.	
560	(4) Science concepts.	(E) develop and interpret free-body force diagrams	(i) develop free-body force diagrams	TX2_US210106CD	Identifying Forces (TX2_US210106CD)	Part 1 of the Activity Object demonstrates how to develop free-body force diagrams.	Q2 of the Activity Sheet asks students to develop free-body force diagrams.
561	(4) Science concepts.	(E) develop and interpret free-body force diagrams	(i) develop free-body force diagrams	TX2_US210106CD	Identifying Forces (TX2_US210106CD)	In Part 2 of the Activity Object, students create free-body force diagrams.	
562	(4) Science concepts.	(E) develop and interpret free-body force diagrams	(i) develop free-body force diagrams	TX2_US210106CD	Identifying Forces (TX2_US210106CD)	Part 3 of the Activity Object demonstrates how to develop free-body force diagrams.	
563	(4) Science concepts.	(E) develop and interpret free-body force diagrams	(ii) interpret free-body force diagrams	TX2_US210106CD	Identifying Forces (TX2_US210106CD)	Part 1 of the Activity Object demonstrates how to interpret free-body force diagrams.	The Activity Sheet requires students to interpret free-body force diagrams.
564	(4) Science concepts.	(E) develop and interpret free-body force diagrams	(ii) interpret free-body force diagrams	TX2_US210106CD	Identifying Forces (TX2_US210106CD)	In Part 2 of the Activity Object, students create free-body force diagrams.	
565	(4) Science concepts.	(E) develop and interpret free-body force diagrams	(ii) interpret free-body force diagrams	TX2_US210106CD	Identifying Forces (TX2_US210106CD)	Part 3 of the Activity Object demonstrates how to develop free-body force diagrams.	
566	(4) Science concepts.	(F) identify and describe motion relative to different frames of reference	(i) identify motion relative to different frames of reference	TX2_US210201DM	Relative Motion (TX2_US210201DM)	In Part 1 of the Activity Object, students identify motion relative to different frames of reference.	In the Activity Sheet, students fill out a table identifying motion relative to different frames of reference.
567	(4) Science concepts.	(F) identify and describe motion relative to different frames of reference	(i) identify motion relative to different frames of reference	TX2_US210201DM	Relative Motion (TX2_US210201DM)	In Part 2 of the Activity Object, students identify motion relative to different frames of reference.	
568	(4) Science concepts.	(F) identify and describe motion relative to different frames of reference	(ii) describe motion relative to different frames of reference	TX2_US210201DM	Relative Motion (TX2_US210201DM)	Part 1 of the Activity Object describes motion relative to different frames of reference.	In the Activity Sheet, students must answer questions that describe motion relative to different frames of reference.
569	(4) Science concepts.	(F) identify and describe motion relative to different frames of reference	(ii) describe motion relative to different frames of reference	TX2_US210201DM	Relative Motion (TX2_US210201DM)	Part 3 of the Activity Object describes motion relative to different frames of reference.	
570	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(i) research the historical development of the concept of gravitational forces	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Part 1 of the Activity Object describes the historical development of the concept of gravitational forces.	Enrichment Sheet 1 asks students to research the historical development of the concept of gravitational forces

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571	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(ii) research the historical development of the concept of electromagnetic forces	TX2_US2305A03	Historical Development of Electromagnetic Forces (TX2_US2305A03)	The Animation describes the historical development of the concept of electromagnetic forces.	
572	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(ii) research the historical development of the concept of electromagnetic forces	TX2_US2305A03	Historical Development of Electromagnetic Forces (TX2_US2305A03)	The Enrichment Sheet describes the historical development of the concept of electromagnetic forces.	Q3 of the Enrichment Sheet asks students to research the historical development of the concept of electromagnetic forces.
573	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(iii) research the historical development of the concept of weak nuclear forces	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)	The Animation describes the historical development of the concept of weak nuclear forces.	Enrichment Sheet 1 asks students to research the historical development of the concept of the weak nuclear force.
574	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(iii) research the historical development of the concept of weak nuclear forces	TX2_US2101A01	Basic Forces in Nature (TX2_US2101A01)	The Animation describes the historic development of the concept of weak nuclear forces.	
575	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(iv) research the historical development of the concept of strong nuclear forces	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)	The Animation describes the historical development of the concept of strong nuclear forces.	Enrichment Sheet 1 asks students to research the historical development of the concept of the strong nuclear force.
576	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(iv) research the historical development of the concept of strong nuclear forces	TX2_US2101A01	Basic Forces in Nature (TX2_US2101A01)	The Animation describes the historical development of the concept of strong nuclear forces.	The Question-Answer Sheet asks a question about the historical development of the concept of strong nuclear forces.
577	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(v) describe the historical development of the concept of gravitational forces	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Part 1 of the Activity Object describes the historical development of the concept of gravitational forces.	Enrichment Sheet 1 asks students to describe the historical development of the concept of gravitational forces.
578	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(vi) describe the historical development of the concept of electromagnetic forces	TX2_US2305A03	Historical Development of Electromagnetic Forces (TX2_US2305A03)	The Animation describes the historical development of the concept of electromagnetic forces.	The Question-Answer Sheet asks questions related to the major historical developments of the concept of electromagnetic force.
579	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(vii) describe the historical development of the concept of weak nuclear forces	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)	The Animation describes the historical development of the concept of weak nuclear forces.	
580	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(vii) describe the historical development of the concept of weak nuclear forces	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)	The Enrichment Sheet describes the historical development of the concept of weak nuclear forces.	The Enrichment Sheet asks students to describe the historical development of the concept of weak nuclear forces.
581	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(viii) describe the historical development of the concept of strong nuclear forces	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)	The Animation describes the historical development of the concept of strong nuclear forces.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
582	(5) Science concepts.	(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces	(viii) describe the historical development of the concept of strong nuclear forces	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)	The Enrichment Sheet describes the historical development of the concept of strong nuclear forces.	The Enrichment Sheet asks students to describe the historical development of the concept of strong nuclear forces.
583	(5) Science concepts.	(B) describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	(i) describe how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Part 1 of the Activity Object describes how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers.	The Activity Sheet includes questions that ask students to describe how the magnitude of the gravitational force between two objects depends on their masses, and the distance between their centers..
584	(5) Science concepts.	(B) describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	(i) describe how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students conduct an investigation to examine whether the magnitude of the gravitational force between two objects depends on their masses and the distance between them.	
585	(5) Science concepts.	(B) describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	(i) describe how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Part 3 of the Activity Object describes how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers in the context of the investigation in Part 2 of the Activity Object.	
586	(5) Science concepts.	(B) describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	(i) describe how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Enrichment Sheet 1 describes how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	Questions in Enrichment Sheet 1 ask the student to describe how the magnitude of the gravitational force between two objects depends on their masses, and the distance between their centers.
587	(5) Science concepts.	(B) describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	(ii) calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	In Part 2 of the Activity Object, students conduct a series of experiments that examine how the magnitude of the gravitational force between two objects depends on their masses and the distance between the masses. Through the series of experiments, a data table calculates the amount of mass of the objects, their distance, and the force between the objects.	In Enrichment Sheet 1, the student must calculate the gravitational force between two objects using both their mass and distance from one another.
588	(5) Science concepts.	(B) describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	(ii) calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers	TX2_US210405CD	Newton's Law of Universal Gravitation (TX2_US210405CD)	Part 3 of the Activity Object demonstrates how the calculations from Part 2 of the Activity Object explain the relationship of how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers.	In Enrichment Sheet 2, the student must calculate the gravitational force between two objects using both their mass and distance from one another.
589	(5) Science concepts.	(C) describe and calculate how the magnitude of the electrical force between two objects depends on their charges and the distance between them	(i) describe how the magnitude of the electrical force between two objects depends on their charges and the distance between them	TX2_US2301A02	Forces Between Charges: Coulomb's Law (TX2_US2301A02)	The Animation describes how the magnitude of the electrical force between two objects depends on their charges and distance.	The Question-Answer Sheet asks questions in which the student must describe how the magnitude of an electric field is affected by charge and by distance.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
590	(5) Science concepts.	(C) describe and calculate how the magnitude of the electrical force between two objects depends on their charges and the distance between them	(i) describe how the magnitude of the electrical force between two objects depends on their charges and the distance between them	TX2_US230103DM	Electric Fields (TX2_US230103DM)	Part 4 of the Activity Object describes how the magnitude of the electrical force between two objects depends on their charges and the distance between them.	The Activity Sheet asks questions in which the student must describe how the magnitude of an electric field is affected by charge and by distance.
591	(5) Science concepts.	(C) describe and calculate how the magnitude of the electrical force between two objects depends on their charges and the distance between them	(ii) calculate how the magnitude of the electrical force between two objects depends on their charges and the distance between them	TX2_US2301A11	Calculation of Coulomb's Law (TX2_US2301A11)	The Animation presents the calculation of how the magnitude of the electrical force between two objects depends on their charges and distance.	The Question-Answer Sheet asks students to calculate the magnitude of the electrical force between two objects, which depends on their charges and distance from one another.
592	(5) Science concepts.	(C) describe and calculate how the magnitude of the electrical force between two objects depends on their charges and the distance between them	(ii) calculate how the magnitude of the electrical force between two objects depends on their charges and the distance between them	TX2_US230101CD	Coulomb's Law (TX2_US230101CD)	In Part 2 of the Activity Object, students calculate the magnitude of the electrical force between two objects.	Enrichment Sheet 2 asks a question on how to calculate the magnitude of the electrical force between two objects, which depends on their charges and distance from one another.
593	(5) Science concepts.	(C) describe and calculate how the magnitude of the electrical force between two objects depends on their charges and the distance between them	(ii) calculate how the magnitude of the electrical force between two objects depends on their charges and the distance between them	TX2_US230103DM	Electric Fields (TX2_US230103DM)	In Part 3 of the Activity Object, students calculate how the magnitude of the electrical force between two objects depends on their charges and the distance between them.	
594	(5) Science concepts.	(D) identify examples of electric and magnetic forces in everyday life	(i) identify examples of electric forces in everyday life	TX2_US230101CD	Coulomb's Law (TX2_US230101CD)	Part 1 of the Activity Object identifies examples of electric forces in everyday life, for example, a charged balloon sticking to a wall.	In the Activity Sheet, students identify examples of electric forces in everyday life.
595	(5) Science concepts.	(D) identify examples of electric and magnetic forces in everyday life	(i) identify examples of electric forces in everyday life	TX2_US230101CD	Coulomb's Law (TX2_US230101CD)	Part 4 of the Activity Object identifies examples of electric forces in everyday life, for example, a photocopier and how it works.	
596	(5) Science concepts.	(D) identify examples of electric and magnetic forces in everyday life	(ii) identify examples of magnetic forces in everyday life	TX2_US230302CD	Designing an Electric Motor (TX2_US230302CD)	Part 3 of the Activity Object identifies examples of magnetic forces in everyday life.	Q1 in the "Reflections" section of the Activity Sheet asks a question about identifying examples of magnetic forces used in everyday life.
597	(5) Science concepts.	(E) characterize materials as conductors or insulators based on their electrical properties		TX2_US2301A06	The Purpose of the Utilization of Conduction and Insulation (TX2_US2301A06)	In the Animation, several materials are characterized as conductors or insulators based on their electrical properties.	The Question-Answer Sheet asks students to characterize materials as conductors or insulators based on their electrical properties.
598	(5) Science concepts.	(E) characterize materials as conductors or insulators based on their electrical properties		TX2_US2301A13	Lab Equipment: Electronics (TX2_US2301A13)		Q3 of Investigation 1 in Lab Sheet 1 asks students to identify materials as conductors or insulators based on their electrical properties.
599	(5) Science concepts.	(E) characterize materials as conductors or insulators based on their electrical properties		TX2_US2301A10	Conductivity and Insulation (TX2_US2301A10)	In the Animation, materials are characterized as conductors or insulators based on their electrical properties.	
600	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(i) design electric circuits connected in series combinations	TX2_US230207CD	Building Circuits: Light Bulbs in Series (TX2_US230207CD)	In Section 1 of the Activity Object, students design electric circuits connected in series combinations.	During the Activity Object, students design electric circuits connected in series. While this takes place, students are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
601	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(i) design electric circuits connected in series combinations	TX2_US230207CD	Building Circuits: Light Bulbs in Series (TX2_US230207CD)		The Activity Sheet includes questions in which the student is asked to design and draw schematic diagrams for light bulbs connected in series.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
602	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(ii) design electric circuits connected in parallel combinations	TX2_US230208CD	Building Circuits: Light Bulbs in Parallel (TX2_US230208CD)	The Activity Object allows students to design electrical circuits with light bulbs connected in parallel combinations.	During the Activity Object, students design electric circuits connected in parallel. While this takes place, students are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
603	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(ii) design electric circuits connected in parallel combinations	TX2_US230208CD	Building circuits: Light bulbs in parallel (TX2_US230208CD)		The Activity Sheet includes questions in which the student is asked to design and draw schematic diagrams for light bulbs connected in parallel.
604	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(iii) construct electric circuits connected in series combinations	TX2_US230207CD	Building Circuits: Light Bulbs in Series (TX2_US230207CD)	The Activity Object allows students to construct electrical circuits with light bulbs connected in series combinations.	During the Activity Object, students design and construct electric circuits connected in series. While this takes place, students are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
605	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(iii) construct electric circuits connected in series combinations	TX2_US230207CD	Building Circuits: Light Bulbs in Series (TX2_US230207CD)		The Activity Sheet includes questions in which the student is asked to draw and construct schematic diagrams for light bulbs connected in series.
606	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(iv) construct electric circuits connected in parallel combinations	TX2_US230208CD	Building Circuits: Light Bulbs in Parallel (TX2_US230208CD)	The Activity Object allows students to construct electrical circuits with light bulbs connected in parallel combinations.	During the Activity Object, students design and construct electric circuits connected in series. While this takes place, students are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
607	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(iv) construct electric circuits connected in parallel combinations	TX2_US230208CD	Building circuits: Light bulbs in parallel (TX2_US230208CD)		The Activity Sheet includes questions in which the student is asked to draw and construct schematic diagrams for light bulbs connected in parallel.
608	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(v) calculate current through electric circuit elements connected in series combinations	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	Part 3 of the Activity Object teaches how to calculate current through circuit elements in series combination.	
609	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(v) calculate current through electric circuit elements connected in series combinations	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	The Enrichment Sheet teaches how to calculate current through electric circuit elements connected in series combinations.	Q4 of the Enrichment Sheet assesses the calculation of current through electric circuit elements connected in series combinations.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
610	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(vi) calculate potential difference across electric circuit elements connected in series combinations	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	Part 3 of the Activity Object teaches how to calculate potential difference through circuit elements in series combination.	
611	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(vi) calculate potential difference across electric circuit elements connected in series combinations	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	The Enrichment Sheet teaches students how to calculate potential difference through electric circuit elements connected in series combinations.	Q5 of the Enrichment Sheet assesses the calculation of potential difference across electric circuit elements connected in series combinations.
612	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(vii) calculate resistance of electric circuit elements connected in series combinations	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	In Part 2 of the Activity Object, students calculate the current and voltage across one or more resistors and the battery to calculate the resistance of circuits in a series combination.	In Part 2 of the Activity Object, students calculate the current and voltage across one or more resistors and the battery to calculate the resistance of circuits in a series combination. As this takes place, students are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
613	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(viii) calculate power used by electric circuit elements connected in series combinations	TX2_US2303A01	Calculating Electric Power (TX2_US2303A01)	The Enrichment Sheet teaches students how to calculate power used by electric circuit elements connected in series combinations.	Q1 and Q2 of the Enrichment Sheet assess the calculation of power used by electric circuit elements connected in series combinations.
614	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(ix) calculate current through electric circuit elements connected in parallel combinations	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	Part 3 of the Activity Object teaches how to calculate current through circuit elements in parallel combination.	
615	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(ix) calculate current through electric circuit elements connected in parallel combinations	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	The Enrichment Sheet teaches how to calculate current through electric circuit elements connected in parallel combinations.	Q2 of the Enrichment Sheet assesses the calculation of current through electric circuit elements connected in parallel combinations.
616	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(x) calculate potential difference across electric circuit elements connected in parallel combinations	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	Part 3 of the Activity Object teaches how to calculate potential difference through circuit elements in parallel combination.	
617	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(x) calculate potential difference across electric circuit elements connected in parallel combinations	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	The Enrichment Sheet teaches students how to calculate potential difference through electric circuit elements connected in parallel combinations	Q1 and Q3 of the Enrichment Sheet assess the calculation of potential difference across electric circuit elements connected in parallel combinations.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
618	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(xi) calculate resistance of electric circuit elements connected in parallel combinations	TX2_US230204CD	Applications of Ohm's Law on Closed Circuits (TX2_US230204CD)	The Activity Object teaches students how to calculate resistance of electric circuit elements connected in parallel combinations.	The Activity Sheet contains a problem requiring the calculation of resistance of electric circuit elements connected in parallel combinations.
619	(5) Science concepts.	(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations	(xii) calculate power used by electric circuit elements connected in parallel combinations	TX2_US2303A01	Calculating Electric Power (TX2_US2303A01)	The Enrichment Sheet teaches students how to calculate power used by electric circuit elements connected in parallel combinations.	Q3 and Q4 of the Enrichment Sheet assess the calculation of power used by electric circuit elements connected in parallel combinations.
620	(5) Science concepts.	(G) investigate and describe the relationship between electric and magnetic fields in applications such as generators, motors, and transformers	(i) investigate the relationship between electric and magnetic fields in applications	TX2_US230403CD	Magnetic Force on a Current-Carrying Wire (TX2_US230403CD)	In the Activity Object, students investigate the interaction of electric and magnetic fields.	In the Activity Object, students investigate the interaction of electric and magnetic fields. While this takes place, students are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
621	(5) Science concepts.	(G) investigate and describe the relationship between electric and magnetic fields in applications such as generators, motors, and transformers	(i) investigate the relationship between electric and magnetic fields in applications	TX2_US230402CD	Magnetic Field of a Current-Carrying Infinite Wire (TX2_US230402CD)	In the Activity Object, students investigate how the electric field around a current-carrying wire affects magnets placed around the wire.	In the Activity Object, students investigate how the electric field around a current-carrying wire affects magnets placed around the wire. While this takes place, students are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
622	(5) Science concepts.	(G) investigate and describe the relationship between electric and magnetic fields in applications such as generators, motors, and transformers	(i) investigate the relationship between electric and magnetic fields in applications	TX2_US230302CD	Designing an Electric Motor (TX2_US230302CD)	In the Activity Object, students investigate the relationship between electric and magnetic fields in electric motors.	
623	(5) Science concepts.	(G) investigate and describe the relationship between electric and magnetic fields in applications such as generators, motors, and transformers	(ii) describe the relationship between electric and magnetic fields in applications	TX2_US230303XP	Electric Motor (TX2_US230303XP)	In the Activity Object, student investigate the relationship between electric and magnetic fields in electric motors.	In the Activity Sheet, students are asked a question about the different aspects of the relationship between electric and magnetic fields in an electric motor.
624	(5) Science concepts.	(G) investigate and describe the relationship between electric and magnetic fields in applications such as generators, motors, and transformers	(ii) describe the relationship between electric and magnetic fields in applications	TX2_US2304A03	Transformers (TX2_US2304A03)	In the Animation, the relationship between electric and magnetic fields in a transformer are described.	Q3 of the Question-Answer Sheet asks students to explain the relationship between electric and magnetic fields in a transformer.
625	(5) Science concepts.	(G) investigate and describe the relationship between electric and magnetic fields in applications such as generators, motors, and transformers	(ii) describe the relationship between electric and magnetic fields in applications	TX2_US230403CD	Magnetic Force on a Current-Carrying Wire (TX2_US230403CD)	Part 3 of the Activity Object describes the relationship between electric and magnetic fields, and explains how this is used in applications such electric mixers, electric drills, vacuum cleaners, ceiling fans, etc.	
626	(5) Science concepts.	(G) investigate and describe the relationship between electric and magnetic fields in applications such as generators, motors, and transformers	(ii) describe the relationship between electric and magnetic fields in applications	TX2_US230302CD	Designing an Electric Motor (TX2_US230302CD)	The Activity Object describes the relationship between electric and magnetic fields in electric motors.	
627	(5) Science concepts.	(H) describe evidence for and effects of the strong and weak nuclear forces in nature	(i) describe evidence for the strong nuclear forces in nature	TX2_US2101A01	Basic Forces in Nature (TX2_US2101A01)	The Animation describes the evidence for strong nuclear forces in nature.	The Question-Answer Sheet asks a question in which students must describe the evidence for strong nuclear forces in nature.

#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
628	(5) Science concepts.	(H) describe evidence for and effects of the strong and weak nuclear forces in nature	(i) describe evidence for the strong nuclear forces in nature	TX2_US260202CD	Radioactive Decay (TX2_US260202CD)	The Enrichment Sheet describes the evidence for the strong nuclear forces in nature.	Q4 of the Enrichment Sheet asks students to describe evidence for the weak and strong nuclear forces in nature.
629	(5) Science concepts.	(H) describe evidence for and effects of the strong and weak nuclear forces in nature	(i) describe evidence for the strong nuclear forces in nature	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)	The Enrichment Sheet describes the evidence for the strong nuclear forces in nature.	Q1 of the Enrichment Sheet asks students to describe evidence for the weak and strong nuclear forces in nature.
630	(5) Science concepts.	(H) describe evidence for and effects of the strong and weak nuclear forces in nature	(ii) describe evidence for the weak nuclear forces in nature	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)	The Enrichment Sheet describes the evidence for the strong nuclear forces in nature.	Q3 of the Enrichment Sheet asks students to describe evidence for the weak nuclear force in nature.
631	(5) Science concepts.	(H) describe evidence for and effects of the strong and weak nuclear forces in nature	(ii) describe evidence for the weak nuclear forces in nature	TX2_US2101A01	Basic Forces in Nature (TX2_US2101A01)	The Enrichment Sheet describes the evidence for the weak nuclear forces in nature.	Q3 of the Enrichment Sheet asks students to describe evidence for the weak nuclear force in nature.
632	(5) Science concepts.	(H) describe evidence for and effects of the strong and weak nuclear forces in nature	(ii) describe evidence for the weak nuclear forces in nature	TX2_US260202CD	Radioactive Decay (TX2_US260202CD)	The Enrichment Sheet describes the evidence for the weak nuclear forces in nature.	Q4 of the Enrichment Sheet asks students to give evidence for the weak and strong nuclear forces in nature.
633	(5) Science concepts.	(H) describe evidence for and effects of the strong and weak nuclear forces in nature	(iii) describe effects of the strong nuclear forces in nature	TX2_US2101A01	Basic Forces in Nature (TX2_US2101A01)	The Enrichment Sheet describes the effects of the weak nuclear forces in nature.	Q4 of the Enrichment Sheet asks students to describe an effect of the strong nuclear force in nature.
634	(5) Science concepts.	(H) describe evidence for and effects of the strong and weak nuclear forces in nature	(iii) describe effects of the strong nuclear forces in nature	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)	The Animation describes the effects of the strong nuclear forces in nature.	The Question-Answer Sheet asks a question about the effects of the strong nuclear forces in nature.
635	(5) Science concepts.	(H) describe evidence for and effects of the strong and weak nuclear forces in nature	(iii) describe effects of the strong nuclear forces in nature	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)	Enrichment Sheet describes the effects of the strong nuclear forces in nature.	Q2 of the Enrichment Sheet asks students to describe an effect of the strong nuclear forces in nature.
636	(5) Science concepts.	(H) describe evidence for and effects of the strong and weak nuclear forces in nature	(iv) describe effects of the weak nuclear forces in nature	TX2_US2101A01	Basic Forces in Nature (TX2_US2101A01)	The Animation describes the effects of the weak nuclear forces in nature.	The Question-Answer Sheet asks a question about the effects of the weak nuclear forces in nature.
637	(5) Science concepts.	(H) describe evidence for and effects of the strong and weak nuclear forces in nature	(iv) describe effects of the weak nuclear forces in nature	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)	The Animation describes the effects of the weak nuclear forces in nature.	The Question-Answer Sheet asks a question about the effects of the weak nuclear forces in nature.
638	(5) Science concepts.	(H) describe evidence for and effects of the strong and weak nuclear forces in nature	(iv) describe effects of the weak nuclear forces in nature	TX2_US2602A01	Historical Development of the Weak and Strong Nuclear Forces (TX2_US2602A01)	The Enrichment Sheet describes the effects of the weak nuclear forces in nature.	Q4 of the Enrichment Sheet asks students to describe an effect of the weak nuclear force in nature.
639	(6) Science concepts.	(A) investigate and calculate quantities using the work-energy theorem in various situations	(i) investigate quantities using the work- energy theorem in various situations	TX2_US210305MS	Work (TX2_US210305MS)	In Part 1 of the Activity Object, students complete an interaction that investigates whether gravity is working against an action in three situations.	The Activity Sheet asks students to investigate quantities using the work-energy theorem, and provides assessment items on this subject.
640	(6) Science concepts.	(A) investigate and calculate quantities using the work-energy theorem in various situations	(i) investigate quantities using the work- energy theorem in various situations	TX2_US210305MS	Work (TX2_US210305MS)	In Part 3 of the Activity Object, students investigate quantities using the work-energy theorem in four situations, and apply the work-energy theorem.	
641	(6) Science concepts.	(A) investigate and calculate quantities using the work-energy theorem in various situations	(i) investigate quantities using the work- energy theorem in various situations	TX2_US210306MS	Work-Energy Theorem (TX2_US210306MS)	Part 1 of the Activity Object presents the application of the work-energy theorem in a couple of situations.	
642	(6) Science concepts.	(A) investigate and calculate quantities using the work-energy theorem in various situations	(i) investigate quantities using the work- energy theorem in various situations	TX2_US210306MS	Work-Energy Theorem (TX2_US210306MS)	In Part 3 of the Activity Object, students investigate quantities using the work-energy theorem in four situations, and apply the work-energy theorem.	
643	(6) Science concepts.	(A) investigate and calculate quantities using the work-energy theorem in various situations	(ii) calculate quantities using the work-energy theorem in various situations	TX2_US210306MS	Work-Energy Theorem (TX2_US210306MS)	Part 1 of the Activity Object introduces how to calculate quantities using the work-energy theorem.	In Part 3 of the Activity Object, students calculate quantities using the work-energy theorem in various situations. Their results are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
644	(6) Science concepts.	(A) investigate and calculate quantities using the work-energy theorem in various situations	(ii) calculate quantities using the work-energy theorem in various situations	TX2_US210306MS	Work-Energy Theorem (TX2_US210306MS)	Part 2 of the Activity Object demonstrates how to calculate quantities using the work-energy theorem.	
645	(6) Science concepts.	(A) investigate and calculate quantities using the work-energy theorem in various situations	(ii) calculate quantities using the work-energy theorem in various situations	TX2_US210305MS	Work (TX2_US210305MS)	In Part 3 of the Activity Object, students calculate quantities using the work-energy theorem in various situations.	
646	(6) Science concepts.	(B) investigate examples of kinetic and potential energy and their transformations	(i) investigate examples of kinetic energy	TX2_US210309XP	Kinetic Energy: How It Changes with Mass and Speed (TX2_US210309XP)	In Part 2 of the Activity Object, students investigate kinetic energy.	In the Activity Sheet, students record observations on kinetic energy from their interactive investigations in Part 2 the Activity Object. Students also answer questions about their investigations into kinetic energy, in the Activity Sheet and in the Activity Object itself.
647	(6) Science concepts.	(B) investigate examples of kinetic and potential energy and their transformations	(i) investigate examples of kinetic energy	TX2_US210309XP	Kinetic Energy: How It Changes with Mass and Speed (TX2_US210309XP)	Part 1 of the Activity Object describes the properties of kinetic energy and students investigate kinetic energy.	
648	(6) Science concepts.	(B) investigate examples of kinetic and potential energy and their transformations	(i) investigate examples of kinetic energy	TX2_US210309XP	Kinetic Energy: How It Changes with Mass and Speed (TX2_US210309XP)	Part 3 of the Activity Object describes the properties of kinetic energy, and students investigate kinetic energy.	
649	(6) Science concepts.	(B) investigate examples of kinetic and potential energy and their transformations	(ii) investigate examples of potential energy	TX2_US210310XP	Gravitational Potential Energy: Seeing the Impact in the Sand (TX2_US210310XP)	In Part 2 of the Activity Object, students investigate potential energy.	In the Activity Sheet, students record observations on potential energy from their interactive investigations in Part 2 of the Activity Object. Students also answer questions about the investigations into potential energy, in the Activity Sheet and in the Activity Object itself.
650	(6) Science concepts.	(B) investigate examples of kinetic and potential energy and their transformations	(ii) investigate examples of potential energy	TX2_US210310XP	Gravitational Potential Energy: Seeing the Impact in the Sand (TX2_US210310XP)	Part 1 of the Activity Object describes the properties of potential energy and students investigate potential energy.	
651	(6) Science concepts.	(B) investigate examples of kinetic and potential energy and their transformations	(ii) investigate examples of potential energy	TX2_US210310XP	Gravitational Potential Energy: Seeing the Impact in the Sand (TX2_US210310XP)	Part 3 of the Activity Object describes the properties of potential energy and students investigate potential energy.	
652	(6) Science concepts.	(B) investigate examples of kinetic and potential energy and their transformations	(ii) investigate examples of potential energy	TX2_US2103A12	Elastic Potential Energy (TX2_US2103A12)	The Animation demonstrates properties of potential energy and students investigate potential energy.	
653	(6) Science concepts.	(B) investigate examples of kinetic and potential energy and their transformations	(ii) investigate examples of potential energy	TX2_US230104CD	Electric Potential Energy (TX2_US230104CD)	The Activity Object describes potential energy and electric potential energy and students investigate these energies.	In the Activity Sheet, students answer questions involving potential energy from their interactive investigations in the Activity Object. Students also answer questions about the investigations into potential energy, in the Activity Sheet and in the Activity Object itself.
654	(6) Science concepts.	(B) investigate examples of kinetic and potential energy and their transformations	(iii) investigate examples of [kinetic and potential energy] transformations	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 1 of the Activity Object describes kinetic and potential energy and students investigate these energy transformations.	In the Activity Sheet, students answer questions about potential and kinetic energy transformations, from their interactive investigations in the Activity Object.
655	(6) Science concepts.	(B) investigate examples of kinetic and potential energy and their transformations	(iii) investigate examples of [kinetic and potential energy] transformations	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	In Part 4 of the Activity Object, students investigate kinetic and potential energy transformations.	
656	(6) Science concepts.	(B) investigate examples of kinetic and potential energy and their transformations	(iii) investigate examples of [kinetic and potential energy] transformations	TX2_US210311CD	Roller Coaster Design: Gravitational Potential and Kinetic Energy (TX2_US210311CD)	All five parts of the Activity Object cover the transformation of kinetic and potential energy using a roller coaster.	In the Activity Sheet, students record observations on potential and kinetic energy transformations, from their interactive investigations in the Activity Object. They also answer questions about their investigations, both in the Activity Sheet and in the Activity Object itself.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
657	(6) Science concepts.	(B) investigate examples of kinetic and potential energy and their transformations	(iii) investigate examples of [kinetic and potential energy] transformations	TX2_US2103A11	Why Does Kinetic Energy Change? (TX2_US2103A11)	The Animation describes the transformation of kinetic energy into other forms of energy, including potential energy, using several examples (including a pendulum).	
658	(6) Science concepts.	(C) calculate the mechanical energy of, power generated within, impulse applied to, and momentum of a physical system	(i) calculate the mechanical energy of a physical system	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 1 of the Activity Object describes mechanical energy.	Q8 and Q9 of the Assessment in the Activity Object ask students to calculate total mechanical energy of a physical system.
659	(6) Science concepts.	(C) calculate the mechanical energy of, power generated within, impulse applied to, and momentum of a physical system	(i) calculate the mechanical energy of a physical system	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	In Part 2 of the Activity Object, students calculate the mechanical energy of a physical system.	In Part 2 of the Activity Object, the student interactively calculates the energy of a physical system. Their responses are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
660	(6) Science concepts.	(C) calculate the mechanical energy of, power generated within, impulse applied to, and momentum of a physical system	(i) calculate the mechanical energy of a physical system	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 3 of the Activity Object describes the investigation conducted in Part 2 of the Activity Object.	
661	(6) Science concepts.	(C) calculate the mechanical energy of, power generated within, impulse applied to, and momentum of a physical system	(ii) calculate the power generated within a physical system	TX2_US2103A03	Power (TX2_US2103A03)	The Animation describes power and how to calculate the power generated within a physical system.	The Question-Answer Sheet asks a question requiring the calculation of the power generated within a physical system.
662	(6) Science concepts.	(C) calculate the mechanical energy of, power generated within, impulse applied to, and momentum of a physical system	(ii) calculate the power generated within a physical system	TX2_US2103A15	Calculating Power (TX2_US2103A15)	The Animation describes and demonstrates how to calculate the power generated within a physical system.	The Question-Answer Sheet asks a question requiring the calculation of the power generated within a physical system.
663	(6) Science concepts.	(C) calculate the mechanical energy of, power generated within, impulse applied to, and momentum of a physical system	(iii) calculate the impulse applied to a physical system	TX2_US2102A09	Impulse (TX2_US2102A09)	The Animation describes how to calculate the impulse applied to a physical system.	The Question-Answer Sheet asks a question about how to calculate the impulse applied to a physical system.
664	(6) Science concepts.	(C) calculate the mechanical energy of, power generated within, impulse applied to, and momentum of a physical system	(iv) calculate the momentum of a physical system	TX2_US210308CD	Conservation of Momentum in One Dimension (TX2_US210308CD)	Part 1 of the Activity Object describes conservation of momentum in one dimension.	Q2 of the Enrichment Sheet asks students to calculate the momentum of a physical system.
665	(6) Science concepts.	(C) calculate the mechanical energy of, power generated within, impulse applied to, and momentum of a physical system	(iv) calculate the momentum of a physical system	TX2_US210308CD	Conservation of Momentum in One Dimension (TX2_US210308CD)	In Part 2 of the Activity Object, students calculate the momentum of a physical system.	
666	(6) Science concepts.	(C) calculate the mechanical energy of, power generated within, impulse applied to, and momentum of a physical system	(iv) calculate the momentum of a physical system	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)		The Investigation Sheet includes assessment items that require students to calculate the momentum of physical systems.
667	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(i) demonstrate the law of conservation of energy	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 1 of the Activity Object describes the law of conservation of energy.	Q2 of the "Reflections" section of the Activity Sheet asks students to record observations in a table, in order to demonstrate the law of conservation of energy.
668	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(i) demonstrate the law of conservation of energy	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 4 of the Activity Object demonstrates the law of conservation of energy in an investigation of kinetic and potential energy.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
669	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(i) demonstrate the law of conservation of energy	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 5 of the Activity Object describes the investigation conducted in Part 4 of the Activity Object and demonstrates the law of conservation of energy.	
670	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(i) demonstrate the law of conservation of energy	TX2_US2103A05	Law of Conservation of Energy (TX2_US2103A05)	The Animation demonstrates how the law of conservation of energy applies to flashlights and a pendulum.	
671	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(ii) demonstrate the law of conservation of momentum in one dimension	TX2_US210308CD	Conservation of Momentum in One Dimension (TX2_US210308CD)	Part 1 of the Activity Object demonstrates the law of conservation of momentum in one dimension.	In the Investigation Sheet, students perform experiments to demonstrate the law of conservation of momentum in one dimension. Students also answer questions about their observations.
672	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(ii) demonstrate the law of conservation of momentum in one dimension	TX2_US210308CD	Conservation of Momentum in One Dimension (TX2_US210308CD)	Part 3 of the Activity Object demonstrates the law of conservation of momentum in one dimension.	
673	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(ii) demonstrate the law of conservation of momentum in one dimension	TX2_US210308CD	Conservation of Momentum in One Dimension (TX2_US210308CD)	Part 4 of the Activity Object demonstrates the law of conservation of momentum in one dimension.	
674	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(iii) apply the law of conservation of energy	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 2 of the Activity Object applies the law of conservation of energy to a ski jump.	The Activity Sheet asks questions, about a roller coaster, that require students to apply the law of conservation of energy.
675	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(iii) apply the law of conservation of energy	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 3 of the Activity Object applies the law of conservation of energy to a ski jump.	
676	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(iii) apply the law of conservation of energy	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	Part 4 of the Activity Object describes the conservation of energy in the context of a ski jump.	
677	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(iii) apply the law of conservation of energy	TX2_US2103A05	Law of Conservation of Energy (TX2_US2103A05)	The Animation applies the law of conservation of energy to several practical situations.	Q2 of the Question-Answer Sheet requires students to apply the law of conservation of energy to the movement of a skateboard.
678	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(iv) apply the law of conservation of momentum in one dimension	TX2_US210308CD	Conservation of Momentum in One Dimension (TX2_US210308CD)	In the Activity Object, students investigate and apply the law of conservation of momentum in one dimension.	In the Enrichment Sheet, students must apply the law of conservation of momentum in one dimension to solve several problems.
679	(6) Science concepts.	(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension	(iv) apply the law of conservation of momentum in one dimension	TX2_US210308CD	Conservation of Momentum in One Dimension (TX2_US210308CD)	In the Investigation sheet, students investigate and apply the law of conservation of momentum in one dimension.	In the Investigation Sheet, students must apply the law of conservation of momentum in one dimension to solve several problems.
680	(6) Science concepts.	(E) describe how the macroscopic properties of a thermodynamic system such as temperature, specific heat, and pressure are related to the molecular level of matter, including kinetic or potential energy of atoms	(i) describe how the macroscopic properties of a thermodynamic system are related to the molecular level of matter, including kinetic or potential energy of atoms	TX2_US2501A01	Macroscopic Properties of Thermodynamic Systems (TX2_US2501A01)	The Animation describes how the macroscopic properties of a thermodynamic system are related to the molecular level of matter based on the kinetic and potential energy of atoms.	The Question-Answer Sheet asks a question about how the macroscopic properties of a thermodynamic system are related to the molecular level of matter.
681	(6) Science concepts.	(E) describe how the macroscopic properties of a thermodynamic system such as temperature, specific heat, and pressure are related to the molecular level of matter, including kinetic or potential energy of atoms	(i) describe how the macroscopic properties of a thermodynamic system are related to the molecular level of matter, including kinetic or potential energy of atoms	TX2_US2103A14	Thermal and Kinetic Energy (TX2_US2103A14)	The Animation describes how the macroscopic properties of a thermodynamic system are related to the molecular level of matter based on the kinetic energy of the molecules.	

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
682	(6) Science concepts.	(E) describe how the macroscopic properties of a thermodynamic system such as temperature, specific heat, and pressure are related to the molecular level of matter, including kinetic or potential energy of atoms	(i) describe how the macroscopic properties of a thermodynamic system are related to the molecular level of matter, including kinetic or potential energy of atoms	TX2_US2501A05	Temperature Measurements (TX2_US2501A05)		The Question-Answer Sheet asks a question about how the macroscopic properties of a thermodynamic system are related to the molecular level of matter.
683	(6) Science concepts.	(E) describe how the macroscopic properties of a thermodynamic system such as temperature, specific heat, and pressure are related to the molecular level of matter, including kinetic or potential energy of atoms	(i) describe how the macroscopic properties of a thermodynamic system are related to the molecular level of matter, including kinetic or potential energy of atoms	TX2_US2501A01	Macroscopic Properties of Thermodynamic Systems (TX2_US2501A01)	The Enrichment Sheet describes how the macroscopic properties of a thermodynamic system are related to the molecular level of matter based on the kinetic and potential energy of atoms.	Q11 of the Enrichment Sheet assesses how the macroscopic properties of a thermodynamic system are related to the molecular level of matter, including kinetic or potential energy of atoms.
684	(6) Science concepts.	(F) contrast and give examples of different processes of thermal energy transfer, including conduction, convection, and radiation	(i) contrast different processes of thermal energy transfer, including conduction, convection, and radiation	TX2_US2501A03	Conduction, Convection and Radiation (TX2_US2501A03)	The Animation presents various examples of different processes of thermal energy transfer, including an example on convection.	Q1 of the Enrichment Sheet requires the comparison and contrast of conduction, convection, and radiation.
685	(6) Science concepts.	(F) contrast and give examples of different processes of thermal energy transfer, including conduction, convection, and radiation	(ii) give examples of different processes of thermal energy transfer, including conduction	TX2_US2501A03	Conduction, Convection and Radiation (TX2_US2501A03)	The Animation presents various examples of different processes of thermal energy transfer, including an example on conduction.	The Enrichment Sheet asks students to give examples of conduction.
686	(6) Science concepts.	(F) contrast and give examples of different processes of thermal energy transfer, including conduction, convection, and radiation	(iii) give examples of different processes of thermal energy transfer, including convection	TX2_US2501A03	Conduction, Convection and Radiation (TX2_US2501A03)	The Animation presents various examples of different processes of thermal energy transfer, including an example on convection.	The Enrichment Sheet asks students to give examples of convection.
687	(6) Science concepts.	(F) contrast and give examples of different processes of thermal energy transfer, including conduction, convection, and radiation	(iv) give examples of different processes of thermal energy transfer, including radiation	TX2_US2501A03	Conduction, Convection and Radiation (TX2_US2501A03)	The Animation presents various examples of different processes of thermal energy transfer, including an example on radiation.	The Enrichment Sheet asks students to give examples of radiation.
688	(6) Science concepts.	(F) contrast and give examples of different processes of thermal energy transfer, including conduction, convection, and radiation	(iv) give examples of different processes of thermal energy transfer, including radiation	TX2_US2501A03	Conduction, Convection and Radiation (TX2_US2501A03)		The Question-Answer Sheet asks several questions that require knowledge of conduction, convection, and radiation.
689	(6) Science concepts.	(F) contrast and give examples of different processes of thermal energy transfer, including conduction, convection, and radiation	(iv) give examples of different processes of thermal energy transfer, including radiation	TX2_US2501A04	Radiation (TX2_US2501A04)	The Animation presents an example of energy transfer through radiation.	
690	(6) Science concepts.	(G) analyze and explain everyday examples that illustrate the laws of thermodynamics, including the law of conservation of energy and the law of entropy	(i) analyze everyday examples that illustrate the laws of thermodynamics, including the law of conservation of energy	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	In Section 2 of the Activity Object, students analyze conservation of energy using a falling sphere.	In the Activity Sheet, students must analyze what happened to the falling sphere and answer questions about it, with regard to the law of conservation of energy.
691	(6) Science concepts.	(G) analyze and explain everyday examples that illustrate the laws of thermodynamics, including the law of conservation of energy and the law of entropy	(i) analyze everyday examples that illustrate the laws of thermodynamics, including the law of conservation of energy	TX2_US210307CD	Conservation of Mechanical Energy (TX2_US210307CD)	In Section 4 of the Activity Object, students analyze conservation of energy using a block rolling in a bowl.	In the Activity Sheet, students must analyze what happened to the block in the bowl and answer questions about it, with regard to the law of conservation of energy.
692	(6) Science concepts.	(G) analyze and explain everyday examples that illustrate the laws of thermodynamics, including the law of conservation of energy and the law of entropy	(ii) analyze everyday examples that illustrate the laws of thermodynamics, including the law of entropy	TX2_US2501A01	Macroscopic Properties of Thermodynamic Systems (TX2_US2501A01)	The "Description of Contents" section of the Enrichment Sheet describes and analyzes everyday examples of entropy.	Q10 of the Enrichment Sheet provides an example involving colored balls and batteries, and students must relate this to the law of entropy.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
693	(6) Science concepts.	(G) analyze and explain everyday examples that illustrate the laws of thermodynamics, including the law of conservation of energy and the law of entropy	(iii) explain everyday examples that illustrate the laws of thermodynamics, including the law of conservation of energy	TX2_US2103A05	Law of Conservation of Energy (TX2_US2103A05)	The Animation gives examples of a pendulum and a flashlight, showing how energy is conserved.	Q2 of the Question-Answer Sheet asks how conservation of energy applies to a person on a skateboard.
694	(6) Science concepts.	(G) analyze and explain everyday examples that illustrate the laws of thermodynamics, including the law of conservation of energy and the law of entropy	(iv) explain everyday examples that illustrate the laws of thermodynamics, including the law of entropy	TX2_US2501A01	Macroscopic Properties of Thermodynamic Systems (TX2_US2501A01)	The "Description of Contents" section of the Enrichment Sheet explains everyday examples of entropy.	Q9 of the Enrichment Sheet assesses how the macroscopic properties of a thermodynamic system are related to the molecular level of matter and the law of entropy.
695	(7) Science concepts.	(A) examine and describe oscillatory motion and wave propagation in various types of media	(i) examine oscillatory motion in various types of media	TX2_US2201A02	The Effect of Medium on the Speed of Waves (TX2_US2201A02)	The Animation examines oscillatory motion in various types of media (including solids vs. gases).	The Question-Answer Sheet asks a question that requires students to examine oscillatory motion in various types of media.
696	(7) Science concepts.	(A) examine and describe oscillatory motion and wave propagation in various types of media	(i) examine oscillatory motion in various types of media	TX2_US2201A06	Transverse and Longitudinal Waves (TX2_US2201A06)	The Animation examines oscillatory motion in various types of media.	
697	(7) Science concepts.	(A) examine and describe oscillatory motion and wave propagation in various types of media	(i) examine oscillatory motion in various types of media	TX2_US220201CD	Properties of Waves (TX2_US220201CD)	In Part 5 of the Activity Object, students examine oscillatory motion in various types of media.	
698	(7) Science concepts.	(A) examine and describe oscillatory motion and wave propagation in various types of media	(ii) describe oscillatory motion in various types of media	TX2_US220201CD	Properties of Waves (TX2_US220201CD)	The Animation describes oscillatory motion in various types of media.	
699	(7) Science concepts.	(A) examine and describe oscillatory motion and wave propagation in various types of media	(ii) describe oscillatory motion in various types of media	TX2_US2201A06	Transverse and Longitudinal Waves (TX2_US2201A06)		The Question-Answer Sheet asks questions that require students to describe the oscillatory motion of several different media as waves propagate.
700	(7) Science concepts.	(A) examine and describe oscillatory motion and wave propagation in various types of media	(ii) describe oscillatory motion in various types of media	TX2_US2201A06	Transverse and Longitudinal Waves (TX2_US2201A06)	Part 1 of the Activity Object describes oscillatory motion in various types of media.	
701	(7) Science concepts.	(A) examine and describe oscillatory motion and wave propagation in various types of media	(iii) examine wave propagation in various types of media	TX2_US220201CD	Properties of Waves (TX2_US220201CD)	In Part 5 of the Activity Object, students examine wave propagation in various types of media.	
702	(7) Science concepts.	(A) examine and describe oscillatory motion and wave propagation in various types of media	(iii) examine wave propagation in various types of media	TX2_US2201A06	Transverse and Longitudinal Waves (TX2_US2201A06)	The Animation examines wave propagation in various types of media.	The Question-Answer Sheet asks a question that requires students to examine wave propagation in various types of media.
703	(7) Science concepts.	(A) examine and describe oscillatory motion and wave propagation in various types of media	(iv) describe wave propagation in various types of media	TX2_US220201CD	Properties of Waves (TX2_US220201CD)	Part 1 of the Activity Object describes wave propagation.	
704	(7) Science concepts.	(A) examine and describe oscillatory motion and wave propagation in various types of media	(iv) describe wave propagation in various types of media	TX2_US2201A06	Transverse and Longitudinal Waves (TX2_US2201A06)		The Question-Answer Sheet asks questions that require students to describe the propagation of waves in air and water.
705	(7) Science concepts.	(A) examine and describe oscillatory motion and wave propagation in various types of media	(iv) describe wave propagation in various types of media	TX2_US2201A06	Transverse and Longitudinal Waves (TX2_US2201A06)	The Animation describes wave propagation in various types of media.	
706	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(i) investigate characteristics of waves, including velocity	TX2_US220201CD	Properties of Waves (TX2_US220201CD)	In Part 5 of the Activity Object, students investigate the velocity of waves.	In Part 4 of the Activity Object, students must draw a line on a graph indicating its propagation velocity. Students are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
707	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(i) investigate characteristics of waves, including velocity	TX2_US220203MS	Exercises with Wave Properties (TX2_US220203MS)	In Part 3 of the Activity Object, students investigate the velocity of waves.	
708	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(ii) investigate characteristics of waves, including frequency	TX2_US220203MS	Exercises with Wave Properties (TX2_US220203MS)	In Part 3 of the Activity Object, students investigate the frequency of waves.	
709	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(ii) investigate characteristics of waves, including frequency	TX2_US220201CD	Properties of Waves (TX2_US220201CD)		In Part 4 of the Activity Object, students must draw a line on a graph indicating its frequency. Students are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
710	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(iii) investigate characteristics of waves, including amplitude	TX2_US220203MS	Exercises with Wave Properties (TX2_US220203MS)	In Part 3 of the Activity Object, students investigate the amplitude of waves.	
711	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(iii) investigate characteristics of waves, including amplitude	TX2_US220201CD	Properties of Waves (TX2_US220201CD)		In Part 4 of the Activity Object, students must draw a line on a graph indicating its amplitude. Students are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.
712	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(iii) investigate characteristics of waves, including amplitude	TX2_US4201A02	Wave Properties of Electromagnetic Radiation (TX2_US4201A02)	The Animation defines properties of electromagnetic waves, including the amplitude.	
713	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(iv) investigate characteristics of waves, including wavelength	TX2_US220203MS	Exercises with Wave Properties (TX2_US220203MS)	In Part 3 of the Activity Object, students investigate the wavelength of waves.	
714	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(iv) investigate characteristics of waves, including wavelength	TX2_US220201CD	Properties of Waves (TX2_US220201CD)		In Part 4 of the Activity Object, students must draw a line on a graph indicating its wavelength. Students are assessed by the Activity Object software, which provides appropriate feedback as students work through the exercises.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
715	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(v) analyze characteristics of waves, including velocity	TX2_US220203MS	Exercises with Wave Properties (TX2_US220203MS)	In Part 3 of the Activity Object, students analyze the velocity of waves.	
716	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(v) analyze characteristics of waves, including velocity	TX2_US220201CD	Properties of Waves (TX2_US220201CD)		The Activity Sheet asks students questions involving the analysis of the velocity of waves.
717	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(vi) analyze characteristics of waves, including frequency	TX2_US220203MS	Exercises with Wave Properties (TX2_US220203MS)	In Part 3 of the Activity Object, students analyze the frequency of waves.	
718	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(vi) analyze characteristics of waves, including frequency	TX2_US220201CD	Properties of Waves (TX2_US220201CD)		The Activity Sheet asks students questions involving the analysis of the frequency of waves.
719	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(vii) analyze characteristics of waves, including amplitude	TX2_US220203MS	Exercises with Wave Properties (TX2_US220203MS)	In Part 3 of the Activity Object, students analyze the amplitude of waves.	
720	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(vii) analyze characteristics of waves, including amplitude	TX2_US220201CD	Properties of Waves (TX2_US220201CD)		The Activity Sheet asks students questions involving the analysis of the amplitude of waves.
721	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(viii) analyze characteristics of waves, including wavelength	TX2_US220203MS	Exercises with Wave Properties (TX2_US220203MS)	In Part 3 of the Activity Object, students analyze the wavelength of waves.	
722	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(viii) analyze characteristics of waves, including wavelength	TX2_US220201CD	Properties of Waves (TX2_US220201CD)		The Activity Sheet asks students questions involving the analysis of the wavelength of waves.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
723	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(ix) calculate using the relationship between wavespeed, frequency, and wavelength	TX2_US220203MS	Exercises with Wave Properties (TX2_US220203MS)	In Part 3 of the Activity Object, students calculate the relationship between wave speed, frequency, and wavelength.	The Activity Sheet asks students questions about calculating the relationship between wave speed, frequency, and wavelength.
724	(7) Science concepts.	(B) investigate and analyze characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wavespeed, frequency, and wavelength	(ix) calculate using the relationship between wavespeed, frequency, and wavelength	TX2_US220201CD	Properties of Waves (TX2_US220201CD)	In Part 4 of the Activity Object, students calculate wave speed, frequency, and wavelength.	In the Activity Sheet, students calculate wave speed, frequency, and wavelength.
725	(7) Science concepts.	(C) compare characteristics and behaviors of transverse waves, including electromagnetic waves and the electromagnetic spectrum, and characteristics and behaviors of longitudinal waves, including sound waves	(i) compare characteristics of transverse waves, including electromagnetic waves, and characteristics of longitudinal waves, including sound waves	TX2_US2201A06	Transverse and Longitudinal Waves (TX2_US2201A06)	The Enrichment Sheet compares characteristics of transverse waves, including electromagnetic waves, and characteristics of longitudinal waves, including sound waves.	Q2 of the Enrichment Sheet asks students to compare characteristics of transverse waves, including electromagnetic waves, and characteristics of longitudinal waves, including sound waves.
726	(7) Science concepts.	(C) compare characteristics and behaviors of transverse waves, including electromagnetic waves and the electromagnetic spectrum, and characteristics and behaviors of longitudinal waves, including sound waves	(ii) compare characteristics of transverse waves, including the electromagnetic spectrum, and characteristics of longitudinal waves, including sound waves	TX2_US2201A06	Transverse and Longitudinal Waves (TX2_US2201A06)	The Enrichment Sheet compares characteristics of transverse waves, including the electromagnetic spectrum, and characteristics of longitudinal waves, including sound waves.	Q2 and Q3 of the Enrichment Sheet ask students to compare characteristics of transverse waves, including the electromagnetic spectrum, and characteristics of longitudinal waves, including sound waves.
727	(7) Science concepts.	(C) compare characteristics and behaviors of transverse waves, including electromagnetic waves and the electromagnetic spectrum, and characteristics and behaviors of longitudinal waves, including sound waves	(iii) compare behaviors of transverse waves, including electromagnetic waves, and behaviors of longitudinal waves, including sound waves	TX2_US2201A06	Transverse and Longitudinal Waves (TX2_US2201A06)	The Enrichment Sheet compares behaviors of transverse waves, including electromagnetic waves, and behaviors of longitudinal waves, including sound waves.	Q4 and Q6 of the Enrichment Sheet ask students to compare behaviors of transverse waves, including electromagnetic waves, and behaviors of longitudinal waves, including sound waves.
728	(7) Science concepts.	(C) compare characteristics and behaviors of transverse waves, including electromagnetic waves and the electromagnetic spectrum, and characteristics and behaviors of longitudinal waves, including sound waves	(iv) compare behaviors of transverse waves, including the electromagnetic spectrum, and behaviors of longitudinal waves, including sound waves	TX2_US2201A06	Transverse and Longitudinal Waves (TX2_US2201A06)	The Enrichment Sheet compares behaviors of transverse waves, including the electromagnetic spectrum, and behaviors of longitudinal waves, including sound waves.	Q5 and Q6 of the Enrichment Sheet ask students to compare behaviors of transverse waves, including the electromagnetic spectrum, and behaviors of longitudinal waves, including sound waves.
729	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(i) investigate behaviors of waves, including reflection	TX2_US240306XP	Reflection of Light from Plane Mirrors (TX2_US240306XP)	Part 1 of the Activity Object describes the reflection of light, which exhibits properties of waves, from a plane mirror. In Part 2 of the Activity Object, students investigate the reflection of light, which exhibits properties of waves, from a plane mirror.	In the Activity Sheet, students answer questions related to their investigations into reflection.
730	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(i) investigate behaviors of waves, including reflection	TX2_US2403A01	Laws of Reflection (TX2_US2403A01)	The Animation describes the reflection of waves, and students investigate this subject.	In the Question-Answer Sheet, students answer questions about their investigations into wave reflection.
731	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(i) investigate behaviors of waves, including reflection	TX2_US240307CD	Light Reflection Puzzle (TX2_US240307CD)	In Part 1 of the Activity Object, students investigate how placing a plane mirror at different angles affects the reflection of light.	In the Activity Sheet, students answer questions related to their investigations into reflection.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
732	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(i) investigate behaviors of waves, including reflection	TX2_US2203A10	Reflection of Water Waves from Different Obstacles (TX2_US2203A10)	The Animation describes the reflection of water waves from different obstacles, and students investigate these matters.	In the Question-Answer Sheet, students answer questions about their investigations into wave reflection.
733	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(ii) investigate behaviors of waves, including refraction	TX2_US240201CD	Refraction of Light and Snell's Law (TX2_US240201CD)	In the Activity Object, students investigate the refraction of waves.	In the Activity Sheet, students answer questions related to their investigations into refraction.
734	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(iii) investigate behaviors of waves, including diffraction	TX2_US2203A09	Diffraction of Water Waves (TX2_US2203A09)	The Animation describes the diffraction of water waves, and students investigate this subject.	
735	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(iii) investigate behaviors of waves, including diffraction	TX2_US2203A09	Diffraction of Water Waves (TX2_US2203A09)		In the Question-Answer Sheet, students answer questions about their investigations into wave diffraction.
736	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(iv) investigate behaviors of waves, including interference	TX2_US220204CD	Interference of Water Waves (TX2_US220204CD)	In Part 3 and Part 4 of the Activity Object, students investigate the interference of water waves.	In the Activity Sheet, students answer questions related to their investigations into interference of water waves.
737	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(iv) investigate behaviors of waves, including interference	TX2_US220303CD	Superposition: Crossing Pulses (TX2_US220303CD)	In Part 2 of the Activity Object, students investigate the interference of sound waves.	In the Activity Sheet, students answer questions related to their investigations into interference.
738	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(iv) investigate behaviors of waves, including interference	TX2_US2203A11	Light Interference (TX2_US2203A11)	The Animation examines interference as a property of light waves.	In the Question-Answer Sheet, students answer questions related to interference of light waves.
739	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(v) investigate behaviors of waves, including resonance	TX2_US2203A08	Resonance (TX2_US2203A08)	The Animation presents an investigation of the resonance of waves.	The Question-Answer Sheet assesses student understanding of resonance.
740	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(v) investigate behaviors of waves, including resonance	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	The Lab Sheet presents an investigation of the resonance of waves.	Q11 and Q12 of the Lab Sheet assess student understanding of resonance.
741	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(vi) investigate behaviors of waves, including the Doppler effect	TX2_US2202A15	Doppler Effect (TX2_US2202A15)	The Animation presents an investigation of the Doppler effect.	The Question-Answer Sheet assesses the understanding of the Doppler effect.
742	(7) Science concepts.	(D) investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect	(vi) investigate behaviors of waves, including the Doppler effect	TX2_US2202A15	Doppler Effect (TX2_US2202A15)	The Lab Sheet provides an investigation of the Doppler effect.	The Lab Sheet provides an investigation of the Doppler effect and assessment items on the Doppler effect.
743	(7) Science concepts.	(E) describe and predict image formation as a consequence of reflection from a plane mirror and refraction through a thin convex lens	(i) describe image formation as a consequence of reflection from a plane mirror	TX2_US2403A02	Image Formation on Plane Mirror (TX2_US2403A02)	The Animation describes image formation as a consequence of reflection from a plane mirror.	The Question-Answer Sheet asks a question about image formation as a consequence of reflection from a plane mirror.
744	(7) Science concepts.	(E) describe and predict image formation as a consequence of reflection from a plane mirror and refraction through a thin convex lens	(i) describe image formation as a consequence of reflection from a plane mirror	TX2_US240306XP	Reflection of Light from Plane Mirrors (TX2_US240306XP)	The Activity Object describes image formation as a consequence of reflection from a plane mirror.	Questions in the Activity Sheet ask students to describe image formation as a consequence of reflection from a plane mirror.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
745	(7) Science concepts.	(E) describe and predict image formation as a consequence of reflection from a plane mirror and refraction through a thin convex lens	(ii) predict image formation as a consequence of reflection from a plane mirror	TX2_US240306XP	Reflection of Light from Plane Mirrors (TX2_US240306XP)	The Activity Object demonstrates how to predict image formation as a consequence of reflection from a plane mirror.	Q2 in the "Reflections" section of the Activity Sheet asks students to predict image formation as a consequence of reflection from a plane mirror.
746	(7) Science concepts.	(E) describe and predict image formation as a consequence of reflection from a plane mirror and refraction through a thin convex lens	(ii) predict image formation as a consequence of reflection from a plane mirror	TX2_US240307CD	Light Reflection Puzzle (TX2_US240307CD)	In Part 1 of the Activity Object, students arrange plane mirrors to reflect a beam of light onto a specific object.	
747	(7) Science concepts.	(E) describe and predict image formation as a consequence of reflection from a plane mirror and refraction through a thin convex lens	(ii) predict image formation as a consequence of reflection from a plane mirror	TX2_US2403A02	Image Formation on Plane Mirror (TX2_US2403A02)	The Animation demonstrates how to predict image formation as a consequence of reflection from a plane mirror.	Q4 in the Question-Answer Sheet asks students to predict image formation as a consequence of reflection from a plane mirror.
748	(7) Science concepts.	(E) describe and predict image formation as a consequence of reflection from a plane mirror and refraction through a thin convex lens	(iii) describe image formation as a consequence of refraction through a thin convex lens	TX2_US240303CD	Image Formation with Convex Lenses (TX2_US240303CD)	The Activity Object describes the properties of a convex lens, and the formation of images.	In the Activity Sheet, students must answer questions that require them to describe image formation as a consequence of refraction through a thin convex lens.
749	(7) Science concepts.	(E) describe and predict image formation as a consequence of reflection from a plane mirror and refraction through a thin convex lens	(iii) describe image formation as a consequence of refraction through a thin convex lens	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)		Q13 of Investigation 4 in the Lab Sheet requires students to describe image formation as a consequence of refraction through a thin convex lens.
750	(7) Science concepts.	(E) describe and predict image formation as a consequence of reflection from a plane mirror and refraction through a thin convex lens	(iv) predict image formation as a consequence of refraction through a thin convex lens	TX2_US240303CD	Image Formation with Convex Lenses (TX2_US240303CD)	Part 1 of the Activity Object describes the properties of a convex lens and demonstrates how it refracts light.	Q1 of the Enrichment Sheet asks students to predict image formation as a consequence of refraction through a convex lens.
751	(7) Science concepts.	(E) describe and predict image formation as a consequence of reflection from a plane mirror and refraction through a thin convex lens	(iv) predict image formation as a consequence of refraction through a thin convex lens	TX2_US2401A04	Lab Equipment: Optics (TX2_US2401A04)		Q14 of Investigation 4 in the Lab Sheet requires students to predict image formation as a consequence of refraction through a thin convex lens.
752	(7) Science concepts.	(F) describe the role of wave characteristics and behaviors in medical and industrial applications	(i) describe the role of wave characteristics in medical applications	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	The Enrichment Sheet describes the role of wave characteristics in medical applications.	The Enrichment Sheet asks a question that requires students to describe the role of wave characteristics in medical applications.
753	(7) Science concepts.	(F) describe the role of wave characteristics and behaviors in medical and industrial applications	(ii) describe the role of wave behaviors in medical applications	TX2_US2203A04	Applications of the Reflection of Sound (TX2_US2203A04)	The end of the Animation describes the role of wave behaviors, such as reflection in medical applications.	Q3 of the Question-Answer Sheet asks the student to describe the role of wave characteristics in medical applications.
754	(7) Science concepts.	(F) describe the role of wave characteristics and behaviors in medical and industrial applications	(ii) describe the role of wave behaviors in medical applications	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	Enrichment Sheet 1 describes the role of wave behaviors in medical applications.	Enrichment Sheet 1 asks a question about the role of wave behaviors in medical applications.
755	(7) Science concepts.	(F) describe the role of wave characteristics and behaviors in medical and industrial applications	(iii) describe the role of wave characteristics in industrial applications	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	Enrichment Sheet 1 describes the role of wave characteristics in industrial applications.	Enrichment Sheet 1 asks a question about the role of wave characteristics in industrial applications.
756	(7) Science concepts.	(F) describe the role of wave characteristics and behaviors in medical and industrial applications	(iv) describe the role of wave behaviors in industrial applications	TX2_US2203A04	Applications of the Reflection of Sound (TX2_US2203A04)	The end of the Animation describes the role of wave behaviors in industry, such as reflection in sonar on ships.	Q2 of the Question-Answer Sheet involves the industrial application of sonar.
757	(7) Science concepts.	(F) describe the role of wave characteristics and behaviors in medical and industrial applications	(iv) describe the role of wave behaviors in industrial applications	TX2_US2202A16	Lab Equipment: Waves (TX2_US2202A16)	The Enrichment Sheet describes the role of wave behaviors in industrial applications.	The Enrichment Sheet asks a question about the role of wave behaviors in industrial applications.
758	(8) Science concepts.	(A) describe the photoelectric effect and the dual nature of light	(i) describe the photoelectric effect of light	TX2_US420103DM	Photoelectric Effect (TX2_US420103DM)	The entire Activity Object covers different aspects of the photoelectric effect, from Einstein's discovery of the law of the photoelectric effect to an investigation of factors that affect the photoelectric effect.	In the Activity Sheet, students must define the photoelectric effect, and then describe it in their own words.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
759	(8) Science concepts.	(A) describe the photoelectric effect and the dual nature of light	(i) describe the photoelectric effect of light	TX2_US4201A11	Photoelectricity and the Particle Nature of Light (TX2_US4201A11)	The Animation describes the photoelectric effect.	Q1 and Q2 of the Question-Answer Sheet assess understanding of the photoelectric effect.
760	(8) Science concepts.	(A) describe the photoelectric effect and the dual nature of light	(ii) describe the dual nature of light	TX2_US4201A19	Particle Nature of Light (TX2_US4201A19)	The Animation describes the dual nature of light.	Q3 of the Enrichment Sheet assesses the dual nature of light.
761	(8) Science concepts.	(A) describe the photoelectric effect and the dual nature of light	(ii) describe the dual nature of light	TX2_US4201A09	Wave Nature of Subatomic Particles (TX2_US4201A09)	The Animation describes the dual nature of light.	
762	(8) Science concepts.	(A) describe the photoelectric effect and the dual nature of light	(ii) describe the dual nature of light	TX2_US4201A05	Optical Events Explained by the Wave Model (TX2_US4201A05)	The Animation describes the dual nature of light.	
763	(8) Science concepts.	(B) compare and explain the emission spectra produced by various atoms	(i) compare the emission spectra produced by various atoms	TX2_US4201A20	The Wave Nature of Light (TX2_US4201A20)	In the Lab Sheet, an image compares the emission spectra of several elements.	In the Lab Sheet, students fill out a chart comparing the emission spectra of different elements.
764	(8) Science concepts.	(B) compare and explain the emission spectra produced by various atoms	(i) compare the emission spectra produced by various atoms	TX2_US4201A06	Experiments Showing the Wave Nature of Subatomic Particles (TX2_US4201A06)	The Animation compares the emission spectra produced by various atoms.	
765	(8) Science concepts.	(B) compare and explain the emission spectra produced by various atoms	(ii) explain the emission spectra produced by various atoms	TX2_US4201A06	Experiments Showing the Wave Nature of Subatomic Particles (TX2_US4201A06)	The Animation explains the emission spectra produced by various atoms.	
766	(8) Science concepts.	(B) compare and explain the emission spectra produced by various atoms	(ii) explain the emission spectra produced by various atoms	TX2_US4201A20	The Wave Nature of Light (TX2_US4201A20)		Q3 of the Lab Sheet asks students to explain what happens when electrons move from an excited state to a lower energy state. Also, Q11 asks why emission spectra are different for various atoms.
767	(8) Science concepts.	(B) compare and explain the emission spectra produced by various atoms	(ii) explain the emission spectra produced by various atoms	TX2_US4201A07	Radiation and Absorption Spectra of a Hydrogen Atom (TX2_US4201A07)	The Animation explains the emission spectra produced by hydrogen.	
768	(8) Science concepts.	(B) compare and explain the emission spectra produced by various atoms	(ii) explain the emission spectra produced by various atoms	TX2_US4201A10	Black-Body Radiation and Light Quantas (TX2_US4201A10)	The Animation explains the emission spectra produced by the radiation and reflection of light from a black body.	
769	(8) Science concepts.	(B) compare and explain the emission spectra produced by various atoms	(ii) explain the emission spectra produced by various atoms	TX2_US4201A20	The Wave Nature of Light (TX2_US4201A20)	The "Background Information" section of the Lab Sheet explains the emission spectra of atoms.	
770	(8) Science concepts.	(C) describe the significance of mass- energy equivalence and apply it in explanations of phenomena such as nuclear stability, fission, and fusion	(i) describe the significance of mass-energy equivalence	TX2_US2701A04	Energy-Mass Relationship According to the Special Theory of Relativity (TX2_US2701A04)	The Animation describes the significance of mass-energy equivalence.	The Question-Answer Sheet asks questions about the significance of mass-energy equivalence.
771	(8) Science concepts.	(C) describe the significance of mass- energy equivalence and apply it in explanations of phenomena such as nuclear stability, fission, and fusion	(i) describe the significance of mass-energy equivalence	TX2_US2701A05	Can an Object Accelerate Infinitely? (TX2_US2701A05)	The Animation describes the significance of mass-energy equivalence and applies it to the question of whether an object can accelerate forever.	The Question-Answer Sheet asks question about the significance of mass-energy equivalence.
772	(8) Science concepts.	(C) describe the significance of mass- energy equivalence and apply it in explanations of phenomena such as nuclear stability, fission, and fusion	(ii) apply [the mass-energy equivalence] in explanations of phenomena	TX2_US2701A04	Energy-Mass Relationship According to the Special Theory of Relativity (TX2_US2701A04)	The Animation applies the mass-energy equivalence to the flight of a space shuttle.	Q2 of the Enrichment Sheet asks a question in which mass-energy equivalence must be used in a calculation.
773	(8) Science concepts.	(C) describe the significance of mass- energy equivalence and apply it in explanations of phenomena such as nuclear stability, fission, and fusion	(ii) apply [the mass-energy equivalence] in explanations of phenomena	TX2_US2701A05	Can an Object Accelerate Infinitely? (TX2_US2701A05)	The Animation applies the concept of mass-energy equivalence to the question of whether an object can accelerate forever.	The Question-Answer Sheet asks a question about the concept of mass-energy equivalence, and whether an object can accelerate forever.
774	(8) Science concepts.	(C) describe the significance of mass- energy equivalence and apply it in explanations of phenomena such as nuclear stability, fission, and fusion	(ii) apply [the mass-energy equivalence] in explanations of phenomena	TX2_US260201CD	Nuclear Energy: Fission (TX2_US260201CD)		Q3 in the Activity Sheet requires correct application of $E=mc^2$.

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#	TEKS (Knowledge and Skills)	Student Expectation	Breakout	Item Number	Learning Component	Learning Component Description	Assessment Component Description
775	(8) Science concepts.	(C) describe the significance of mass- energy equivalence and apply it in explanations of phenomena such as nuclear stability, fission, and fusion	(ii) apply [the mass-energy equivalence] in explanations of phenomena	TX2_US2701A01	Basic Acceptances of the Special Theory of Relativity (TX2_US2701A01)	The Animation applies the concept of mass-energy equivalence to explain if the laws of physics are the same in all reference frames.	
776	(8) Science concepts.	(D) give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras	(i) give examples of applications of atomic and nuclear phenomena	TX2_US2601A02	Examples of Atomic and Nuclear Phenomena (TX2_US2601A02)	The Animation gives examples of applications of atomic and nuclear phenomena.	The Question-Answer Sheet asks questions about the applications of atomic and nuclear phenomena.
777	(8) Science concepts.	(D) give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras	(i) give examples of applications of atomic and nuclear phenomena	TX2_US260201CD	Nuclear Energy: Fission (TX2_US260201CD)	Part 1 of the Activity Object presents the use of a nuclear reactor to power a submarine, and students must help manage the reactor in a simulation exercise. Part 2 of the Activity Object describes what occurs within a nuclear reactor.	
778	(8) Science concepts.	(D) give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras	(i) give examples of applications of atomic and nuclear phenomena	TX2_US620310CD	Cancer Treatment (TX2_US620310CD)	Part 1 of the Activity Object presents radiation therapy of cancerous cells as an example of an application of atomic/nuclear phenomena.	
779	(8) Science concepts.	(D) give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras	(i) give examples of applications of atomic and nuclear phenomena	TX2_US4201A18	Modern Atomic Model: Orbitals and Quantum Numbers (TX2_US4201A18)		Q1 in the Enrichment Sheet asks for an example of a quantum phenomenon.
780	(8) Science concepts.	(D) give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras	(ii) give examples of applications of quantum phenomena	TX2_US4201A22	Examples of Quantum Phenomena (TX2_US4201A22)	The animation lists various examples of applications of quantum phenomena (including digital cameras, electron microscopes, and memory sticks).	The Question-Answer Sheet asks a question about the applications of quantum phenomena.
781	(8) Science concepts.	(D) give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras	(ii) give examples of applications of quantum phenomena	TX2_US4201A22	Examples of Quantum Phenomena (TX2_US4201A22)		Q2 in the Enrichment Sheet asks for an example of a quantum phenomenon used in modern technology.
782	(8) Science concepts.	(D) give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras	(ii) give examples of applications of quantum phenomena	TX2_US420103DM	Photoelectric Effect (TX2_US420103DM)	In Part 1 of the Activity Object, students are presented with applications of quantum phenomena related to the photoelectric effect (including an automatic door).	The Activity Sheet asks a question about the applications of a quantum phenomena (photoelectric effect).