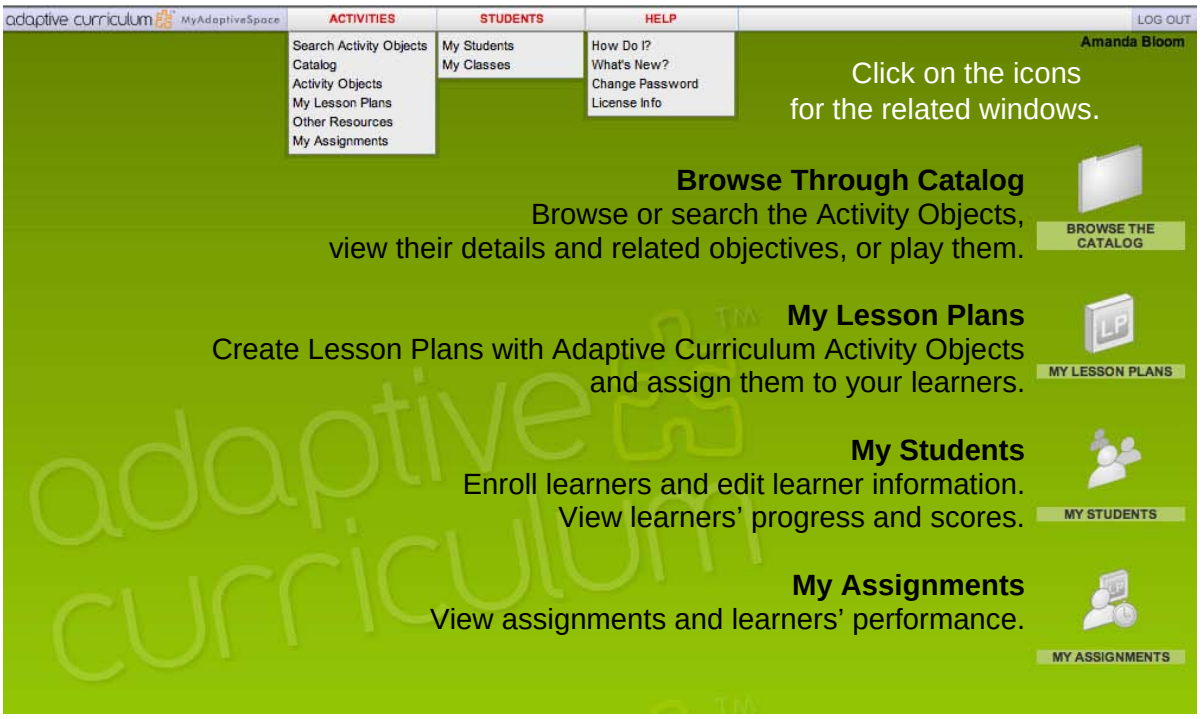
Adaptive Curriculum is an online learning system designed to enhance teaching and learning in mathematics and science for teachers and students in the middle and high school grades. *Adaptive Curriculum* provides an extensive library of Activity Objects via MyAdaptiveSpace, a flexible online learning environment for teachers with simple, intuitive tools that support the learning and teaching experience. Follow the steps below to begin using *Adaptive Curriculum*.

Logging In

1. Go to **www.adaptivecurriculum.com** and click **LOGIN**.
2. Enter your email address *(or username if provided)* and password in the login boxes.
3. Click **LOGIN**.

MyAdaptiveSpace

All the tools provided in MyAdaptiveSpace are listed in the top menu. To open the window you want, click the menu item or the related icon.



Activity Object Scenarios

Activity Objects can be used in multiple scenarios, depending on your classroom environment.

1. In a whole-class scenario, Activity Objects can be used as a class presentation with a projector or an interactive whiteboard.
2. Students can work on Activity Objects in an individual computer setup in a school IT lab or with a laptop cart.
3. Prior to individual student work on the computers, teachers may opt to show an Activity Object or review a Lesson Plan with learners in the classroom.

One-Computer Class Strategies

- Content-specific teaching strategies are discussed in the Special Tips section of each Activity Object's Teacher Guide.
- An introductory animation provides specific instructions at the beginning of each Activity Object.
- Throughout each Activity Object:
    1. You can pause, fast-forward, rewind, and repeat, as needed.
    2. You can click **Repeat** to restart any section.
    3. There are places that require the input of values; these are good places to pause the Activity Object and discuss answers as a class. Once the class answers are entered, click **Check** to verify if the answers are correct and receive feedback.
- Before ending an Activity Object, ensure that the learners understand all the vocabulary terms that were discussed. Consult the Activity Object's Glossary for definitions of key vocabulary terms.

  Note: Math Activity Objects include additional practice questions, which are identified with the  icon.

Multiple-Computer Class Strategies

- If the Activity Sheet is to be used for the Activity Object you are presenting, print out copies of the student version and distribute to learners.
- If there are not enough computers for each learner:
    1. Group the learners and ask them to work together; or
    2. Divide the class into two groups. Give an alternate assignment to one group; switch groups after about 25 minutes.
- If a printer is available and the Activity Object is a science experiment, remind learners to print their Experimental Reports.
- Remind learners to answer the Assessment questions.
- After all learners have completed the Assessment, discuss the items as a class.

Types of Activity Objects

Below is a brief overview of Activity Object types and goals, with examples of the hundreds of Activity Objects available. The library of Activity Objects is continually growing, so visit www.adaptivecurriculum.com for the most up-to-date list.

SCIENCE ACTIVITY OBJECT TYPES

There are three types of Science Activity Objects: Concept Development, Experiment, and Interactive 3D Models.

Science Activity Objects Types		
Type	**Goal**	**Examples**
Concept Development	• To teach difficult-to-understand scientific concepts through clear, clever engagements, interactions and conclusions	Drilling into Ground Water Mutualism Space Objects Interaction Explorer DNA Structure Atomic Model History: From Rutherford to Bohr The Energy Flow from Producer to Consumer Solar Energy: Design a Solar Car Formation of Seasons Properties of Solids, Liquids and Gasses Habitat Designer: Sea Turtle Muscles and Pinocchio's Arm
Experiment	• To improve students' scientific inquiry skills by performing virtual experiments in a safe environment, using virtual equipment in realistically rendered settings	Newton's Third Law of Motion Life from Nonliving Things? Redi's Experiment Plants' Need for Photosynthesis Conservation of Mass in Chemical Reactions
Interactive 3D Models	• To explore scientific structures and mechanisms	The Structure of Bones Hear with the Ear Vision and the Eye

MATH ACTIVITY OBJECT TYPES

There are five types of Math Activity Objects: Concept Development, Problem Solving, Visual Proof, Dynamic Modeling, and Interactive Exercises.

Math Activity Objects Types		
Type	**Goal**	**Examples**
Concept Development	• To teach difficult-to-understand scientific concepts through clear, clever engagements, interactions, and conclusions	Compare and Order Fractions Experimental and Theoretical Probabilities Line Plot Analyzing Bar Graphs and Line Graphs
Problem Solving	• To improve student's problem-solving skills. This type is based on Polya's Problem-Solving Cycle: 1. Consider a real-life problem 2. Understand the problem 3. Make a plan to solve it 4. Carry out the plan and check the results 5. Draw explanations	Problem Solving Involving Volumes of Prisms Problem Solving Involving Ratio and Proportion
Visual Proof	• To develop the concepts of formulae, theorems, special relationships, and other mathematical concepts using visual explanations	The Sum of the Exterior Angles of Polygons Formula for the Volume of a Sphere Multiplication of Fractions
Dynamic Modeling	• To practice mathematical concepts by changing relevant variables and observing the results in real time	Classification of Quadrilaterals Types of Triangles Mean, Mode and Median Observing Changes in Surface Area of Prisms Observing Changes in Volume of Square Prisms
Interactive Exercises	• To practice mathematical concepts through a series of leading questions	Evaluation of Algebraic Expressions Find the Area of Polygons Interpreting Bar Graphs Completing the Missing 2D Views of a 3D Object Find the Given Probability

Title Bar of Activity Objects

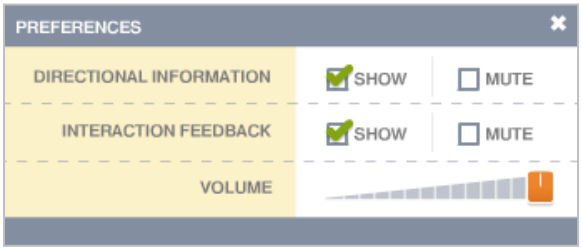
The title bar contains both the name of the Activity Object and the discipline it falls under. For example, the title bar below tells us that the learner is working on the concept of mutualism, which is a science-based lesson.

Activity Object Preferences

Teachers have the ultimate control for how Activity Objects are used by adjusting the preferences of any Activity Object. The preferences button is at the top right of the Activity Object window.

There are currently three customizable options: Directional Information, Interaction Feedback, and Volume.

The default settings of both the **DIRECTIONAL INFORMATION** and **INTERACTION FEEDBACK** preferences are set to **SHOW,** meaning that they will play automatically for the viewer.



1. **DIRECTIONAL INFORMATION**
    - **SHOW / MUTE** – disable or enable visual directions by checking the appropriate box.
2. **INTERACTION FEEDBACK**
    - **SHOW / MUTE** – disable or enable visual feedback by checking the appropriate box.
3. **VOLUME**
    - Using the volume slide bar, control the volume level of any Activity Object.

DIRECTIONAL INFORMATION gives students preliminary instructions when they begin working on a particular section of an Activity Object. **INTERACTION FEEDBACK**, on the other hand, gives students feedback when they are interacting with that section's activity.

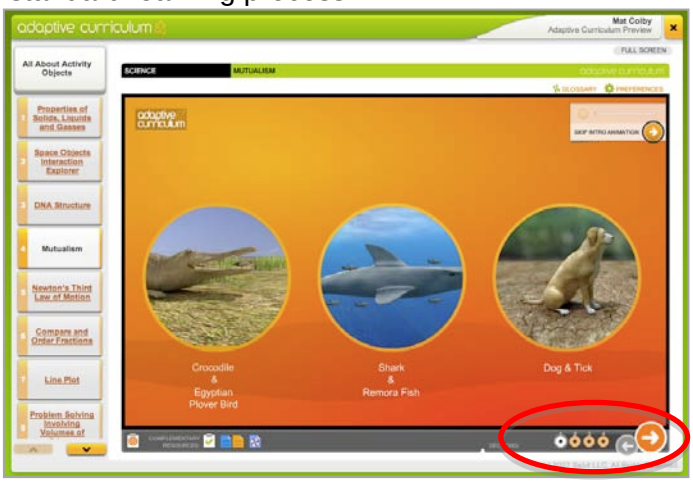
For example, if a student chooses an incorrect answer, **FEEDBACK** is given to help guide the student. Having control of these preference settings is very helpful to teachers who want to present an Activity Object in a small group or whole class setting.

Full Screen Mode

Full Screen mode allows an Activity Object to be seen in a larger view. To view the Activity Object in Full Screen, click on the **FULL SCREEN** button in the upper right-hand corner of the Activity Object window. To exit Full Screen mode, click on the **WINDOW MODE** button.

Activity Object Sections

An Activity Object may contain several sections that are designed to take the student through a standard learning process.



Activity Objects include at least one animated/narrative or interactive part.

You can navigate between these parts by clicking on the **NEXT** and **PREVIOUS** buttons in the lower-right corner of the Activity Object.

Activity Objects may contain the following sections:

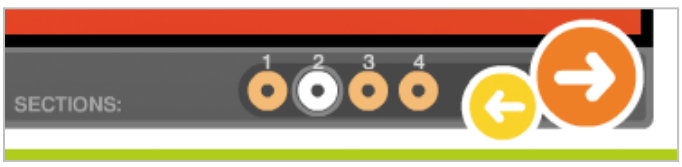
1. Engagement
2. Exploration
3. Guided Inquiry
4. Guided Practice
5. Explanation
6. Example
7. Create Questions/Graphs
8. Closure

Problem Solving type Activity Objects are designed differently, and have the following sections:

1. Problem
2. Understand
3. Make a Plan
4. Carry out and Check
5. Closure

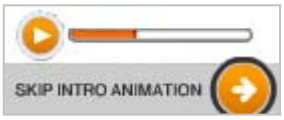
Depending on the Activity Object, the student may experience any, or all, of these highly engaging sections.

There is a “Sections” indicator bar, located in the lower-right corner of the Activity Object window, showing which section the student is currently on – below, for instance, the student is currently on Section 2, as shown in solid white. If the mouse is held over a section’s icon, the type of the section is shown.



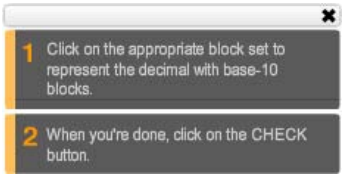
Animated sections can be controlled with a slider bar*. Press the **PAUSE** button whenever you want to interrupt the animation, ask your students questions, etc. To resume, just click on the **PLAY** button. By scrolling the slider bar you can also jump to any part of the animation.

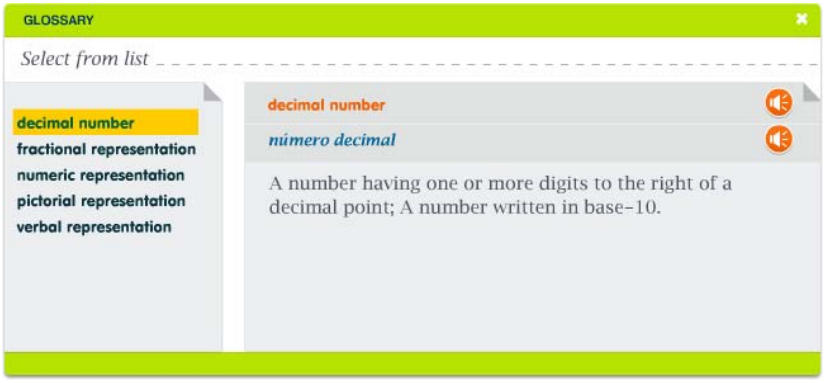
*** NOTE:** The slider bar may fade into the background. To see it again, put the mouse back in the area where it first appeared.



Most of the interactive parts start with a short animation. You can control this intro animation by using the slider bar and the Play/Pause buttons or jump directly to the interaction by clicking on the **SKIP INTRO ANIMATION** button.

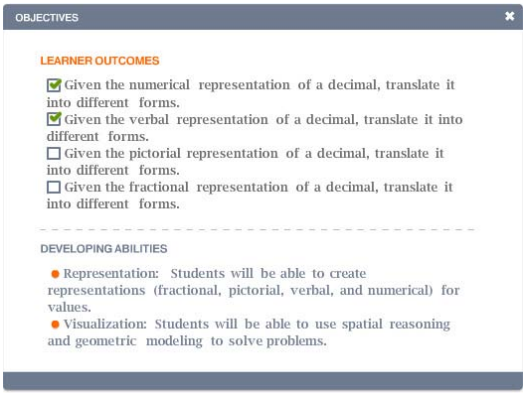
Each interaction requires a different set of actions, such as dragging, clicking, or typing. The goal of the interaction and the actions to reach that goal are described step by step in the directional information. You can view the directional information at any time by clicking on the **DIRECTIONAL INFO** button on the lower-left side of the Activity Object window.





Glossary is the section where the key vocabulary of the Activity Object is listed, defined and described in English and pronounced in both English and Spanish. The glossary button is located at the top right of the Activity Object window.

There is an **OBJECTIVES** button, located in the lower-left corner of the Activity Object window, which opens the Objectives section. The Objectives section displays the Learner Outcomes and Developing Abilities associated with the activity object. This section also keeps track of students' progress throughout the Activity Object; as the student reaches internal triggers, the Learner Outcomes are marked as completed.



Frequently Used Buttons

The following buttons are commonly used and can be seen in almost every Activity Object.

Directional Info
Brings up the directional information window. This window describes the goal and the interaction steps to reach that goal.

Restart
Wipes the slate clean and restarts the Activity Object.

Next Question
Proceeds to another question or another case.

OK
Submits the value entered or the action implemented and shows its result.

Next Page
Goes to the next section of the Activity Object.

Previous Page
Goes to the previous section of the Activity Object.

Current Section
The current section of the Activity Object is highlighted in white.

Other Sections
Sections of the Activity Object not in current use are shown in orange.

Activity Sheet (Student's Copy)
Brings up the Activity Sheet for the student.

Activity Sheet (Teacher's Copy)
Brings up the Activity Sheet for the teacher.

Assessment
Brings up the Assessment window.

Objectives
Defines the Learner Outcomes and Developing Abilities for the Activity Object.

Audio
Click to hear how to a word is pronounced in the glossary.

Preferences
Brings up the preferences widow to change the default settings.

Close
Closes the current window.

Glossary
Brings up the Glossary window.

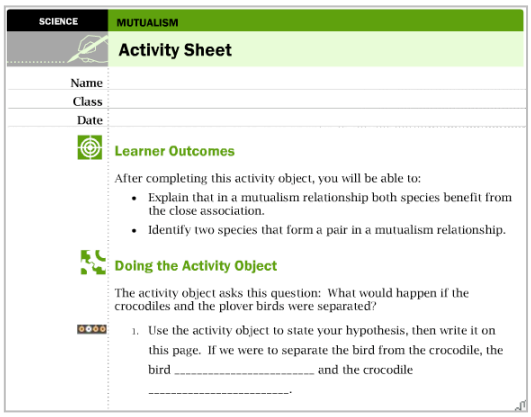
Activity Object Resources

Each Activity Object comes with additional resources, for both teachers and students, to enhance the Lesson Plan. These resources are located in the lower-left corner of each Activity Object.

Activity Sheets

Activity Sheets are designed as student handouts and/or for formative assessments, as well as for school/home communication. All Activity Sheets have a Teacher's Edition for quick reference and support notes.

STUDENT'S EDITION


SCIENCE MUTUALISM

Activity Sheet

Name
Class
Date

Learner Outcomes

After completing this activity object, you will be able to:

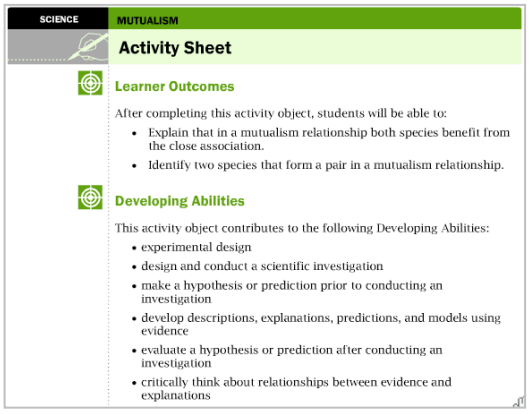
- Explain that in a mutualism relationship both species benefit from the close association.
- Identify two species that form a pair in a mutualism relationship.

Doing the Activity Object

The activity object asks this question: What would happen if the crocodiles and the plover birds were separated?

1. Use the activity object to state your hypothesis, then write it on this page. If we were to separate the bird from the crocodile, the bird _____ and the crocodile _____.

TEACHER'S EDITION


SCIENCE MUTUALISM

Activity Sheet

Learner Outcomes

After completing this activity object, students will be able to:

- Explain that in a mutualism relationship both species benefit from the close association.
- Identify two species that form a pair in a mutualism relationship.

Developing Abilities

This activity object contributes to the following Developing Abilities:

- experimental design
- design and conduct a scientific investigation
- make a hypothesis or prediction prior to conducting an investigation
- develop descriptions, explanations, predictions, and models using evidence
- evaluate a hypothesis or prediction after conducting an investigation
- critically think about relationships between evidence and explanations

Using Activity Sheets

Print and distribute the Activity Sheets to learners. Activity Sheets are highly recommended when the Activity Object is explored on one computer and displayed to the whole class through a projector or interactive whiteboard. They are optional if learners are working alone or in pairs on computers.

Because Activity Objects are engaging and interactive, learners may forget to complete the Activity Sheets. A good strategy is to remind them to check for questions on the Activity Sheet before moving to the next section of the Activity Object.

Activity Sheets contain questions and answers in two parts. Part 1 is called the Learner Journal. It guides learners to record information or answer questions as they progress through the Activity Object. Sections are emphasized with Navigation Circles. For instance, in the sample illustration below, learners would find Question 1 in Section 1. In the event learners forget to answer a question, they can navigate back to the section using the Navigating Circles in the bottom right corner of the Activity Object.


Learner Journal

Section 1

1. What part of the atom

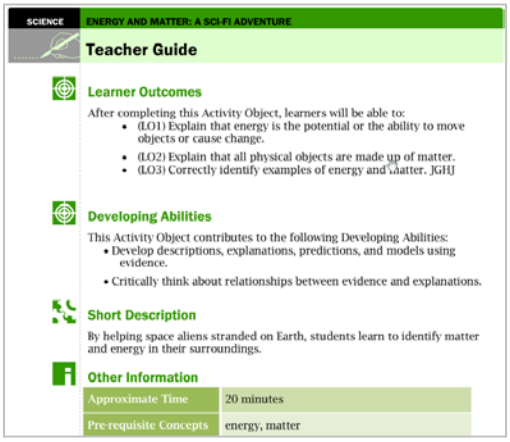
Part 2 is called Reflections. This section helps learners to process, review, deepen, or extend learning that occurred during the Activity Object. This section also helps learners to develop writing and critical thinking skills.

When you log in as a teacher and go to the Activity Object, you can view the learner version of the Activity Sheet as well as the teacher version with answers. In the picture below, the blue icon is for the learner copy; the orange icon is for the teacher copy.

Activity Sheets can be collected and graded to give learners feedback about the quality of their responses and help you determine if Learner Outcomes have been achieved.

Teacher Guides

Teacher Guides are detailed documents designed to provide teachers with some background information about the topic. Teacher guides include engagement suggestions for classroom use, provide special tips about the usage of Activity Objects, suggest different strategies for use in the classroom, note possible misconceptions, and present ideas to extend the objectives achieved by students in the Activity Object.


SCIENCE ENERGY AND MATTER: A SCI-FI ADVENTURE

Teacher Guide

Learner Outcomes

After completing this Activity Object, learners will be able to:

- (LO1) Explain that energy is the potential or the ability to move objects or cause change.
- (LO2) Explain that all physical objects are made up of matter.
- (LO3) Correctly identify examples of energy and matter. JGHJ

Developing Abilities

This Activity Object contributes to the following Developing Abilities:

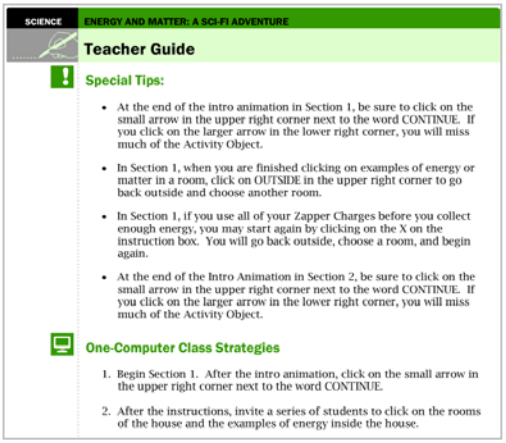
- Develop descriptions, explanations, predictions, and models using evidence.
- Critically think about relationships between evidence and explanations.

Short Description

By helping space aliens stranded on Earth, students learn to identify matter and energy in their surroundings.

Other Information

Approximate Time	20 minutes
Pre-requisite Concepts	energy, matter


SCIENCE ENERGY AND MATTER: A SCI-FI ADVENTURE

Teacher Guide

Special Tips:

- At the end of the intro animation in Section 1, be sure to click on the small arrow in the upper right corner next to the word CONTINUE. If you click on the larger arrow in the lower right corner, you will miss much of the Activity Object.
- In Section 1, when you are finished clicking on examples of energy or matter in a room, click on OUTSIDE in the upper right corner to go back outside and choose another room.
- In Section 1, if you use all of your Zapper Charges before you collect enough energy, you may start again by clicking on the X on the instruction box. You will go back outside, choose a room, and begin again.
- At the end of the Intro Animation in Section 2, be sure to click on the small arrow in the upper right corner next to the word CONTINUE. If you click on the larger arrow in the lower right corner, you will miss much of the Activity Object.

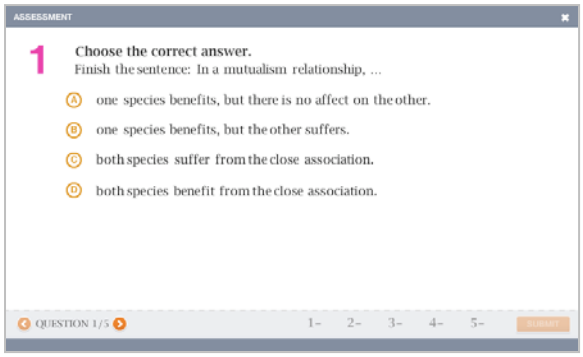
One-Computer Class Strategies

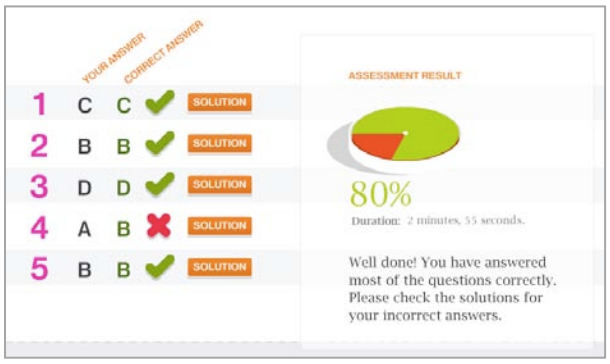
1. Begin Section 1. After the intro animation, click on the small arrow in the upper right corner next to the word CONTINUE.
2. After the instructions, invite a series of students to click on the rooms of the house and the examples of energy inside the house.

Assessments

Each Assessment is directly aligned to the Learner Outcomes of the Activity Object and can be used to track student progress in mastery of the content.

Students may answer a series of questions.





Once a student submits answers, immediate feedback is given.

NOTE: To learn more about student reporting, see the **My Lesson Plans** and **My Assignments** Guides.

Interpreting the Assessments
The Assessments can be accessed by clicking the checkmark icon on the bottom left of the Activity Object screen. These questions are aligned with the Learner Outcomes (target icon).

Learners answer the questions and then submit their responses. They receive immediate feedback about their results, and they can view the correct answers with solutions**.** You can access learner results by clicking on the folder MY STUDENTS after you log in.

Activity Objects have between three and five Learner Outcomes. Questions 1–5 directly align to Learner Outcomes 1–5. The main goal of these questions is to determine if the Learner Outcomes have been mastered, rather than testing reading or critical thinking skills. Questions 6–8 evaluate one or more of the Learner Outcomes from a different perspective and may involve more critical thinking or reading.

The Assessment results are evidence for achieving Learner Outcomes. For example, if a learner gets Questions 1 and 3 correct and Question 2 incorrect, this indicates that he or she achieved Learner Outcomes 1 and 3, but that she or he has not mastered Learner Outcome 2.

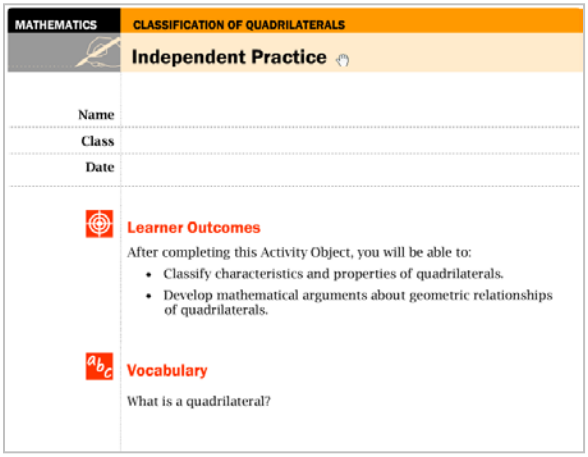
At least two questions in the Assessment include a visual object. The visual object may be a table, graph, diagram, picture, or concept map. Learners need to be able to interpret non-text sources. The visual object question helps learners develop this ability, and it allows you to monitor their progress.

It is also important that some questions develop and help you to evaluate learners' critical thinking skills. Thus, Question 9 is written to require critical thinking on the part of the learner. This question is also structured to evaluate one or more Learner Outcomes. Question 10 directly aligns to Developing Abilities.

Independent Practice (Math only)

Independent Practice sheets are student handouts meant to help develop mathematical thinking skills. They provide learners additional opportunities to master Learner Outcomes, acquire the vocabulary of the subject, and extend learning. Independent Practice sheets contain various levels and types of questions, such as Finding the Error, Practice, Open Ended, Challenging, and Reasoning. All Independent Practice Sheets have a Teacher's Edition for quick reference and support notes. Independent Practice Sheets can be distributed to learners after the Activity Object and assigned as class work or homework. Note: Not all Activity Objects include an Independent Practice.

STUDENT'S EDITION



TEACHER'S EDITION