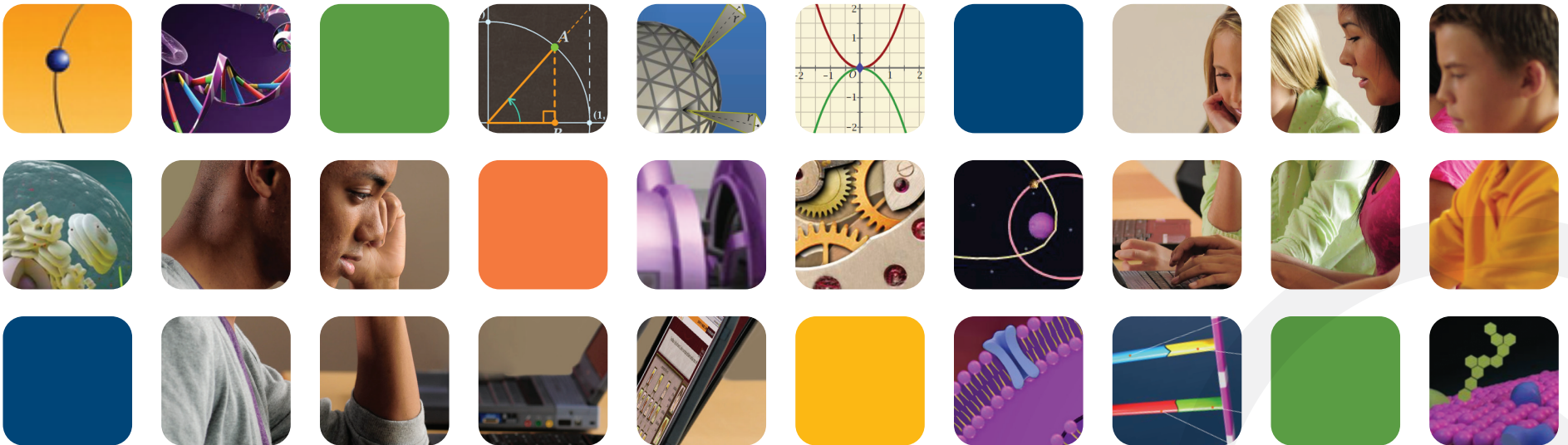


ac / science scope

Dynamic, Interactive Learning



Science Activity Objects

MIDDLE SCHOOL PHYSICAL SCIENCE

Nature of Matter

- Energy and Matter: A Sci-Fi Adventure
- The Density of Marbles
- Physical Properties of Substances
- The Thermal Expansion of Metals
- A Musical Introduction to Chemical Formulas
- Atomic Model History: Early Ideas to Thomson
- Atomic Model History: From Rutherford to Bohr
- Electron Energy Levels
- Chemical Bonding: Covalent Compounds
- Chemical Compounds: Ionic Bonding
- Putting the Elements in the Periodic Table
- Physical Properties and the Periodic Table

States of Matter

- Properties of Solids, Liquids, and Gases
- Melting and Boiling Point: Different Materials, Different Amounts
- Melting and Boiling Point: Heating Curves

Changes of Matter

- Conservation of Mass in Chemical Reactions
- Physical and Chemical Changes
- Endothermic and Exothermic Reactions

Energy

- Renewable Energy Sources
- Nuclear Energy: Fission
- Rollercoaster Design: Potential and Kinetic Energy
- Heat Conduction of Different Materials
- Transformation of Energy
- Heat Transfer in a Truck Engine
- Heat Conduction and the Frying Pan
- Light Intensity and Distance from the Source
- Energy Conversions in a Power Plants

Mixtures

- Separation of Mixtures
- Solubility

Acids and Bases

- The Properties of Acids
- The Properties of Bases
- Identifying pH of Substances

Electricity

- Electric Force
- Voltage, Current, and Resistance: Ohm's Law
- Resistance in Different Wires
- Building Circuits: Light Bulbs in Series
- Building Circuits: Light Bulbs in Parallel
- Electrical Energy Consumed by a Light Bulb
- Electric Motor

Force and Motion

- Newton's Second Law of Motion
- Balanced and Unbalanced Forces
- Newton's Third Law of Motion
- Boom! How Far is the Lightning?
- Free Fall
- Springs Stretch with Force: Hooke's Law
- Truck On: Position and Velocity-Time Graphs
- Flight of the Arrow
- Driving and Velocity Graphs
- Properties of Waves
- Effects of Different Surfaces on Motion
- The Advantages of Friction
- Magnetic Field of a Magnet
- The Magnetic Field of a Coil
- Escape Velocity: Launching Rockets
- Magnetic Force
- Buoyant Force
- Buoyancy and Archimedes' Principle

Work and Energy

- Work
- Gravitational Potential Energy: Seeing the Impact in Sand
- Kinetic Energy: How It Changes with Mass and Speed
- Simple Machines: Lever

Pressure

- Pressure in Liquids

Light

- Shadow Formation
- Reflection of Light from Plane Mirrors
- Color Absorption and Reflection: Light into Heat
- Electromagnetic Spectrum
- Color Mixing: Paints and Light
- Refraction of Light
- Light Reflection Puzzles

MIDDLE SCHOOL EARTH AND SPACE SCIENCE

Earth Materials and Shaping the Earth Surface

- Plate Tectonics: The Hawaiian Islands
- Plate Tectonics: The Himalayas
- Plate Tectonics: The Atlantic Ocean
- Pangaea: Image of Earth 250 Million Years Ago
- Determining Planet Layers from Seismic Waves
- Earthquakes: Measuring Magnitude
- Earthquake! Where Was It?
- Finding the Global Location: Using Latitudes and Longitudes
- The Rock Cycle
- Soil Erosion Investigations

Resources in the Earth System

- Solar Energy: Design a Solar Car
- Water Conservation
- Nonrenewable Energy Sources
- Drilling into Groundwater

Weather

- Greenhouse Effect
- Sea and Land Breezes
- Weather Prediction
- Hurricane Formation

Earth and Universe

- Formation of Seasons
- Solar and Lunar Eclipses
- Space Objects: Gravity and Motion
- Space Objects Interaction Explorer

- Comets
- Make a Telescope: See the Moon
- Black Holes
- Star Types: In Search of Habitability

MIDDLE SCHOOL LIFE SCIENCE

Heredity and Genetics

- Mendel's Experiment
- Find the Heir: Genetics Applied
- Genetic Inheritance in People
- DNA Structure

Evolution, Diversity and Classification

- Life from Non-Living Things? Redi's Experiment
- Spontaneous Generation: Pasteur's Experiment
- Functions of Roots
- Natural Selection
- Sorting and Identifying Animal Fossils
- Analysis of Fossil Evidence
- Biological Adaptation: Bird Beaks
- Classification of Animals

Structure and Function in Living Systems

- Plants' Needs for Photosynthesis
- Factors Influencing Photosynthesis: Light Intensity and Amount of Carbon Dioxide
- Factors Influencing Photosynthesis: Temperature and the Color of Light
- Aerobic Respiration: What Produces Carbon Dioxide?
- The Nucleus and Control of a Cell: Hammerling's Experiment with Algae
- Aerobic Respiration in Plants
- Function of the Nucleus: Hammerling's Experiment with Algae
- Exploring Cells with a Microscope
- Agent Organelles
- Comparing Plant and Animal Cells
- From One Cell to Two: Mitosis
- Bees, Flowers and Pollination
- Making Sperm and Eggs: Meiosis
- Breeding Zebra Danio Fish:



Science Activity Objects

- An Introduction to Sexual Reproduction
- Identifying Cancerous Cells
- Cancer Treatment
- Muscles and Pinocchio's Arm
- Joints
- The Structure of Bones
- Blood Typing and Transfusions
- Digestive System
- Human Body Systems
- Dancing with the Bees: Animal Communication
- The Nervous System
- Eye Structures and Problems
- Hear with the Ear
- Vision and the Eye

Ecosystems

- Environmental Factors that Affect the Growth of Molds
- Habitat Designer: Panda
- Habitat Designer: Sea Turtle
- Mutualism
- Commensalism
- Parasitism
- The Energy Flow from Producer to Consumer
- Graphical Visualization of Air Pollution

HIGH SCHOOL PHYSICAL SCIENCE

Physics

- Flying Using Vector Addition
- Balanced and Unbalanced Forces
- Identifying Forces
- Combining Perpendicular Forces
- Combining Non-perpendicular Forces
- Relative Motion
- Period of a Pendulum
- Projectile Motion
- Problem Solving on One Dimensional Motion with Constant Acceleration
- Problem Solving on Newton's Second Law
- Metric System and Dimensional Analysis
- SI Units and Dimensional Analysis
- Projectiles Launched Vertically

- Projectiles Launched Horizontally
- The Physics of Rockets
- Concept of Inertia
- Analyzing Motion in a Medium
- Graphs of Projectile Motion
- Graphs of Accelerated Motion: Projectiles Launched Vertically
- Problem Solving on Newton's Second Law
- Newton's Third Law of Motion
- Newton's Law of Universal Gravitation
- Free Fall
- Space Objects: Gravity and Motion
- Space Objects: Interaction Explorer
- Designing an Electric Motor
- Nuclear Energy: Fission
- Work
- Comparing the Work Done and the Energy Transferred
- Conservation of Mechanical Energy
- Friction
- Cloumb's Law
- Electric Field
- Potential Difference
- Motion of Charged Particles in Electric Field
- Resistance of a Conductor
- Voltage and Current Law
- Magnetic Field
- Superposition of Water Waves
- Interference of Water Waves

Chemistry

- Using Solubility to Identify Substances
- The Density of Marbles
- Effect of Scaling on Strength
- Solubility
- Physical Properties
- Concentration and Temperature Effect on Conductivity
- Electron Configuration
- Photoelectric Effect
- Calculating Atomic Mass
- Polarity
- Chemical Formulas and Naming Ionic Compounds

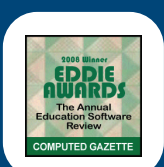
- Chemical Formulas and Naming Covalent Compounds
- Atomic Radius in the Periodic Table
- Electron Configuration and the Tendency to Gain or Lose Electrons
- Electronegativity on Periodic Table
- Ionization Energy on Periodic Table
- Lewis Dot Structure
- Electronegativity and Chemical Bonding
- Crystal Lattice
- Comparing Ionic and Covalent Compounds
- The Number of Moles—Volume Relationship of Gases: Avogadro's Law
- The Pressure-Volume Relationship of Gases: Boyle's Law
- Charles' Law of Gas
- Partial Pressure
- The Ideal Gas Law
- Graham's Law
- Vapor Pressure
- Heating Curves
- Separation Methods: Density Difference
- Separation Methods: Distillation
- Molecular Interactions and Solubility
- The Concentration of Solutions: Molarity and Molality
- The Concentration of Solutions: Mass Fraction and Mass Percentage
- Factors Affecting the Solubility of Gases
- Solubility
- Introduction to Titration: Neutralization
- Precipitation Reactions
- Writing and Balancing Chemical Equations
- The Concept of Moles
- Calculating Moles
- Law of Multiple Proportions
- Conservation of Mass in Chemical Reactions
- Finding Molecular Formula by Using Mole and Molecular Mass
- Factors Affecting the Rate of Chemical Reactions
- Batteries, Chemicals, and Potential Difference
- Polarity
- Chemical Equilibrium: Le Chatelier's Principle
- Problem Solving Using the Relation $Q=m \cdot c \cdot t$

HIGH SCHOOL LIFE SCIENCE

Biology

- The Energy Flow from Producer to Consumer
- Diffusion
- Cell Theory and Cell Types
- Comparing Plant and Animal Cells
- Surface Area to Volume Ratio in Organisms
- Structure and Function of Cell Membrane
- Osmosis
- Homeostasis
- The Effect of Temperature on Enzyme Activity
- Substrate Specificity of Enzyme
- Investigating Photosynthesis: The Van Helmont Experiment
- Investigating Photosynthesis with Priestley and Ingenhousz
- Effect of Amount of Enzyme and Substrate on Enzyme Activity
- Chemosynthesis
- Plants' Needs for Photosynthesis
- Factors Influencing Photosynthesis: Carbon Dioxide
- Factors Influencing Photosynthesis: Intensity and the Color of Light
- Factors Influencing Photosynthesis: Temperature
- Comparing Cellular Respiration and Fermentation
- The Cell Cycle and Mitosis
- The Effect of Meiosis on Variation
- Making Sperm and Eggs: Meiosis
- Hammerling's Experiment with Cells
- The Nucleus and Control of a Cell: Hammerling's Experiment with Algae
- Protein Synthesis
- Domains and Kingdoms
- Classification of Animals
- Hidden Heroes: Bacteria
- Plant Survival: The Xeroscape Garden





Awards

Best Online Instructional Solution

2009 CODiE Award
*Software & Information
Industry Association*

Best Science Instructional Solution

2009 CODiE Award Finalist
*Software & Information
Industry Association*

Best Middle School Math and Science Website

2009 BESSIE Award
ComputED Learning Center

Teachers' Choice Award

2009
Learning Magazine

Rookie of the Year

2008 EdNET Award
*The Heller Reports and Quality
Education Data*

Best Middle School Math and Science Website

2008 EDDIE Award
ComputED Learning Center

Education Newcomer of the Year

2008 CODiE Award
*Software & Information
Industry Association*

Distinguished Achievement Award

2008
*The Association of
Educational Publishers*

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