

8th Grade Science: Mr. Kindrick

Chemistry

- I can list the properties of a substance or object and classify them as physical properties or chemical properties.
- I can explain the difference between a chemical change and a physical change.
- I can explain what is happening at the molecular level when a substance changes from one state to another.
- I can give examples of physical changes and explain how I know they are physical changes.
- I can give examples of chemical changes and explain how I know they are chemical changes.
- I can give examples of common chemical changes involving oxygen and explain how it is involved.
- I can give examples of how a chemical change affects the physical properties of the materials involved.
- I can identify the kinds of energy produced or taken in during a chemical reaction.
- I can measure and graph the temperature of water as it changes state. Using the graph, I can identify where the state changes occur.
- I can distinguish between the products and reactants in a chemical reaction.
- I can explain the Law of Conservation of Mass and evaluate a chemical equation to make sure it follows this law.
- I can explain what influences the rate at which a chemical reaction occurs.
- I can give examples of how changes in matter influence my life.
- I can use this science language when appropriate: chemical properties, physical properties, chemical change, physical change, reaction, reactants, products, respiration, photosynthesis, temperature, molecules, heat energy, chemical energy, atoms, energy.

Ecology

- I can describe photosynthesis and recognize its importance.
- I can describe cellular respiration and recognize its importance.
- I can trace the path of energy from the sun to mechanical energy in organisms as a result of photosynthesis and cellular respiration.
- I can explain and give examples of feeding relationships and symbiotic relationships between organisms.
- I can model and diagram the flow of energy in food chains, food webs, and energy pyramids.
- I can design and use an experiment that tests the effects of air, temperature, water, or light on plants.
- I can describe what different scientists do when they study the same ecosystem.
- I can describe how humans affect an ecosystem.
- I can use evidence to infer the potential effects of humans on a specific food web.
- I can describe what extinction is, and argue for or against allowing a species to go extinct.
- I can use this science language when appropriate: students should know and use food web, food chain, photosynthesis, respiration, predator, energy flow, solar energy, chemical energy, mechanical energy, producer, consumer, prey, mutualism, parasitism, competition, environment, capacity, organism, decomposer
- I can compare rocks and minerals and describe how they are related.

- I can understand that rocks are made of minerals.
- I can define and explain the properties of minerals. Hardness, color, luster, streak, crystal structure, cleavage.
- I can identify the properties of a mineral. Hardness, color, luster, streak, crystal structure, cleavage.
- I can categorize rock samples as sedimentary, metamorphic, or igneous.
- I can draw and explain the rock cycle and the multiple ways that one rock type changes to another.
- I can explain different ways that energy changes rocks over time.
- I can show and explain how gravity and erosion change the Earth's surface.
- I can explain how weather helps make soil.
- I can model and explain different ways fossils are made.
- I can describe how sedimentary rock layers are deposited and why the youngest layers are usually on top, but not always.
- I can determine the relative ages of rock layers using diagrams or pictures.
- I can describe how fossils show evidence of the changing surface of the Earth.
- I can explain why younger rock layers contain recent fossils and older rock layers contain older fossils.
- I can describe how earthquakes and volcanoes transfer energy from inside the Earth to cause changes to the Earth's surface.
- I can show the process of energy buildup and release in earthquakes.
- I can explain reasons why people don't always make decisions based on scientific findings.
- I can show how small changes add up to big changes on the Earth's surface.
- I can use this science language when appropriate: volcano, earthquake, weathering, minerals, fossils, sedimentary, magma, metamorphic, rock cycle, igneous, sedimentation, deposition, geology, paleontology
- I can identify the basic parts of a wave and how wavelength and frequency are related.
- I can explain and give examples of different ways energy is transferred through waves.
- I can explain how energy spreads out from its original source.
- I can explain and give examples of heat transfer through conduction, convection, and radiation.
- I can define white light and explain how it can be split into its different colors.
- I can explain the difference between mass and weight.
- I can explain how mass and distance influence the pull of gravity.
- I can build a device that supports the weight of a load.
- I can build a machine that uses gravity to function.
- I can label the parts of a level and calculate its mechanical advantage.
- I can explain how levers and inclined planes create mechanical advantage and build a device to show this.
- I can describe how friction affects motion and build a device that uses friction to control the motion of an object.
- I can define work and explain how simple machines make work easier.
- I can describe and recognize examples of 6 different types of simple machines.
- I can build a device that can accomplish a specific task using more than one type of simple machine.
- I can define and give examples of force.
- I can explain how forces cause changes in motion.

- I can define and give examples of kinetic energy and potential energy.
- I can give describe and give examples of how kinetic and potential energy cycles.
- I can list the types of energy and explain how energy can be converted from one type to another.
- I can explain and give examples of how various organisms respond to light, motion, and, sound.
- I can explain ways that people use devices to help them sense the energy around them.
- I can use this science language when appropriate: energy, potential energy, kinetic energy, force, gravity, complex machine, wave, friction, amplitude