Hawai‘i Department of Education Benchmarks

Potter Alchemy: The Chemistry of Ceramics and Glazes

SC.2.6.1 Identify ways to change the physical properties of objects
SC.3.6.1 Define energy and explain that the sun produces energy in the form of light and heat

SC.4.6.1 Describe how some materials may be combined to form new substances
SC.6.6.5 Explain how matter can change physical or chemical forms, but the total amount of matter remains constant
SC.6.6.6 Describe and compare the physical and chemical properties of different substances
SC.6.6.8 Recognize changes that indicate that a chemical reaction has taken place
SC.2.8.1 Identify different Earth materials and classify them by their physical properties
SC.3.8.1 Describe different Earth materials (e.g., rocks, minerals, sand, soil) and explain their formation and composition
SC.8.8.2 Illustrate the rock cycle and explain how igneous, metamorphic, and sedimentary rocks are formed

It’ll Last Longer: Image Capture

1-PS4-3.Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light. [Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).]
4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.
SC.3.6.3 Explain how light traveling in a straight line changes when it reaches an object
SC.3.6.1 Define energy and explain that the sun produces energy in the form of light and heat
SC.5.6.1 Identify different forms of energy (e.g., thermal, electrical, nuclear, light, sound) and how they can change and transfer energy from one form to another
SC.5.6.3 Compare what happens to light when it is reflected, refracted, and absorbed

7 SC.7.3.1 Explain how energy moves through food webs, including the roles of photosynthesis and cellular respiration.
BS SC.BS.3.1 Explain the chemical reactions that occur in photosynthesis and cellular respiration that result in cycling of energy.

Fool Spectrum: Color, Light and Perception

SC.8.6.1 Explain the relationship between the color of light and wavelength within the electromagnetic spectrum
SC.8.6.3 Identify the characteristics and properties of mechanical and electromagnetic waves

Come Undone: The Art of Entrophy and Decay

SC.2.4.1 Explain how plants and animals go through life cycles
SC.6.6.8 Recognize changes that indicate that a chemical reaction has taken place
SC.PS.6.3 Describe different examples of the concept of entropy

SC.PS.6.11 Describe a variety of chemical reactions
SC.PS.6.9 Describe the factors that affect the rate of chemical reactions

What Moves you: Mechanics of kinetic art

SC.K.7.1 Identify that objects that will fall to the ground unless something is holding them up
SC.1.7.1 Describe how the motion of an object can be changed by force (push or pull)
SC.3.7.1 Compare how simple machines do work to make life easier
SC.4.7.1 Describe that the mass of the Earth exerts a gravitational force on all objects
SC.6.6.10 Explain how vibrations in materials set up wavelike disturbances that spread away from the source
SC.6.7.1 Describe examples of how forces affect an object's motion
SC.8.7.1 Explain that every object has mass and therefore exerts a gravitational force on other objects
SC.PS.7.1 Apply the laws of motion to determine the effects of forces on the linear motion of objects
SC.PS.7.2 Use vectors to explain force and motion
SC.PS.7.3 Explain the relationship among the gravitational force, the mass of the objects, and the distance between objects

4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide.
4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
K-PS2-2. a to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.
SC.6.6.3 Explain how energy can change forms and is conserved
SC.6.6.4 Describe and give examples of different types of energy waves
MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.