

Eighth Grade Science Tasks

S8P1.

- A. Place a thermometer flat on the table top. Record the temperature. Put 50 grams of room temperature baking soda in a sealable plastic bag on top of the thermometer so you can still read the thermometer and record its temperature. Add 20 ml of room temperature water. Seal the bag and place it on top of a thermometer. Record the temperature. Observe the bag for signs of gas or temperature change. What conclusion can you reach to determine if this demonstrates physical or chemical change?
- B. Place a thermometer flat on the table top. Record the temperature. Put 50 grams of room temperature baking soda in a sealable plastic bag on top of the thermometer so you can still read the thermometer and record its temperature. Add 20 ml of room temperature vinegar. Seal the bag and place it on top of a thermometer. Record the temperature. Observe the bag for signs of gas or temperature change. What conclusion can you reach to determine if this demonstrates physical or chemical change?

S8P2.

- A. Place a grooved ruler flat on a table top. Place five marbles in the groove of the ruler so they touch each other. Roll a sixth marble into the five marbles and observe what happens. Place four marbles in the groove and roll two marbles. Observe what happens. Continue this pattern using three marbles and three marbles, then two and four, and finally one and five. Write what you observed about energy transfer.
- B. Roll a marble down a ramp made by putting the ruler at an angle. Roll another marble down the ramp and observe what happens as the second marble hits the first marble. Write what you observed about energy transfer.
- C. Measure the mass of a ball bearing, a marble, and a small ball of paper. Drop them from the same height simultaneously onto a cookie sheet. Listen to determine when they hit.

S8P3.

- A. Research the understanding of motion through history by finding out about Aristotle, Galileo, and Newton.
- B. Place a coin on a paper card. Slowly move the card and then stop moving it suddenly. Describe what happens. Move the card quickly and then stop moving it suddenly. Describe what happens. Put the card on top of a glass. Move the card in a horizontal direction quickly off the top of the glass and watch the coin drop into the glass. Explain what causes this using the terms inertia, acceleration, force, and gravity.

S8P4.

- A. Use four glasses labeling each with a letter, A, B, C, or D. Leave A empty. Pour 250 ml of water in glass B. Pour 250 ml of corn syrup in glass C. Pour 250 ml of alcohol in glass D. Lean a pencil in the center each glass. Observe the differences when you look at the pencil from different views and angles. Sketch and explain what you observe.
- B. Tape a string to a ping pong ball. Strike a tuning fork and place the ping pong ball against the tines. Observe the differences in the reaction of the ball as it bounces against the vibrating tines. Can you see the effects of the different parts of the wave? Draw a sequenced diagram of what happened.

- C. Print the letters of the alphabet on a piece of paper. Hold the letters up to a mirror. Draw the image reflected in the mirror on a piece of paper. Do all of the letters change? Infer what happens to the letters' images. Try drawing the letters so they look correct when viewed in the mirror.
- D. Some capital letter images look the same in the mirror view. Write why this is true. What do they have in common?
- E. Hold a flashlight up to a mirror. Move the mirror to bounce the light from the mirror to an index card. Use a piece of aluminum foil to do the same thing. Try this other materials. Note how the light differs as it is reflected. Explain your findings.
- F. Light is sometimes bent or refracted. Use the bowl and back of a large spoon to study some of the image-forming properties of convex and concave shapes.
- G. Find examples of objects that are transparent, translucent, and opaque. Observe how light behaves with each object. Explain similarities and differences.

S8P5.

- A. Use two batteries, two bulbs, and copper wires. Connect them in various ways demonstrating how to light both bulbs. Sketch each as you connect them. Observe the brightness of the bulbs. Rank your sketches in order of bright to dim. Are series circuits or parallel circuits brighter?
- B. Connect two batteries, two bulbs and copper wires to show a series circuit. Loosen one of the bulbs and observe what happens.
- C. Connect two batteries, two bulbs and copper wires to show a parallel circuit. Loosen one of the bulbs and observe what happens.
- D. Find examples of each kind of circuit. Explain the advantages and disadvantages of each.