

“Sifting Through Science”

Physical Science Standards:

K. 1. a. Students know objects can be described in terms of the materials they are made of (e.g., clay, cloth, paper) and their physical properties (e.g., color, size, shape, weight, texture, flexibility, attraction to magnets, floating, sinking).

Investigation & Experimentation Standards:

K. 4. a. Observe common objects by using the five senses.

K. 4. b. Describe the properties of common objects.

K. 4. c. Describe the relative position of objects by using one reference (e.g., above or below).

K. 4. d. Compare and sort common objects by one physical attribute (e.g., color, shape, texture, size, weight).

K. 4. e. Communicate observations orally and through drawings.

1. 4. a. Draw pictures that portray some features of the thing being described.

1. 4. b. Record observations and data with pictures, numbers, or written statements.

1. 4. c. Record observations on a bar graph. d. Describe the relative position of objects by using two references (e.g., above and next to, below and left of).

1. 4. e. Make new observations when

2. 4. a. Make predictions based on observed patterns and not random guessing.

2. 4. c. Compare and sort common objects according to two or more physical attributes (e.g., color, shape, texture, size, weight).

2. 4. d. Write or draw descriptions of a sequence of steps, events, and observations.

2. 4. e. Construct bar graphs to record data, using appropriately labeled axes.

2. 4. f. Use magnifiers or microscopes to observe and draw descriptions of small objects or small features of objects.

2. 4. g. Follow oral instructions for a scientific investigation.

“Electrical Me”

Physical Science Standards:

- 3. 1. h. Students know all matter is made of small particles called atoms, too small to see with the naked eye.
- 4. 1. a. Students know how to design and build simple series and parallel circuits by using components such as wires, batteries, and bulbs.
- 4. 1. e. Students know electrically charged objects attract or repel each other.
- 4. 1. f. Students know that magnets have two poles (north and south) and that like poles repel each other while unlike poles attract each other.
- 5. 1. b. Students know all matter is made of atoms, which may combine to form molecules.

Investigation & Experimentation Standards:

- 3. 5. b. Differentiate evidence from opinion and know that scientists do not rely on claims or conclusions unless they are backed by observations that can be confirmed.
- 3. 5. c. Use numerical data in describing and comparing objects, events, and measurements.
- 3. 6. d. Predict the outcome of a simple investigation and compare the result with the prediction.
- 3. 7. e. Collect data in an investigation and analyze those data to develop a logical conclusion.
- 4. 6. a. Differentiate observation from inference (interpretation) and know scientists’ explanations come partly from what they observe and partly from how they interpret their observations.
- 4. 6. c. Formulate and justify predictions based on cause-and-effect relationships.
- 4. 6. d. Conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results.
- 4. 6. e. Construct and interpret graphs from measurements.
- 4. 6. f. Follow a set of written instructions for a scientific investigation.
- 5. 6. f. Select appropriate tools (e.g., thermometers, meter sticks, balances, and graduated cylinders) and make quantitative observations.
- 5. 6. g. Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data.
- 5. 6. h. Draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion.

“What’s Forcing You”

Physical Science Standards:

- 8. 1. c. Students know how to solve problems involving distance, time, and average speed.
- 8. 2.a. Students know a force has both direction and magnitude.
- 8. 2. b. Students know when an object is subject to two or more forces at once, the result is the cumulative effect of all the forces.
- 8. 2. c. Students know when the forces on an object are balanced, the motion of the object does not change.
- 8. 2. d. Students know how to identify separately the two or more forces that are acting on a single static object, including gravity, elastic forces due to tension or compression in matter, and friction.
- 8. 2. e. Students know that when the forces on an object are unbalanced, the object will change its velocity (that is, it will speed up, slow down, or change direction).

Investigation & Experimentation Standards:

- 6. 7. e. Recognize whether evidence is consistent with a proposed explanation.
- 7. 7. c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.
- 8. 9. b. Evaluate the accuracy and reproducibility of data.