

Lesson 3

ANSWER KEYS

How are changes in matter related to changes in energy?

Thermal energy and temperature are closely related.

Thermal energy flows from warmer matter to cooler matter.

When matter changes, thermal energy is usually released or absorbed.



Model It! p. 26

Model It!

Types of Physical Changes

 Make a paper airplane out of a piece of scrap paper. Draw a sketch of your paper airplane in the space provided.

1. **CCC Cause and Effect** What kinds of physical changes did you cause to happen to the paper?

folding and changing shape

2. **CCC Stability and Change** How can paper that has already been used be physically changed to make other paper products?

Sample: It can be shredded to make pulp to make new paper, cardboard, and other products.

Figure 4



Tarnishing is the slow combination of a bright metal, such as silver, with sulfur or another substance, which produces a dark coating on the metal.

color change



Oxidation is the combination of a substance with oxygen, such as when iron rusts.

color change



Objects catch fire when a fuel combines rapidly with oxygen, producing heat, light, and new substances.

flame, color change,

temperature change



Bubbles are created by using electricity to break a compound down into elements or simpler compounds.

gas bubbles

Figure 5



Reading Checks

READING CHECK Explain How are melting and carving ice sculptures both examples of physical changes?

In both cases, water isn't changing into something else. It's either changing state (solid to liquid) or being broken into smaller pieces.

READING CHECK Infer Why do you think the conservation of mass pertains more to chemical changes than physical changes?

With physical change, there's no change to the substance, so its amount necessarily stays the same. In a chemical change, the fact that the total mass remains the same is not necessarily obvious.