Changes in Matter (pages 50–55)

Physical Change (page 51)

***Key Concept:* A substance that undergoes a physical change is still the same substance after the change.**

- A **physical change** changes the way matter looks. It does not change the matter into a new kind of matter.
- Melting ice to form liquid water is a physical change. Dissolving sugar in water is another physical change. Bending a paperclip is also a physical change.

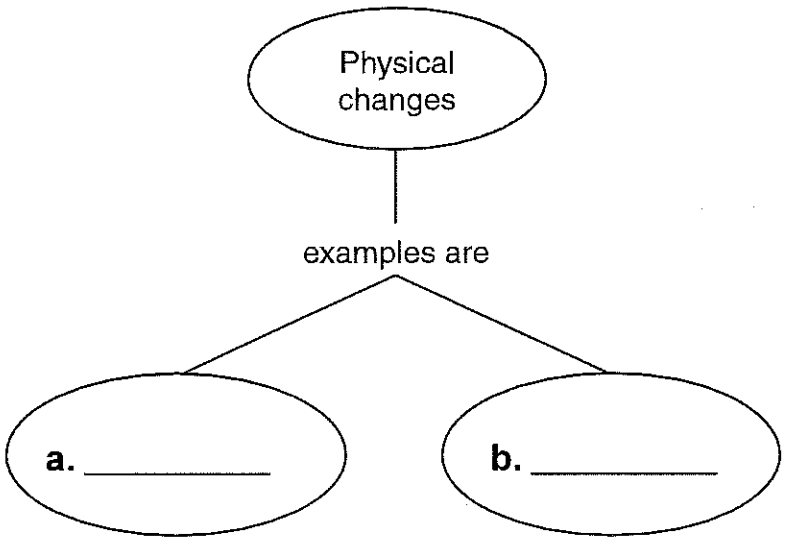
Answer the following questions. Use your textbook and the ideas above.

1. Is the following sentence true or false? A physical change changes matter into a new kind of matter.

_____

2. Use the words in the box to complete the concept map about physical change.

Burning	Bending	Dissolving



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Chemical Change (pages 52–53)

***Key Concept:* Unlike a physical change, a chemical change produces new substances with properties different from those of the original substances.**

- In a **chemical change**, matter changes into a new kind of matter. The new matter has different properties from the original matter.
- Burning is one example of a chemical change. When wood burns, elements in the wood combine with oxygen in the air to form new matter. The new matter is ash and gases.
- Tarnishing is another kind of chemical change. Metal tarnishes when it combines with sulfur and forms a dark coating on the metal.

Answer the following question. Use your textbook and the ideas above.

3. Circle the letter of each sentence that is true about chemical changes.

a. Matter changes into a new kind of matter.

b. The new matter has the same properties as the original matter.

c. Burning is one example of a chemical change.

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Matter and Thermal Energy (pages 54–55)

Key Concept: **Every chemical or physical change in matter includes a change in energy.**

- **Energy** is the ability to do work. Energy can cause matter to change.
- When matter changes, energy can be given off. Burning wood gives off energy. Some changes take energy. Melting ice takes energy.
- **Thermal energy** is a kind of energy that is often given off or taken in when matter changes. You feel thermal energy as heat. Thermal energy always flows from warmer objects to cooler objects.
- **Temperature** tells the amount of thermal energy an object has. An object with a lot of thermal energy has a high temperature. An object with little thermal energy has a low temperature.

Answer the following questions. Use your textbook and the ideas above.

4. The ability to do work is called

a. chemical change.

b. energy.

c. density.

5. Is the following sentence true or false? Thermal energy flows from warmer objects to cooler objects.

_____

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6. Read each word in the box. In each sentence below, fill in one of the words.

energy	high	low

a. An object with a lot of thermal energy has a _____ temperature.

b. An object with little thermal energy has a _____ temperature.

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