# Unit E • Chapter 14

Name _____
Date _____

Chapter Assessment

## Properties of Matter

### Vocabulary 4 points each

**Match each term in Column B with its meaning in Column A.**

| | Column A | Column B |
|---|---|---|
| C | 1. A measure of how much mass is in a volume of matter | A. atom |
| F | 2. A chart that organizes elements by atomic number | B. element |
| A | 3. The smallest particle of matter that still acts like that kind of matter | C. density |
| D | 4. A tiny particle made up of two or more atoms joined together | D. molecule |
| G | 5. The center of the atom, where protons and neutrons are | E. mixture |
| H | 6. A combination of two or more substances that are evenly mixed | F. periodic table |
| E | 7. A combination of two or more different substances | G. nucleus |
| B | 8. Matter made up of only one type of atom | H. solution |

### Science Concepts 4 points each

**Write the letter of the best choice.**

B 9. Which is **not** an example of matter?
- A. air
- B. heat
- C. soil
- D. water

F 10. A pan of water boils until all of it evaporates into the air. What property of the water is the same after this change?
- F. mass
- G. state
- H. temperature
- J. volume

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| 15 | 16 | 17 | 18 |
|---|---|---|---|
| | | | 2 He Helium |
| 7 N Nitrogen | 8 O Oxygen | 9 F Fluorine | 10 Ne Neon |
| 15 P Phosphorus | 16 S Sulfur | 17 Cl Chlorine | 18 Ar Argon |
| 33 As Arsenic | 34 Se Selenium | 35 Br Bromine | 36 Kr Krypton |

A 11. The diagram shows a piece of the periodic table. Use information in the table to decide which statement is true.
- A. Sulfur has 16 protons.
- B. Se is the symbol for silicon.
- C. The symbol for argon is Arg.
- D. Helium has the most protons.

G 12. Which item is an example of a solution?
- F. vegetable soup
- G. drink mix and water
- H. raisin bread
- J. tossed salad

D 13. Which process would change the mass of an iron bolt?
- A. bending
- B. freezing
- C. melting
- D. rusting

H 14. Which is a physical change?
- F. combustion
- G. corrosion
- H. recycling
- J. reactivity

D 15. A copper penny has a mass of about 4 grams. A copper kettle has a mass of about 400 grams. What is true about the density of these two objects?
- A. The kettle is 100 times as dense as the penny.
- B. The penny is denser because its mass is in a smaller volume.
- C. Their densities are different because they are different shapes.
- D. Their densities are the same because they are made of the same substance.

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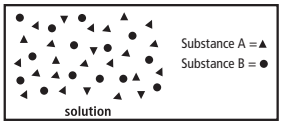


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H 16. Cara is investigating a substance. When she first picks it up, it keeps its shape. But after it warms up in her hand, it flows between her fingers and drips onto the table. After she puts an ice cube on the drips, she can pick them up again. Which choice best describes these changes?
- F. A solution separates, then recombines.
- G. A mixture goes through a chemical change.
- H. A solid melts into a liquid and freezes back into a solid.
- J. A liquid freezes into a solid and melts back into a liquid.

### Inquiry Skills 8 points each

17. The diagram shows a solution made by dissolving Substance A in Substance B. What do you **observe** about the particles of the substances?




**Possible answer: The particles of the two substances are evenly mixed.**

18. A winter weather forecast says that the temperature will rise past the melting point of water early in the day, so you can expect the ice on the roads to melt. Toward evening, the temperature will fall past the freezing point of water, so you should expect the roads to be icy again. Your cousin complains that the forecast has two different names for the same temperature, 0°C. **Infer** why the same temperature has two different names and how to tell which name to use.

**Possible answer: Water changes between the solid and liquid states at 0°C. If it is changing from solid (ice) to liquid (water), then 0°C is called the melting point. If it is changing from liquid (water) to solid (ice), then it is called the freezing point.**

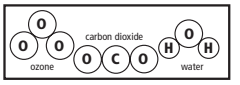
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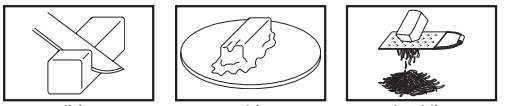
### Critical Thinking 10 points each

19. The picture shows models of three different molecules. Which model shows a molecule of an element? Explain.




**Possible answer: The ozone molecule is an element. An element is made up of just one kind of atom. The carbon dioxide molecule has two kinds of atoms: carbon and oxygen. The water molecule has one oxygen and two hydrogen atoms.**

20. The pictures show chunks of cheese going through changes. Observe the pictures, and then answer the questions below.




**Part A** Identify each change as a physical change or a chemical change. Explain your answer.

**Possible answer: All three changes are physical changes. In a physical change, the substance does not change. Slicing and shredding cheese changes its shape, but it is still cheese. Melting it makes it a liquid, but it is still cheese.**

**Part B** Compare the mass and volume of the cheese before and after it is sliced. What term do scientists use to describe what happens to the mass and volume of the cheese?

**Possible answer: The mass and volume of the cheese are the same after it is sliced as they were before. Scientists say that the mass and volume of the cheese have been *conserved*.**

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