**Unit 5, Lesson 1 & 2 Quiz**

**Multiple Choice**

*Identify the choice that best completes the statement or answers the question.*

**\_\_\_\_ 1.** When an egg is cracked and put in a hot pan, it flows easily. After it cooks for a minute, the egg becomes solid.



Why does the egg change?

|  |  |
| --- | --- |
| **A** | Breaking the shell is a physical change in the egg that makes it solid. |
| **B** | Breaking the shell is a chemical change that makes the egg become solid. |
| **C** | Heating the egg on the stove causes the egg to evaporate and become solid. |
| **D** | Adding heat causes a chemical change in the molecules of the egg that makes it solid. |

**\_\_\_\_** **2.** Harleigh placed a beaker of water on a hot plate. When bubbles started coming to the top of the water, she made the first sketch. After 5 min, Harleigh made the second sketch.



 What happened during the 5 min that Harleigh was observing the beaker of water?

|  |  |
| --- | --- |
| **A** | Water was changed into energy during a chemical change. |
| **B** | Water was changed into a different state during a physical change. |
| **C** | Water was changed into a different material during a physical change. |
| **D** | Water was changed into a different material during a chemical change. |

**\_\_\_\_ 3.** A lab group placed some ice in a beaker and put the beaker on a hot plate. After they turned the hot plate on, they recorded the temperature and made observations about the contents of the beaker. The following graph shows their results.

 

What caused the material in the beaker to change?

|  |  |
| --- | --- |
| **A** | Heat caused physical changes to the substance. |
| **B** | Light caused physical changes to the substance. |
| **C** | Heat caused chemical changes to the substance. |
| **D** | Light caused chemical changes to the substance. |

**\_\_\_\_ 4.** A change in state that does not change the chemical composition of a substance is a physical change. Which of these conditions has the **greatest** effect on how quickly a substance changes from one state to another?

|  |  |
| --- | --- |
| **A** | color |
| **B** | light |
| **C** | shape |
| **D** | Temperature |

**\_\_\_\_ 5.** Dissolving sugar in water is classified as a physical change. Which of the following observations shows that the change is a physical change instead of a chemical change?

|  |  |
| --- | --- |
| **A** | The solution of sugar in water is colorless. |
| **B** | The mixture of water and sugar tastes sweet. |
| **C** | When the water evaporates, the sugar remains in the beaker. |
| **D** | Sugar dissolves faster at a higher temperature than at a lower temperature. |

**\_\_\_\_** **6.** Marie studied how water changes state. She found the following graph during her studies.



Based on the graph, at what temperatures is water in gas form?

|  |  |
| --- | --- |
| **A** | below 0 °C |
| **B** | above 100 °C |
| **C** | between 0 °C and 100 °C |
| **D** | between 0 °C and 120 °C |

**\_\_\_\_** **7.** Anthony studied drawings of the particles in the same substance. The drawings show the substance in different states and temperatures. Which drawing most likely shows the substance at the **highest** temperature?

|  |  |
| --- | --- |
| **A** |  |
| **B** |  |
| **C** |  |
| **D** |  |

**\_\_\_\_ 8.** Pure substances have characteristic melting and boiling points. The following graph shows the melting and boiling points for five pure substances.



Room temperature is about 25 °C. Which of the following is a gas at room temperature?

|  |  |
| --- | --- |
| **A** | astatine |
| **B** | bromine |
| **C** | chlorine |
| **D** | iodine |

**\_\_\_\_ 9.** The table shows the melting points and boiling points for different substances.

|  |
| --- |
| **Melting Point and Boiling Point for Common Substances** |
| **Substance** | **Melting point (°C)** | **Boiling point (°C)** |
| aluminum | 660 | 2519 |
| chlorine | –101 | –34 |
| copper | 1085 | 2927 |
| gold | 1065 | 2856 |
| mercury | –39 | 357 |
| oxygen | –218 | –182 |
| silver | 961 | 2162 |
| tungsten | 3422 | 5555 |

Suppose these substances were placed in a freezer set to –50 °C. Which substance would become a liquid?

|  |  |
| --- | --- |
| **A** | chlorine |
| **B** | mercury |
| **C** | oxygen |
| **D** | tungsten |

**\_\_\_\_** **10.** Kylie’s teacher gave her a test tube of liquid. Which tool should Kylie use to measure the volume of the liquid?

|  |  |
| --- | --- |
| **A** |  |
| **B** |  |
| **C** |  |
| **D** |  |

**\_\_\_\_ 11.** Water can be a liquid, solid, or gas. The pictures show how it changes from each state of matter.



What process takes place when matter changes from state 1 to state 3?

|  |  |
| --- | --- |
| **A** | boiling |
| **B** | condensing  |
| **C** | freezing |
| **D** | Melting |

**\_\_\_\_ 12.** The table gives the mass and volume of four unknown solids.

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample** | **Mass (g)** | **Volume (mL)** | **Density** |
| 1 | 125 | 3 |  |
| 2 | 324 | 9 |  |
| 3 | 234 | 2 |  |
| 4 | 540 | 8 |  |

Which is the correct explanation of how to find the density?

|  |  |
| --- | --- |
| **A** | Divide the volume by the mass. |
| **B** | Divide the mass by the volume. |
| **C** | Multiply the volume by the mass. |
| **D** | Add the mass and volume and divide by 2. |

**\_\_\_\_ 13.** Pure substances can be identified by their density. The table shows the density of several substances.

|  |  |
| --- | --- |
| **Substance** | **Density (g/cm3)** |
| aluminum | 2.70 |
| calcium | 1.54 |
| sodium | 0.97 |
| sulfur | 1.96 |
| tin | 7.29 |
| titanium | 4.54 |

Sommer has samples of all of the substances shown in the table. All of Sommer’s samples have the same volume. Which substance has the **greatest** mass?

|  |  |
| --- | --- |
| **A** | aluminum |
| **B** | sodium |
| **C** | tin |
| **D** | Titanium |

**\_\_\_\_** **14.** Janice used the following table during an activity.

|  |  |
| --- | --- |
| **Substance** | **Density (g/cm3)** |
| aluminum | 2.70 |
| calcium | 1.54 |
| sodium | 0.97 |
| sulfur | 1.96 |
| tin | 7.29 |
| titanium | 4.54 |

Janice measures the volume and mass of an unknown sample. The sample has a mass of 30 g and a volume of 19.5 cm3. What is the unknown substance?

|  |  |
| --- | --- |
| **A** | aluminum |
| **B** | calcium |
| **C** | sulfur |
| **D** | tin |

**\_\_\_\_** **15.** During an experiment, JT heated a beaker of water over a hot plate burner. After a period of time, the beaker was empty. Which statement describes what happened?

|  |  |
| --- | --- |
| **A** | The water froze. |
| **B** | The water melted. |
| **C** | The water condensed. |
| **D** | The water evaporated. |

**\_\_\_\_** **16.** Zariyah is studying the properties of solids. She is comparing the wooden cube and the steel cube shown in the picture below.



Which property is the same for the two cubes?

|  |  |
| --- | --- |
| **A** | color |
| **B** | luster |
| **C** | texture |
| **D** | Volume |

**Short Answer**

 **1.** Rocks usually have small cracks that allow water to seep into the rock. In places with cold winters, rocks often break apart along these cracks as water freezes and thaws in the rock. What kind of change is happening, and how do changes in temperature make it happen faster?

 **2.** Imagine you have an oddly shaped solid. How can you find the volume of the object? Tell which tools you would use and explain your process.

**Unit 5, Lesson 1 & 2 Quiz**

**Answer Section**

**MULTIPLE CHOICE**

 **1.** D

 **2.** B

 **3.** A

 **4.** D

 **5.** C

 **6.** B

 **7.** A

 **8.** C

 **9.** A

 **10.** C

 **11.** B

 **12.** B

 **13.** C

 **14.** B

 **15.** D

 **16.** D

**SHORT ANSWER**

 **1.** Sample answer:

The change is a physical change because the water changes state and the rocks do not form new substances. Changes in temperature make it happen faster because the water expands and contracts and breaks the rock whenever the temperature changes and the water changes state.

Students' answers should include:

• a statement identifying the change as a physical change

• an explanation that water expands and contracts as temperature changes

 **2.** Sample answer:

 I can use a graduated cylinder and water. I would put a certain amount of water into the cylinder and record the amount. Then I would add the solid to the water. I would note the level of the water in the cylinder. I would then subtract the original water level from this new water level to find the amount of water that was displaced by the object. This would give me the volume of the object.

Students’ answers should include:

• a graduated cylinder

• understanding of volume as a measure of how much space an object takes up

• an explanation of the process of finding the volume of an oddly shaped object