Grade 9 Science
Matter - Chapter 1 Take Home Test

Part A: Matching (15)

1. The ability of a substance to react with oxygen. a) luster
2. A metal reacting with oxygen to form an oxide. b) hardness
3. A measure of resistance of a solid to being scratched or dented. c) silver sulfide
4. The basic building block of all matter. d) alloys
5. A pure substance that cannot be broken down into simpler substances. e) atom
6. These describe the appearance of matter. f) physical change
7. The substance remains the same substance even though it may change state or form. g) corrosion
8. A solid substance that forms in a liquid during a chemical reaction. h) precipitate
9. Has a fixed volume and a fixed shape i) chemical properties
10. Shiny or dull j) combustibility
11. Anything that has mass and takes up space. k) clarity
12. corrosion of silver l) solid
13. A mixture of metals m) physical properties
14. Describes the reactivity of matter n) element
15. Opaque or transparent o) matter

Part B: True or False. Identify which statements are true or false. *If the statement is false, correct it to make a true statement.* (10)

1. Matter is made up of cells.
2. In a physical change, a substance always retains its chemical composition.
3. Iron combines with oxygen to form iron oxide. This is a physical change.
4. All chemical changes can be reversed.
5. Atoms in a gas are closer together than atoms in a liquid.
6. One indicator of a chemical change is that heat or light energy is given off.
7. When water changes to steam, it undergoes a physical change.
8. Elements cannot be broken down into any simpler substance.
9. An ice cube becomes gas at its melting point.
10. Air is not matter because it does not take up space.

Name & Class _________________________
Part C: Multiple Choice (15)

1. Which of the following properties of sugar is not a physical property?
   a) Sugar turns black when it is heated  
   b) Sugar dissolves readily in water
   c) Sugar has a sweet taste  
   d) Sugar is a white solid at room temperature

2. Diamond can scratch glass. Which property of both substances is described by this statement?
   a) Ductility  
   b) Crystal form
   c) Hardness  
   d) Density

3. Which of the following describes a chemical property?
   a) Mercury is a liquid at room temperature.  
   b) Hydrogen reacts explosively with oxygen.
   c) Aluminum is malleable.  
   d) The density of gold is 19.3 g/cm$^3$

4. Which of the following is a chemical property of sulphur?
   a) It is bright yellow in colour.  
   b) It is a solid at room temperature.
   c) It is brittle.  
   d) It is combustible.

5. Which of the following is a chemical property of carbon?
   a) It is a black solid  
   b) The melting point is 3500°C
   c) It is insoluble in water.  
   d) It burns readily.

6. Each of the following is a property of magnesium. Identify the physical property.
   a) Magnesium burns in air with a brilliant white flame.  
   b) Magnesium reacts with hydrochloric acid to produce a gas.
   c) Magnesium is a silvery/white metal.  
   d) Magnesium combines with nitrogen to form a black powder.

7. Which physical property is described by the statement that copper can be drawn into fine wires?
   a) Density  
   b) Ductility
   c) Viscosity  
   d) Hardness

8. Two different brands of hair shampoo behave differently when poured out of their containers. Brand A pours very slowly, while brand B pours much more quickly. What statement below describes this difference?
   a) Brand A is more viscous than brand B  
   b) Brand A is less ductile than brand B.
   c) Brand A has a higher boiling point than brand B.  
   d) Brand A has a higher density than brand B.

9. Which property is described by the statement that aluminum can be bent into various shapes?
   a) Density  
   b) Malleability
   c) Hardness  
   d) Viscosity

10. Which of the following is an example of a chemical change?
    a) The melting of candle wax  
    b) Making sawdust by sawing wood
    c) The rotting of food  
    d) The breaking of glass

11. An example of a physical change is
    a) Toasting a piece of bread  
    b) The explosion of dynamite
    c) Boiling oil  
    d) The rusting of iron

12. Which one of the following is an example of a physical change?
    a) Baking a cake  
    b) Cutting paper into strips
    c) Bleaching a stain in your clothes  
    d) Food digesting in your stomach

13. A physical change in a substance
    a) Changes the form or state of the substance  
    b) Results in a change in the mass of the substance
    c) Changes it into a different substance  
    d) Is usually very hard to reverse
14. At room temperature, matter can exist in one of three states. These are
   a) Physical, chemical, metal
   b) Alloy, crystal, hydrocarbon
   c) Reactant, product, precipitate
   d) Solid, liquid, gas

15. These were formed from plants, animals, and microorganisms that lived millions of years ago.
   a) Reactants
   b) Precipitates
   c) Fossil fuels
   d) Atoms

Part D: Short Answer (29)

1. Define matter. (1)

2. How does a chemical change differ from a physical change? (2)

3. List 5 indicators of a chemical change. (5)

4. We talked about several examples of chemical changes. Choose any reaction, identify the substances involved, and describe the indicators that told you a chemical change had occurred. (3)
5. 
   a. Draw the combustion triangle. (3)

   b. In a combustion reaction, both ________________ and ________________ energy are released. (1)

6. Indicate whether each of the following is a chemical change or a physical change by putting a check mark in the correct column. (10)

<table>
<thead>
<tr>
<th>Change</th>
<th>Chemical</th>
<th>Physical</th>
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</thead>
<tbody>
<tr>
<td>1. Water freezing on a pond</td>
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<tr>
<td>2. Baking a cake</td>
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<td>3. Ripping a piece of paper</td>
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<td>4. Wood burning</td>
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<td>5. Silver plate tarnishing to a black colour</td>
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<td>6. Baking soda mixing with vinegar</td>
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<td>7. Paper clip bending</td>
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<td>8. Kitchen scraps decomposing</td>
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<td>9. Dynamite exploding</td>
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<tr>
<td>10. Bleaching your hair</td>
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7. 
   a. Describe two kinds of corrosion (2)

   b. Describe two ways to prevent corrosion. (2)