

## ST Pretest 1.1

## Answer in your Notebook

1. TRUE? OR FALSE?

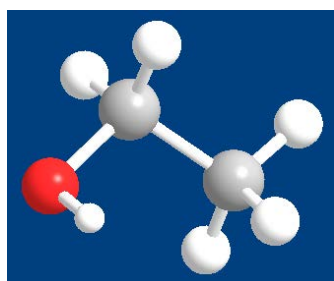
a. CO<sub>2</sub> has three types of atoms.

False. There are three atoms in all but only TWO types: carbon and oxygen.

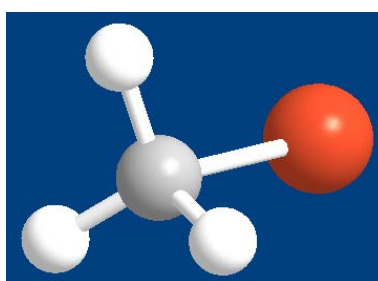
b. A boiling point is NOT a characteristic property.

False. See p2 of the booklet for the list of characteristic properties.

c. If these two molecules move apart then a chemical reaction will occur.



Alcohol



methyl bromide

False. Molecules need to combine to make new ones.

d. When chocolate melts it undergoes a physical change.

TRUE

e. A characteristic property of oxygen is that it makes limewater cloudy.

False. That's the characteristic of carbon dioxide.

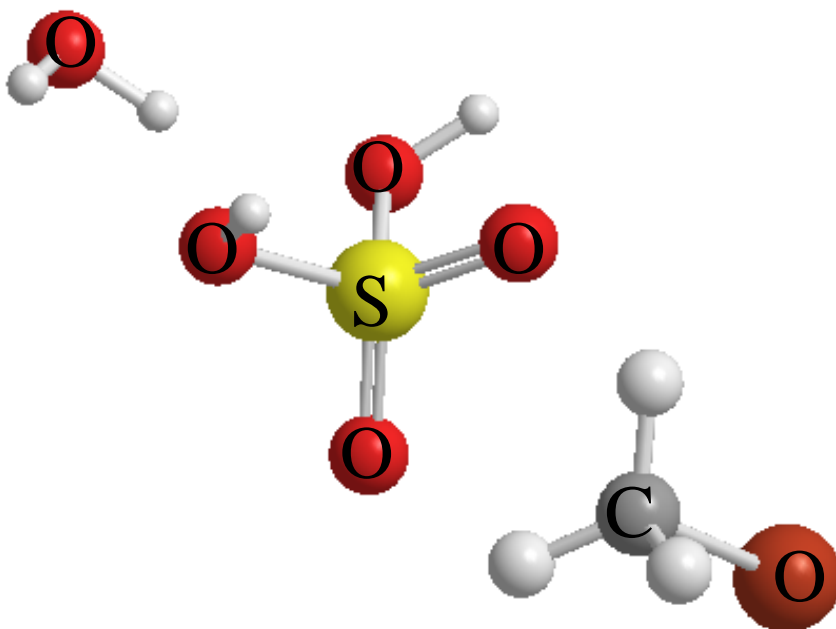
f. Iron, zinc, oxygen, water and brine all have different densities. Thus, density is a characteristic property.

TRUE

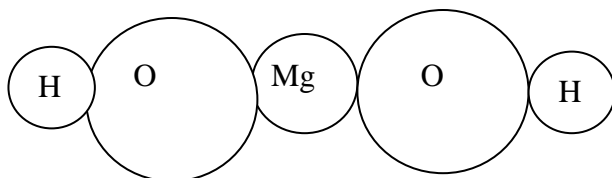
2. A student puts a lit match in a tube of gas and hears a pop. What should she look for to make sure that a chemical reaction has indeed taken place?

He should be looking for new substances with different chemical properties. For example he could simply relight the cloudy vapour in the test tube to see if it pops.


3. Write a formula for each of the following molecules. Each of the smallest balls is a H atom.



4. Draw one  $Mg(OH)_2$

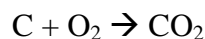


5. Give an example of each of the following point from the Dalton model.

<p>1. Matter is made up of small, indivisible particles called atoms.</p>	<p>1. A rock consists of atoms. So does the sun and your feet and dog.</p>
<p>2. All the atoms of a single element are identical.</p> 	<p>2. All of the atoms in oxygen are more or less identical.</p>
<p>3. The atoms of one element are different</p>	<p>3. Oxygen's atoms are different from those</p>

from the atoms of another element.	of carbon.
4. Compounds can form from joining atoms of different elements in different ratios. (also known as law of multiple proportions)	4. aspirin is $C_9H_8O_4$  The ratio of carbon to hydrogen to oxygen is 9:8:4  But in alcohol the ratio is 2:6:1 ( $C_2H_6O$ )
5. Chemical reactions create new substances but atoms are not destroyed. (related to conservation of mass)	5. When charcoal(C) burns, it reacts with oxygen ( $O_2$ ) gas to make a new molecule $CO_2$ . But the one carbon and two oxygens are preserved.

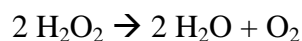
6. When 36 grams of charcoal burn, it reacts with 96 grams of oxygen gas. How much carbon dioxide will be produced?



$$36g + 96g = x$$

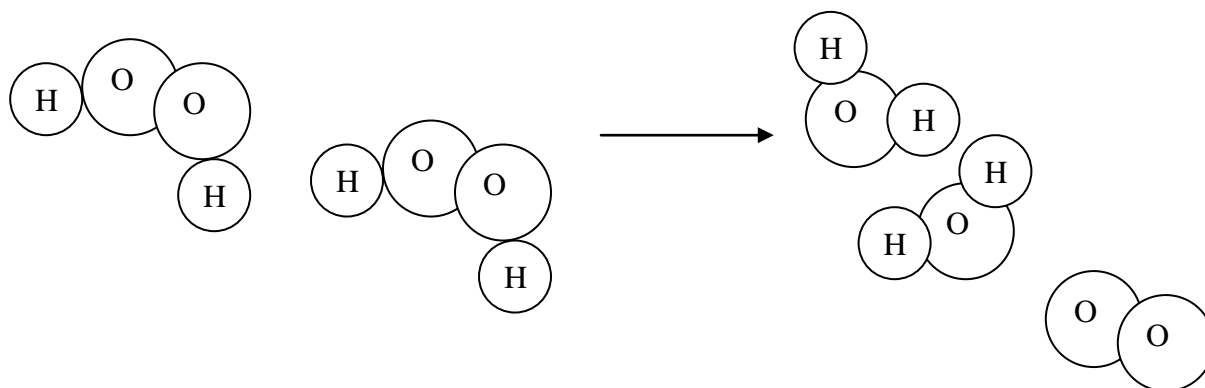
$$132 g = x$$

7. Show that the number of atoms going into the reaction equal the number of those coming out of the reaction. Use both a table and a drawing of the molecules.

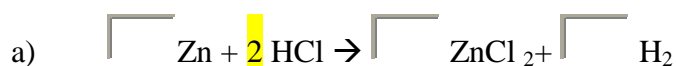


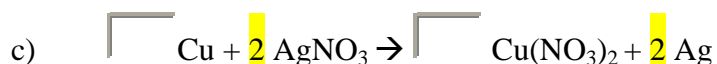
Left side:  $2(2) = 4$  H's and  $4$  O's

Right side:  $4$  H's and  $2+2 = 4$  O's

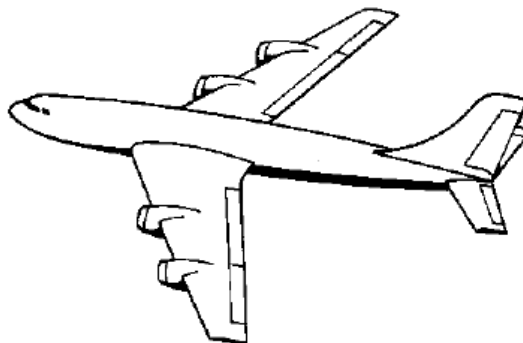


8. Balance the following:

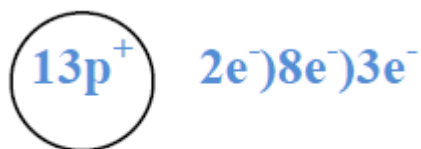




9. Most airplanes are mostly made of aluminum alloys. One type of alloy, uncreatively labeled 7075, blends aluminum (Al) with a small amount of magnesium (Mg). In welding aircraft parts together they use an alloy that blends aluminum with magnesium and silicon (Si).



a) Draw a Bohr-Rutherford model of the aluminum atom.



b) Draw a Lewis structure of aluminum.



c) How many valence electrons does magnesium have? 2

d) The valence electrons of magnesium are loose like those of most metals. How does this affect the **physical** properties of magnesium? List two.

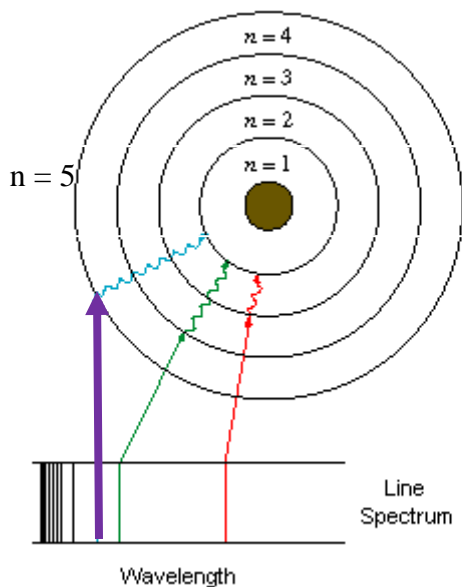
It makes it a good conductor of electricity and makes it lustrous.

10. Draw and describe the hydrogen atom according to the way Dalton envisioned it.



11. Draw the different possibilities of an excited electron returning to the second shell of a hydrogen atom. What colors are emitted when electrons from many atoms follow such paths? Show in diagram. Who first came up with this model?

Bohr first came up with this model to explain the spectral lines of hydrogen.



12. Which subatomic particle did Thomson discover? **electron**

13. What part of the gold-foil experiment surprised Rutherford? **He had not expected any alpha particles to come back or be deflected.**

STE PART---- see STE web page