

Table Races

Science Focus Session

Please make sure everyone in your group writes out the answers for the following in complete sentences or shows all steps:

1. Describe the behavior of water molecules in each of the 3 states of matter (solid, liquid, gas). **Draw pictures to illustrate the relationship of molecules in these 3 states of matter.**
2. Describe the **characteristics** of mammals that distinguish them from reptiles.
3. Determine the **atomic weight of AgNO_3** . Show all steps.
4. **What is the “Pacific Ring of Fire”** and how does it lend support to the Theory of Plate Tectonics?
5. Draw **pictures** to show the difference between **reflection** and **refraction of light**. Label each type for clarity.
6. **List** and describe **the 7 characteristics of life**. Defend the claim that some nonliving things exhibit these characteristics and some living things don't exhibit all of them.
7. You have a rock with a volume of 15cm^3 and a mass of 45 g. **What is its density? ($D = m/v$)**

Portions in bold type are to be recorded on the team chart paper.

Table Races

Learning Support Station

Science Focus Session

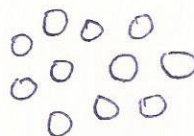
- CO** 1. As a solid, water molecules move only slightly and remain close together. As a liquid, the molecules move more than in a solid, slide past each other easily and are farther apart than in a solid. As a gas, the molecules move relatively fast, are widely spaced.



Solid



Liquid



Gas

- NC** 2. The characteristics of mammals that distinguish them from reptiles are hair, endothermic (warm-blooded), mammary glands, three bones in the middle ear and a four chambered heart. (Most reptiles have a three chambered heart.)

- TX** 3. Atomic weight of AgNO_3
1) Find atomic weight of each element.

$$\text{Ag} = 107.87 \text{ amu}$$

$$\text{N} = 14.01 \text{ amu}$$

$$\text{O} = 16.00 \text{ amu}$$

- 2) Multiply by number of atoms in molecule

$$\text{Ag} = 107.87 \text{ amu} \cdot 1 \text{ atom} = 107.87 \text{ amu}$$

$$\text{N} = 14.01 \text{ amu} \cdot 1 \text{ atom} = 14.01 \text{ amu}$$

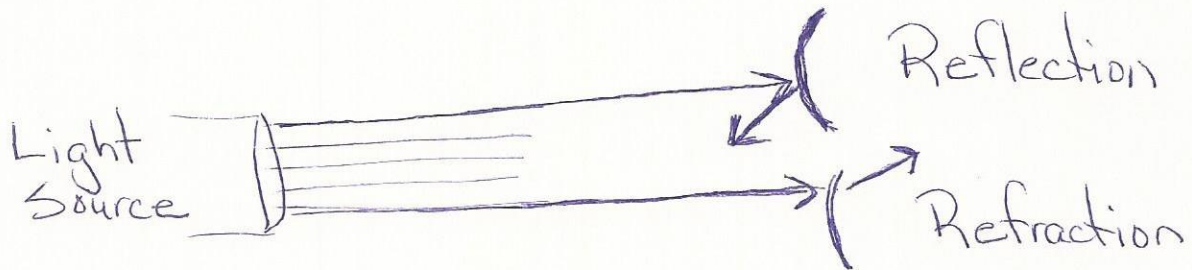
$$\text{O} = 16.00 \text{ amu} \cdot 3 \text{ atoms} = 48.00 \text{ amu}$$

- 3) Add $107.87 \text{ amu} + 14.01 \text{ amu} + 48.00 \text{ amu} =$
 169.88 amu

- MI** 4. The Ring of Fire is an intense arc of seismic and volcanic activity. It rings the Pacific Ocean.

When volcanoes and earthquake locations are plotted on a map they define this ring of fire, which also lies along the boundaries of the Pacific plate. Volcanic and seismic activity indicates movement of the earth, which supports movement of the plates.

- FL** 5.



- WI** 6. All living things:

- 1) Are composed of cells
- 2) Have different levels of organization
- 3) Use energy
- 4) Respond to their environment
- 5) Grow
- 6) Reproduce
- 7) Adapt to their environment

An auto uses energy, has levels of organization and responds to its environment as the cooling or heating system adjusts the temperature in the car but does not have the other components. A mule, which is a living thing cannot reproduce but is produced by the reproduction between a donkey and horse.

- SC** 7. Density is mass divided by volume, so that the density is 45 g divided by 15cm³, which is 3.0 g/cm³.

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

$$\text{Density} = \frac{45\text{g}}{15\text{cm}^3} = 3.0 \frac{\text{g}}{\text{cm}^3}$$