Class Work 12/19/13

- If you still want your project you brought in you must take it home by tomorrow. The only exception is if it is in the showcase.
 (Projects left in the room by the end of the day on Friday will be thrown out)
- Finish up your compound activity by today.
- If you are finished early, complete the Elements worksheet (front side only)
- If you have extra time, and all your work done, you can do the winter word search

Boat Project 2014

- Physical properties of matter
- Mass
- Volume
- Weight
- Density
- Buoyancy
- Scientific investigation

























Boat Requirements

- Must make boat from scrap material...you can't go out and just buy a boat or bring a plastic bowl in or bucket
- Must keep the boat within the size requirement- 12 inches (31 cm) long, 8 inches (21cm) wide (water depth will be 10 inches)
- Weights used are 1 inch by 6 inches or steel balls 1.5 in
- Must design the boat so that it does not touch the bottom or sides of the container.
- Objective: see how much weight your boat can hold before the boat flips or touches the bottom
- Due January 21st for periods 1,4, and 6, January 22nd for periods 2,5, and 8.

Periodic Table

- The number of protons in an atom is called the atomic number.
- An atom that has more or fewer electrons than its protons is called an ion
- Ions can have either a positive charge or negative charge
- Atoms with the same number of protons may have a different number of neutrons

Compounds

- Compounds- matter that is made from two or more different elements combined to form a new substance
- Methane- CH₄
- Propane- C₃H₈
- Elements physical and chemical properties may change when they are joined with other elements
- Each compound has it's own unique composition.

Compounds

- Water- H₂0
- Table Salt- NaCl
- Carbon Dioxide- CO₂
- Baking Soda- NaHCO₃
- Glucose C₆H₁₂O₆

Molecules

- Molecules- a group of two or more atoms joined together by covalent bonds.
- Both elements and compounds can form molecules
- All substances are made of one or more elements.
- Compounds are made of elements joined together chemically.

Mass, Volume, Density

- Equal volumes of different substances usually have different masses.
- While the mass and volume of a material can change depending upon how much of the material there is, the density generally remains constant
- Density can be determined by dividing the mass of the object by it's volume.

Density

- A measure of how tightly packed matter is
- Density of fresh water is 1 g/ml
- If an object has a density greater than 1 g/cm₃ then the object will sink in fresh water.
- If an object has a density less than 1g/cm³ then the object will float in fresh water.
- A neutrally buoyant object is one that has a density of 1 g/cm₃

Density Continued...

- Question you are to investigate today...
- What things change when you test a material that is made of the same composition but are of different sizes?
- Will mass change?
- Will volume change?
- Will density change?

Formulas

- Volume of a rectangular prism (L times W times H)
 Volume of the cube= 15.6 cm₃
- Volume of a cylinder

 (π)(r₂)(H)
 (3.14)(.6x.6)(H)
 (1.13)(H)

 Copper cylinder (1.13)(1.5)=1.69 cm₃

Things to turn in today

- Boat information (scale drawing, physical properties, reflection, and graph) Staple these all together.
- Object chart and graph (staple them together)
- Today's work- density graph comparing the block to the cylinder (formulas are on page 118)
- Science World

Materials at your table

- 1 triple beam balance
- Two rulers
- Two calculators
- 4 cylinders (copper, aluminum, pvc, nylon)
- Set of density cubes

(set in the back is missing aluminum, brass, and pvc)