"U Turn this in before you glue it in!"

Name:	
Period:	**Seat #:**

Molar Measurements Activity

You will take some measurements of atom/compound/molecule samples. **DO ANYTHING IN BOLD FIRST!** Then you will do some molar conversions. Lastly, you will do some practice calculations to extend your knowledge of the sample you measured. Make sure to show all your work, and don't forget units!

	Lab Measurements		
Carbon	**Find and record the mass of the carbon sample.**	Use your periodic table to find the molar mass of carbon.	Does the sample contain more than, less than, or exactly one mole of carbon?

1) What are you using for your sample of carbon?

2) How many moles of carbon are in the sample? Show your work with units!

g

3) How many individual atoms of carbon are in the sample? Show your work with units!

g

Extension Problems - Do after you have collected lab data for all sections!

1) A person weighing about 78 kg is about 18% carbon by mass. That means they contain 14.04 kg of carbon. How many moles of carbon are in this person?

kg

2) Graphite is one allotropic form of the element carbon. Do some research to define *allotrope,* and describe the structure and properties of graphite and of other carbon allotropes.

Silicon

Lab Measurements

Find and record the mass of the silicon dioxide sample.	Use your periodic table to find the molar mass of silicon dioxide.	Does the sample contain more than, less than, or exactly one mole of silicon dioxide?

1) What are you using for your sample of silicon dioxide?

2) How many moles of silicon dioxide are in the sample?

3) How many molecules of silicon dioxide are in the sample?

Extension Problems - Do after you have collected lab data for all sections!

Silicon is to geologists what carbon is to biologists. It makes up 28% of Earth's crust and is found in many minerals. Sand, quartz, and glass are all made up of silicon dioxide (SiO_2).

1) Is silicon dioxide an element or a compound?

2) How many atoms of oxygen are in one mole of silicon dioxide? Careful! Think about the formula for silicon dioxide!

1 mol SiO_2 | mol O
1 mol SiO_2

4) Silicon is a *metalloid*. Look up the properties of a metalloid, and explain why metalloids are so useful in making semiconductors for computers and other electronics.

Iron

Lab Measurements

Find and record the mass of the iron sample	Use your periodic table to find the molar mass of iron.	Does the sample contain more than, less than, or exactly one mole of iron?

1) What are you using for your sample of iron?

2) How many moles of iron are in the nails?

3) How many individual atoms of iron are in the nails?

Extension Problems - Do after you have collected lab data for all sections!

1) The earth has a dense central core made mostly of iron. The core makes up approximately 30.8% of the earth's mass. If the earth weighs approximately 5.972×10^{24} kg, that means that core weighs 1.839×10^{24} kg. How many atoms of iron make up the core of the earth?

1.839×10^{24} kg

The dotted line means you have to keep going, BUT I'm not going to tell you how many conversion factors you have to use this time!

2) It is normal for iron to be present in water. A safe amount of water to drink is 0.3mg of iron per 1L of water (0.3mg/1L). An average teenage girl needs about 15mg of iron in a day. How much water would you have to drink in order to consume all of the recommended amount of iron from just drinking water? Does that seem doable?

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The dotted line means you have to keep going, BUT I'm not going to tell you how many conversion factors you have to use this time!