A Latin Pile

⊙ PRELAB QUESTIONS

1. How many trunks are found in one dozen elephants?

2. How many legs are found in one dozen elephants?

3. How many carbon atoms are in one dozen methane, CH_4, molecules?

4. How many hydrogen atoms are in one dozen methane, CH_4, molecules?

5. Explain based on your life experience how many pieces do you think are in your sample grain pile?

⊙ PROBLEMS/QUESTIONS TO BE INVESTIGATED
(We will generate these questions as a class.)
1.

2.

⊙ OBJECTIVES
(These will be filled in at the end of lab.)
1.

2.

⊙ MATERIALS
List all the materials available to you here

⊙ SAFETY
Record any safety concerns or precautions

PROCEDURE
(Record steps and calculations)

DATA / OBSERVATIONS
Construct a data table to organize your data.

⊙ RESULTS / ANALYSIS

1. How are atoms similar and different to our grains? Compare and contrast.

2. Show calculations for how many molecules of carbon dioxide are in our sample.

3. What limitations were there to your accuracy and why?

⊙ REFLECTING ON LEARNING

Go back and fill in what objectives you accomplished in this lab.
Write a summary including what you think you will remember from this lab.

⦿ GOING FURTHER QUESTIONS

1. In a silo of corn there may be 900 kg of corn. How many kernels would there be? Provide a calculation to support your answer. Be sure to include units and proper significant figures.

2. A mole of H_2O and a mole of O_2
   Explain your answer
   - (a) have the same mass
   - (b) contain one molecule each
   - (c) have a mass of 1 g each
   - (d) contain the same number of molecules

3. One mole of oxygen molecules contains more independent units (O_2) than one mole of oxygen atoms (O). Explain your answer
   - (a) True, because there are two atoms of O for every molecule of O_2.
   - (b) True, because one mole of O_2 weighs more than one mole of O.
   - (c) False, because both of them have the same number of particles.
   - (d) False, because one mole of O_2 has the same mass as one mole of O.

4. One molecule of sulfur contains 8 S atoms. Then one mole of sulfur molecules will contain
   Explain your answer
   - (a) 8 g of sulfur
   - (b) 8 moles of sulfur atoms
   - (c) 6.02×10^{23} sulfur atoms
   - (d) 8 sulfur atoms

5. Each carbon atom contains 6 electrons. How many carbon atoms do you need to have one mole of electrons? Provide a calculation to support your answer. Be sure to include units!