



# UNIT 3: ATOMS, ELEMENTS, MOLECULES

Lesson 15: What's in a Mole?

# REMINDERS FROM LAST WEEK

Molar Mass = the mass of 1 mole of atoms or molecules in grams

- Element – look at the value on the periodic table
- Compound – add the values on the table together to get the total mass

1 mole always represents the same number of units

- 1 mole =  $6.02 \times 10^{23}$  atoms/molecules
- Why do different elements have different molar masses if there are the same number of atoms present

**GUIDING QUESTION:** HOW DO YOU CALCULATE THE MOLAR MASS OF ELEMENTS AND COMPOUNDS, AND HOW DOES THIS RELATE TO WHAT A MOLE OF A SUBSTANCE LOOKS LIKE?

**Do Now (page 2):**

Consider 12 nickels, 2 empty aluminum cans, and a balloon full of carbon dioxide gas.

- a. Which has the greatest mass?
- b. Which has the greatest number of atoms?
- c. Which has the greatest number of moles of atoms?

Explain the reasoning behind your answers.

# WHAT ARE WE DOING?

Finish Holey Moley (pages 3-7).

- Check your answers with the key up front and get stamped by Ms. Wilson.

What's in a Mole? (pages 9-10)

- Complete the second column of the table using the periodic table.

You will complete the last column in Part 2

- Answer questions 2-6 before moving on to the weighing stations for Part 2.

# NOTES (PAGE 5)

You can figure out the mass of 1 mole of any element or compound by using the periodic table.

- For a compound, you must sum the molar masses of all the atoms in a molecule

Example:

Ga

CaBr<sub>2</sub>

Mg<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>

# NOTES (PAGE 5)

A mole of atoms or molecules of a solid or liquid is usually an amount that you can hold in your hand.

A mole of any gas, if it is at standard temperature and pressure, always has a volume of 22.4 L.

# CLOSURE

Mole Posters due Friday (we will have time in class)