

# ***The World of Chemistry: The Mole***

Name \_\_\_\_\_ pd \_\_\_\_\_

Fill in the blanks as you view the video.

- \_\_\_\_\_ 1. At the heart of chemistry is \_\_\_\_\_, the maker of molecules.
- \_\_\_\_\_ 2. Start with \_\_\_\_\_ at the beginning of a reaction and end with \_\_\_\_\_.
- \_\_\_\_\_ 3. The fundamental particles of matter are \_\_\_\_\_ and \_\_\_\_\_.
- \_\_\_\_\_ 4.
- \_\_\_\_\_ 5. The \_\_\_\_\_ world is the world we can see.
- \_\_\_\_\_ 6. Chemists have learned how to count molecules by \_\_\_\_\_ macroscopic amounts.
- \_\_\_\_\_ 7. How much of each element combined is called the \_\_\_\_\_ masses.
- \_\_\_\_\_ 8. The initial breakthrough in learning exact atomic masses came from the study of \_\_\_\_\_.
- 1 volume H<sub>2</sub> + 1 volume Cl<sub>2</sub> ----> \_\_\_\_\_ volumes HCl
- \_\_\_\_\_ 9. All gases react in small, \_\_\_\_\_ number ratios.
- \_\_\_\_\_ 10. Avogadro proposed that \_\_\_\_\_ volumes of different \_\_\_\_\_ at the same temperature and \_\_\_\_\_
- \_\_\_\_\_ 11. pressure contain equal numbers of \_\_\_\_\_.
- \_\_\_\_\_ 12.

## Relative Masses of Quarters and Pennies

mass of 1 quarter = \_\_\_\_\_ g

mass of 1 penny = \_\_\_\_\_ g

relative weight quarter to penny =  $\frac{\text{mass quarter}}{\text{mass penny}}$  = \_\_\_\_\_

mass of 20 quarters = \_\_\_\_\_ g

mass of 20 pennies = \_\_\_\_\_ g

relative wgt quarters to pennies =  $\frac{\text{mass 20 quarters}}{\text{mass 20 pennies}}$  = \_\_\_\_\_

mass of carbon = \_\_\_\_\_ g

1 mole = \_\_\_\_\_ atoms or molecules = Avogadro's number

\_\_\_\_\_ 13. 1 mole of different elements or compounds contain the same number of \_\_\_\_\_ but have

\_\_\_\_\_ 14. different \_\_\_\_\_.

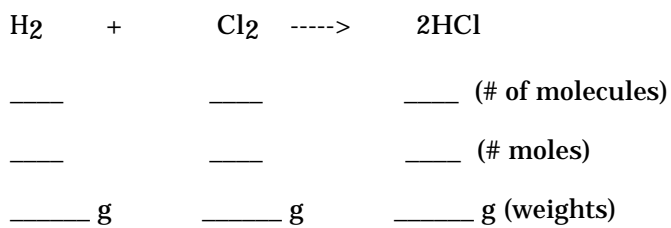
relative atomic mass of carbon = \_\_\_\_\_

mass of 1 mole of carbon = \_\_\_\_\_ g

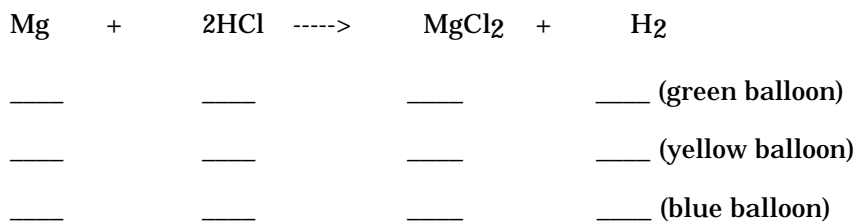
relative atomic mass of magnesium = \_\_\_\_\_

mass of 1 mole of magnesium = \_\_\_\_\_ g

mass of 1 mole of H<sub>2</sub>O = \_\_\_\_\_



Mg-HCl in balloons experiment



**Essay:**

Which of the reactions with the magnesium and hydrochloric acid in the colored balloons was the most efficient? EXPLAIN YOUR ANSWER IN TERMS OF MOLES.