

Name _____

Date _____

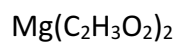
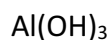
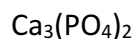
Molar Conversion WebQuest

A **MOLE** is simply a unit of measure. Usually used to measure very tiny objects like atoms and molecules. In comparison, one dozen is a measure in quantities of 12. But, one mole is a measure in a quantity that is much larger. Again, a dozen is 12 objects but a mole is 602,200,000,000,000,000,000,000 objects. This is a huge number and easier and quicker to write using scientific notation or 6.022×10^{23} . This number is also called **AVOGADRO'S** number. How is this related to elements? **ONE MOLE OF ATOMS OF EVERY ELEMENT IS EQUAL TO THE ATOMIC MASS OF THE ELEMENT.**

Answer the following questions with help from the website (<http://www.moleday.org/>):

1. Write a brief paragraph (4 sentences) about Avogadro, who he was, and who he got his idea from.
2. If you could have a mole of periods (.) lined up, how far would it reach?
3. One mole of Copper atoms has a mass of _____ g.
4. One mole of Carbon atoms has a mass of _____ g.
5. One mole of Boron atoms has a mass of _____ g.
6. Write a sentence or two explaining why scientists do not measure atoms by the dozen.

7. What is the molar mass of each of the following:



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You will use the mole to solve problems measuring quantities of elements and compounds. This is called molar conversions or **STOICHIOMETRY**. From the reading you found that:

1 mole of anything = 6.022×10^{23} items of that thing and that 1 mole of anything = the molar mass in grams of that thing.

8. How many moles are there in 0.028g of Fe?

9. How many atoms of Hg are there in 5.03g of Hg?

Try these problems. Make sure you show your work.

10. How many moles of tin, Sn, are in 30.5g of Sn?

11. How many grams of lead, Pb, are there in 2.55 mol of Pb?

Visit the following website: <https://chemfiesta.wordpress.com/2014/10/31/whats-a-mole-2/>

12. What new information does this explain to you about moles?

13. Why should you care about moles?

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Visit the following website: <http://www.visionlearning.com/en/library/Chemistry/1/The-Mole/53/reading>

Read the text and answer the following questions

14. Why do we need to use such a big number (the mole) for certain measurements?
15. Discuss the history of the mole. What did the development of the mole help to explain?
16. What is the difference between molar mass and molar weight?
17. Click on the Quiz and see how you do. Score: _____

We can use moles to do mathematical conversions to determine mass, volume, and number of atoms or molecules in a given substance. Try these practice problems to see!

18. How many molecules of NaCl are in 16.0 grams of NaCl?

19. How many grams in 0.43 liters of $\text{C}_6\text{H}_{12}\text{O}_6$?

20. How about 3.4×10^{24} molecules of CO to liters?

21. Visit the following website and try the different conversions.

<http://www.sciencegeek.net/Chemistry/taters/Unit4GramMoleVolume.htm>

Name_____ Date_____

What was your score?_____ (If you didn't finish, how many did you complete?_____)