

Name _____ Date _____ Block _____

Chemistry Matters

Go to thesciencequeen.net click on student resources and then chemistry matters to find the links to answer the question.

SITE #1: Chemical Equations

1. What three things does a balanced equation show you?
 - a.
 - b.
 - c.
2. The _____ which enter into a reaction.
3. The _____ which are formed by the reaction.
4. The amounts of each substance _____ and each _____ produced.
5. What two things must we remember when balancing equations?
 - a.
 - b.
6. Every chemical compound has a _____ which cannot be _____.
7. A chemical _____ must account for every _____ that is used, which is an application of the Law of _____ of _____.
8. What does the \rightarrow mean? _____
9. What does the $\leftarrow \rightarrow$ mean?

10. Write a balanced chemical equation that illustrates each type of reaction.
 - a. Synthesis - _____
 - b. Decomposition - _____
 - c. Single-Replacement - _____
 - d. Double-Replacement (Ionic) - _____

SITE #2: Classic ChemBalancer - You will need to go back to the Matter & Atoms page of the Kid Zone!

1. Click the button for "Directions" and **read carefully**. Click the "OK" button and return to the game screen.
2. Click "Start Game" button to give it a try!
3. Start by adding a "1" in each box and compare the number of atoms of each element you have on each side.
4. Change coefficients to balance each equation and click the "Balanced" button to check it. Correct it if it's wrong.
5. Use the information in the pop-up windows to answer each question and then write the balanced equation before clicking the OK button.

#1

What does "ferrum" mean? _____
What color is sulfur? _____

#2

What is HCl? _____
Where is it found in your body? _____

#3

What are pyrotechnics? _____

#4

What was the Hindenberg? _____
What gas was used in it? _____
What gas is used today? _____

#5

What does the symbol "Hg" represent? _____
Why should you never touch it? _____

#6

What gas is produced when calcium metal is
dropped in water? _____

#7

What is CH₄? _____ What gases is it
related to? _____ & _____

#8

What is H₂O₂? _____
What is it used for? _____

#9

What is ammonia used for today?
_____ & _____

#10

How is the oxidation of aluminum different from
that of iron? _____

#11

What gas is released when potassium permanganate
is decomposed? _____

Site 3: It's Elemental - Balancing Act

Start with five equations and the "Beginner" level. Balance the equations that are presented and write the balanced equation in the boxes below. Record your attempts after you have finished each level! You may want to use a piece of scratch paper. Then continue with the Intermediate and Advanced levels.

Level: Beginner

| | | |
|---|---|---|
| 1 | 2 | 3 |
|---|---|---|

| | |
|---|---|
| 4 | 5 |
|---|---|

Number of Attempts:

1 ____ 2 ____ 3 ____

4 ____ 5 ____

Level: Intermediate

| | | |
|---|---|---|
| 1 | 2 | 3 |
|---|---|---|

| | |
|---|---|
| 4 | 5 |
|---|---|

Number of Attempts:

1 ____ 2 ____ 3 ____

4 ____ 5 ____

Level: Advanced

| | | |
|---|---|---|
| 1 | 2 | 3 |
|---|---|---|

| | |
|---|---|
| 4 | 5 |
|---|---|

Number of Attempts:

1 ____ 2 ____ 3 ____

4 ____ 5 ____

Site 4: Chem Time Clock

11. All materials, whether solid, liquid or gas, are made of _____. Atoms are the smallest _____ of _____. Scientists have found over _____ different kinds of atoms. The many different materials we encounter are made from _____ of these atoms. A material in which all atoms are the same kind is called an _____. Therefore, there are over _____ different elements. Each element has been assigned a number, called its _____.

12. Search for information about each element on the Chem Time Clock. Use the chemical symbol to identify each element.

- | | |
|--------------------------------|--|
| ___ Lightest atom | ___ First discovered in the sun |
| ___ Lightest metal | ___ Beryl, emeralds, and aquamarine |
| ___ Found in borax | ___ Atomic number of 11 |
| ___ Atomic number of 7 | ___ Diamond and graphite |
| ___ Major component of air | ___ 2nd most abundant element on Earth |
| ___ Used in making toothpaste | ___ Atomic number of 3 |
| ___ An element in table salt | ___ Glows red-orange with electricity |
| ___ Atomic number of 12 | ___ Name from Greek word for sun |
| ___ Used in "mag" wheels | ___ Most common atom in universe |
| ___ Atomic number of 9 | ___ Found in buckyballs |
| ___ Used in laundry detergents | ___ Atomic number of 2 |

Site 5: All about the Atom

13. The basic unit of all matter is the _____.

14. All atoms are made of three types of particles _____, _____, and _____.

15. The _____ is used to identify an atom.

16. Protons are found in the _____ of atoms. They have a _____ charge.

17. How can you calculate the number of protons in an atom?

18. What happens when the number of protons in an atom changes?

19. How big are protons compared to electrons?

20. Where are neutrons found in an atom?

21. How can you calculate the number of neutrons in an atom?

