DONELSON MIDDLE SCHOOL
7TH GRADE CONNECTION

April 1-7, 2020

CONTACTING YOUR TEAM

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Greetings students and parents!

The activities listed here are optional but are meant to support your child to maintain his/her skills until we return. Work will not be graded and will not affect student promotion or attendance.

Suggested grade level activities:

Check out the MNPS printable learning packet for this week here: https://www.mnps.org/printables

English Language Arts
Students should log onto Clever and continue to follow skills and activities in iReady. Printed materials are also available for pick up at food delivery sites.

Math
Students should work on Proportional Relationships, Operations with Negative Numbers (add, subtract, multiply, divide). Also, continue to work on various skills in Moby Max and iReady

Science
Students should work on the balancing equations information and practice materials that are attached.
https://www.youtube.com/watch?v=eNsVaUCzvLA

Social Studies
Please use Clever to login to Schoology and read my post about the Protestant Reformation. Watch the video and comment with your answer to the question at the bottom. Also, please, please try recording a video of yourself saying hello on Flipgrid! https://flipgrid.com/76fa2cf6

Related Arts

- Art—Use the following link to decide what to draw each day. These drawings will sharpen your artistic skills and promote creativity! Customize any idea and use a variety of drawing utensils for color and embellishment. https://theartofeducation.edu/2015/11/10/100-sketchbook-prompts-your-students-will-love/
- Band—Visit https://musictheory.net/lessons. Start at the beginning and progress at your own pace!
- Guitar— https://www.youtube.com/user/littlekidsrock/videos .
- Music—During this time of stress in our world, take advantage of all the free concerts on Facebook, Instagram, and Twitter. See if you can find a new favorite artist!
- PE https://www.romper.com/p/10-online-exercise-yoga-kid-classes-to-make-up-for-pe-22627985. For those who don't have access to internet, going for daily 30-40 minute walks can alleviate stress.

- Spanish—Download the Duolingo app at duolingo.com. Listen to Spanish music on Spotify (Latin Hit Mix, Latin Pop Classics). Rockalingua.com (activities for learning Spanish). Free trial for two weeks on Babbel.com to learn Spanish!

Social Emotional Learning/Self-care

Talking to your child about feelings will help you to connect to them in a meaningful way.
Exploring Feelings | Season 1 Episode 9 | Adventures in Learning | PBS
https://www.pbs.org/video/adventures-learning-exploring-feelings/

Opportunities to connect

Check back next week to see if your teachers have scheduled a time for your class to video conference!

Balancing Chemical Equations

Learning Objectives

- *Describe a balanced chemical equation.*
- *Explain the meaning of coefficients in chemical equations.*
- *Outline how to balance chemical equations.*

A **chemical equation** is a way to show a chemical reaction, using symbols. In chemical equations, chemical formulas and other symbols are used to summarize a reaction. You may recall that a chemical formula is a combination of symbols that represents the elements in a compound. For example, CO_2 is the formula for carbon dioxide. The formula tells you the ratio of carbon atoms (1) to oxygen atoms (2). Each carbon dioxide molecule has 1 carbon atom and 2 oxygen atoms.

All chemical equations have a basic structure that is followed. **A chemical equation tells you the substances you start with in a reaction and the substances that are formed at the end.** The substances you have at the beginning are the **reactants.** When the reaction is complete, you have new substances, called the **products.**

The formulas for the reactants are written on the left, followed by an arrow. You read the arrow as **"yields."** The formulas for the products are written on the right of the arrow. A chemical equation has the general formula:

Reactants → Products

How is mass conserved during a chemical reaction?

Look at the picture below. Iron and sulfur can react to form iron sulfide (FeS). Can you predict the mass of iron sulfide, knowing the mass of the reactants? It might help you to know about a principle first demonstrated by the French chemist Antoine Lavoisier in 1774. The is principle, called the **law of conservation of mass,** states that during a chemical reaction, matter is not created or destroyed. **In a chemical reaction, all of the atoms present at the start of the reaction are present at the end of the reaction.** Atoms are not created or destroyed. However, they may be rearranged to form new substances. Look again at the picture below. Suppose 1 atom of iron reacts with 1 atom of sulfur. At the end of the reaction, you have 1 iron atom bonded to 1 sulfur atom in the compound iron sulfide (FeS). All the atoms in the reactants are present in the products. The amount of matter does not change. According to the **law of conservation of mass**, the total mass stays the same before and after the reaction. You can see this by observing the mass of the scales below:

An example of a simple chemical reaction is the reaction in which hydrogen (H_2) and oxygen (O_2) combine to produce water (H_2O). In this reaction, the reactants are hydrogen and oxygen and the product is water. To write the chemical equation for this reaction, you would start by writing the reactants on the left and the product on the right, with an arrow between them to show the direction in which the reaction occurs:

Equation 1:

$H_2 + O_2 \rightarrow H_2O$

Q: Look closely at equation 1. There's something wrong with it. Do you see what it is?

A: All chemical equations must be balanced. This means that there must be the same number of each type of atom on both sides of the arrow. That's because mass is always conserved in chemical reactions. Count the number of hydrogen and oxygen atoms on each side of the arrow. There are two hydrogen atoms in both reactants and products. There are two oxygen atoms in the reactants but only one in the product. Therefore, equation 1 is not balanced.

Using Coefficients

Coefficients are used to balance chemical equations. A coefficient is a number placed in front of a chemical symbol or formula. It shows how many atoms or molecules of the substance are involved in the reaction. For example, two molecules of hydrogen would be written as 2 H_2, and two molecules of water would be written 2 H_2O. A coefficient of 1 usually isn't written. Coefficients can be used to balance equation 1 (above) as follows:

Equation 2:

$2\ H_2 + O_2 \rightarrow 2\ H_2O$

Equation 2 shows that two molecules of hydrogen react with one molecule of oxygen to produce two molecules of water. The two molecules of hydrogen each contain two hydrogen atoms and so do the two molecules of water. Therefore, there are now four hydrogen atoms in both reactants and products.

Q: Is equation 2 balanced?

A: Count the oxygen atoms to find out. There are two oxygen atoms in the one molecule of oxygen in the reactants. There are also two oxygen atoms in the products, one in each of the two water molecules. Therefore, equation 2 is balanced.

Steps in Balancing a Chemical Equation

Balancing a chemical equation involves a certain amount of trial and error. In general, however, you should follow these steps:

1. **Count** the atoms on each side of the equation. Does the same number of each atom appear on both sides of the arrow? If not, the equation is not balanced, and you need to go to step 2.
2. Place coefficients, as needed, in front of the symbols or formulas to increase the number of atoms or molecules of the substances. Use the smallest coefficients possible.
   Warning! Never change the subscripts in chemical formulas. Changing subscripts changes the substances involved in the reaction. Change only the coefficients.
3. Repeat steps 1 and 2 until the equation is balanced.

Tips

1. Balance the metals first.
2. Then balance the nonmetals (except H and O).
3. Balance H then O.

Example:

Q: Balance this chemical equation for the reaction in which nitrogen (N_2) and hydrogen (H_2) combine to form ammonia (NH_3):

$N_2 + H_2 \rightarrow NH_3$

A: First count the nitrogen atoms on both sides of the arrow. There are two nitrogen atoms in the reactants so there must be two in the products as well. Place the coefficient 2 in front of NH_3 to balance nitrogen:

$N_2 + H_2 \rightarrow \mathbf{2}\ NH_3$

Now count the hydrogen atoms on both sides of the arrow. There are six hydrogen atoms in the products so there must also be six in the reactants. Place the coefficient 3 in front of H_2 to balance hydrogen:

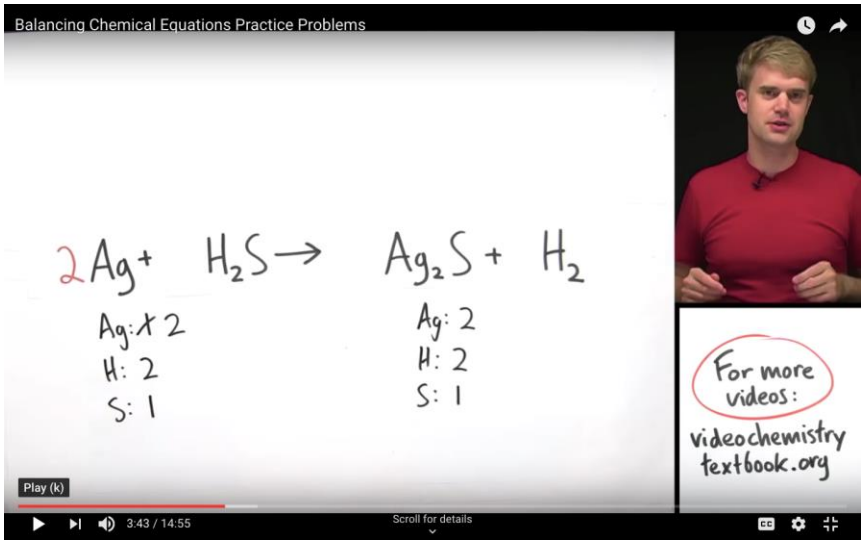
$N_2 + \mathbf{3}\ H_2 \rightarrow \mathbf{2}\ NH_3$

[One the left side of the arrow, we have 2 N and 6 H (3x2). On the right side of the arrow, we have 2 N and 6 H (2x3). We have the same amount of atoms on both sides! The equation is now balanced!]

Resource:

- The following video by Tyler DeWitt explains how to balance chemical equations step by step:

https://www.youtube.com/watch?v=eNsVaUCzvLA



Practice Problems:

1. ___ Fe + ___ Cl_2 → ___ $FeCl_3$

2. ___ Fe + ___ O_2 → ___ Fe_2O_3

3. ___ $C_4H_6O_3$ + ___ H_2O → ___ $C_2H_4O_2$

4. ___ S_8 + ___ O_2 → ___ SO_2

5. ___ C_2H_6 + ___ O_2 → ___ H_2O + ___ CO_2

NAME _____ DATE _____ PERIOD _____

Lesson 2 Extra Practice

Add Integers

Add.

1. $-4 + 8$

2. $14 + 16$

3. $-7 + (-7)$

4. $-9 + (-6)$

5. $-18 + 11$

6. $-36 + 40$

7. $42 + (-18)$

8. $-42 + 29$

9. $18 + (-32)$

10. $-96 + 6$

11. $-2 + (-5)$

12. $-6 + (-32)$

13. $3 + 98$

14. $-120 + (-2)$

15. $-120 + (-6)$

16. $5 + (-2)$

17. $6 + 3$

18. $-6 + 6$

NAME _____ DATE _____ PERIOD _____

Lesson 3 Extra Practice

Subtract Integers

Subtract.

1. $3 - 7$

2. $-5 - 4$

3. $-6 - 2$

4. $8 - 13$

5. $6 - (-4)$

6. $12 - 9$

7. $-2 - 23$

8. $63 - 78$

9. $0 - (-14)$

10. $15 - 6$

11. $18 - 20$

12. $-5 - 8$

Evaluate each expression if $k = -3$, $p = 6$, $n = 1$, and $d = -8$.

13. $55 - k$

14. $p - 7$

15. $d - 15$

16. $n - 12$

17. $-51 - d$

18. $k - 21$

19. $n - k$

20. $-99 - k$

21. $p - k$

22. $d - (-1)$

23. $k - d$

24. $n - d$