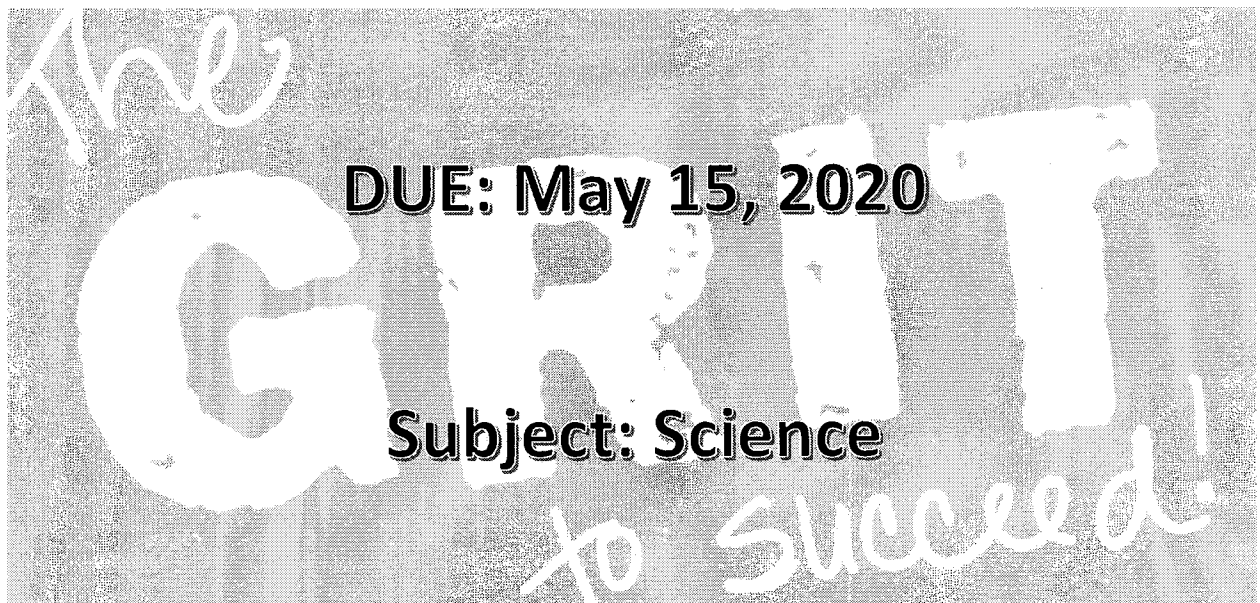


# WEEK 4



**Teacher: Ruiz**

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## INSTRUCTIONS FOR WEEK 4-PACKET SOCIAL STUDIES

### Chemical Reaction

#### PART 1

- Read the lyrics more than just one time
- If possible, read the lyrics to a family member

#### PART 2

- Fill in the blanks with the correct word
- Next, using the words from the blanks (correct words) write a short summary that describes the theme or meaning of the song.

#### PART 3

- Read the word and definition
- Follow the direction to complete this section...we have done this before.
- If possible, create your own images
- Next, create a vocabulary chart...it can be a T-Chart...word then the definition.

#### PART 4

- READ/RESPONSE
- Only underline or highlight 5-7 words...ONLY WORDS...NO PHRASES...NO SENTENCES
- Usually proper nouns or the name of something are the best
- Answer the question
- Then and only then, write two summary sentences using at least 3-5 key words you underlined or highlighted.

#### PART 5

- With all your newly acquired knowledge and using the template provided, supply the following:
- Pick three facts or historical events
- Use the template provided
- Write a response that displays your proficiency concerning this topic
- \*\*\*\*Option: you can write a response that compares the Great Depression and the Coronavirus.....BONUS POINTS

Name \_\_\_\_\_

Date \_\_\_\_\_



# Chemical Reactions

"What Happens in a Chemical Reaction?"

Yo, in a chemical reaction, substances called reactants interact to produce one or more new substances called products. There are four characteristics that are true of any chemical reaction. You want to know what they are? Pay attention, 'cause here we go...

One: a chemical reaction's always the same,  
Do the same reaction again, it won't change.  
Reactions occur in predictable ways,  
It's not random like pigs flying all over the place.  
The same reactants produce the same products,  
And it doesn't matter when or where, honest.  
Like If we burn sugar, then every time,  
The products will be water and carbon dioxide.  
Number two: all matter is conserved,  
Atoms aren't created, they're just rearranged—observe:  
These two substances, call them A and B,  
They might react to produce a new compound, see.  
It's now AB—that's a synthesis,  
When substances come together, get the gist?  
In decomposition, molecules break apart,  
That's not easy to mend like a broken heart.  
If it's displacement, synthesis or decomposition,  
No new atoms are created, listen.

What happens in a chemical reaction?

What happens in a chemical reaction?

Substances react in predictable ways  
Matter is conserved, not destroyed or made,  
Products have different properties than reactants  
Energy is released or stored back in  
(2x)

Moving on, number three: the products  
Have different properties than the reactants, got it?  
If we look at the properties before and after,  
We can tell if a reaction has occurred—moving back to  
The sugar that we burned, word, when that happened  
The odor changed up 'cause of the chemical reaction.  
The product smells different  
Than the reactants did, plus not to mention,  
The color and the taste have switched up.  
Now, number four:, this is what we will discuss,:  
In a chemical reaction, energy  
Can either be stored or released and let free.  
When it's released, we call it "exothermic,"  
And when it's stored, that's "endothermic."  
The energy can be in many different forms,  
Which include light, heat or  
Chemical energy—now, let's return  
To take another look at the sugar that we burned.  
The energy in the chemical bonds break, they escape and  
That's an exothermic situation!

What happens in a chemical reaction?  
What happens in a chemical reaction?

Substances react in predictable ways  
Matter is conserved, not destroyed or made,

Products have different properties than reactants

Energy is released or stored back in

(2x)

What happens in a chemical reaction?

What happens in a chemical reaction?

Name \_\_\_\_\_

Date \_\_\_\_\_



# Chemical Reactions

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Name \_\_\_\_\_

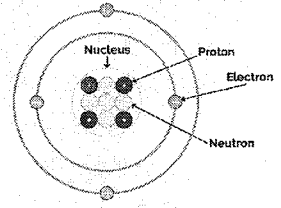
Date \_\_\_\_\_

# Chemical Reactions - Vocab Cards

**atom** noun

**the smallest particle of an element that can exist.**

The chemist knew she couldn't let any amount of that element into her experiment—not even a single *atom*.



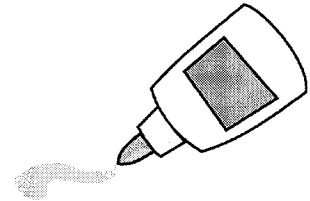
Use this word in a sentence or give an example to show you understand its meaning:

Draw this vocab word or an example of it:

**bond** noun

**in chemistry, the force that holds the atoms in a molecule together.**

When a molecular *bond* is weak, the atoms are easy to separate.



Use this word in a sentence or give an example to show you understand its meaning:

Draw this vocab word or an example of it:

**chemical** adjective

**of, produced or used by chemicals.**

For the science fair, Deshawn demonstrated the *chemical* reaction between ozone and chlorine.



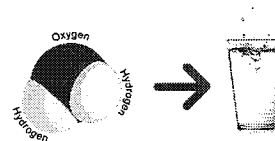
Use this word in a sentence or give an example to show you understand its meaning:

Draw this vocab word or an example of it:

**compound** adjective

**composed of more than one element, ingredient or part.**

Sugar is a *compound* substance made of two elements: fructose and glucose.



Use this word in a sentence or give an example to show you understand its meaning:

Draw this vocab word or an example of it:

**conserve** verb

**to protect from loss; to use carefully.**

We *conserve* water by turning off the faucet while we brush our teeth.

Synonyms: preserve, protect, save

Antonyms: lose, spend, destroy



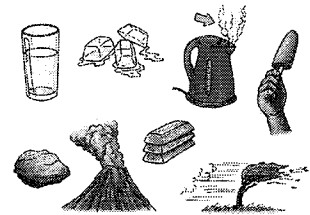
Use this word in a sentence or give an example to show you understand its meaning:

Draw this vocab word or an example of it:

**matter** noun

**the physical substance that everything is made of.**

My teacher said *matter* is anything that takes up space and has mass.



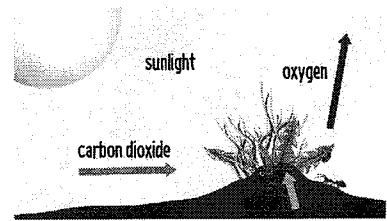
Use this word in a sentence or give an example to show you understand its meaning:

Draw this vocab word or an example of it:

**product** noun

**a substance formed in a chemical reaction.**

One *product* that is made during photosynthesis is oxygen.



Use this word in a sentence or give an example to show you understand its meaning:

Draw this vocab word or an example of it:

**property** noun

**a quality or characteristic of something.**

Talc is one of the softest minerals. That's the *property* it is best known for.

Synonyms: attribute, quality, trait

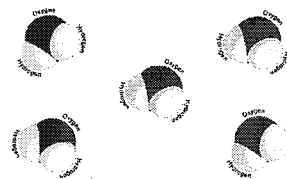
Use this word in a sentence or give an example to show you understand its meaning:

Draw this vocab word or an example of it:

**reactant** noun

**a substance that enters a chemical reaction and is changed.**

When combined chemically, hydrogen and oxygen are *reactants* that form water.



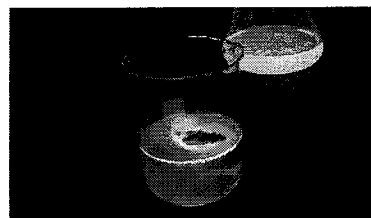
Use this word in a sentence or give an example to show you understand its meaning:

Draw this vocab word or an example of it:

**reaction** noun

**in chemistry, the change that happens when two or more substances act on each other to form a different substance.**

When the color, smell and taste of the mixture changed, I knew a chemical *reaction* had taken place.



Use this word in a sentence or give an example to show you understand its meaning:

Draw this vocab word or an example of it:

# Chemical Reactions

Use the text to answer each question below.

1. In a chemical reaction, atoms are rearranged to form new substances. This happens predictably. The same reactants will form the same products no matter when or where the reaction takes place. For example, in a lab, you could combine iron and oxygen. The product will be the same iron oxide that forms on a rusty iron nail. Those are the same reactions. Similarly, if you've studied acids and bases, you probably know the products of a neutralization reaction. Acids and bases will combine in a chemical reaction to produce a salt and water.

Based on the passage, rust will form on an iron nail when what has occurred?

- A. a neutralization  
B. an acid has combined with a base  
C. salt has reacted with water  
D. iron has reacted with oxygen

2. In a chemical reaction, new substances are formed. But no new *matter* is created. The total number of each type of atom stays the same, which is another way of saying that matter (and mass) are conserved. If the elements Fe and S are present in the beginning of your reaction, those same elements will be present in the products. Their arrangement will change, resulting in different compounds and molecules than were present in the reactants. However, you won't end up with any *new* element. And the total number of atoms of Fe and S will be conserved.

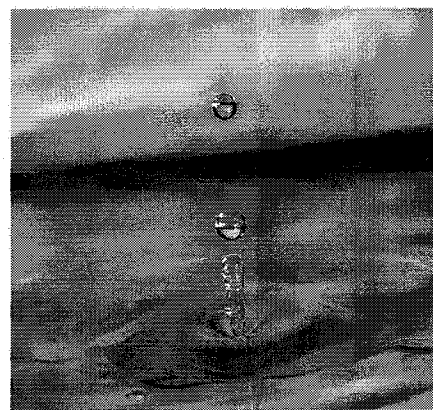


In a chemical reaction, the total number of each type of atom doesn't change.

According to the passage, new substances are formed in a chemical reaction as a result of

- A. atoms rearranging.  
B. atoms being created.  
C. atoms being destroyed.  
D. the total number of atoms changing.

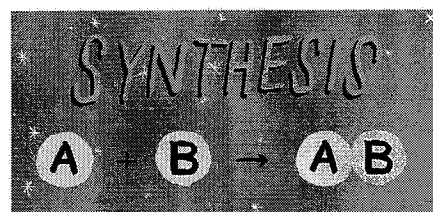
3. There are a few major types of reactions that occur. In a synthesis reaction, pure substances come together. They form a chemical bond and produce new compounds. A synthesis of  $2\text{H}_2$  and  $\text{O}_2$  results in  $2\text{H}_2\text{O}$ , also known as water. In a decomposition reaction, the inverse occurs; a compound's chemical bonds break. Both synthesis and decomposition result in new substances but not new atoms, and no matter is created or destroyed.



Water ( $\text{H}_2\text{O}$ ) can be formed from a synthesis of hydrogen and oxygen.

Based on the passage, synthesis can best be described as

- A. the opposite of decomposition.                      B. the same as decomposition.  
C. the result of decomposition.                      D. the cause of decomposition.
4. In a displacement reaction, an element reacts with a compound. For example, two molecules of carbon ( $2\text{C}$ ) might react with one molecule of silicon dioxide ( $\text{SiO}_2$ ). The element takes the place of one of the elements in the compound, displacing it. In this case, the carbon bonds with the oxygen, taking place of the silicon. The products are Si and  $2\text{CO}$ .

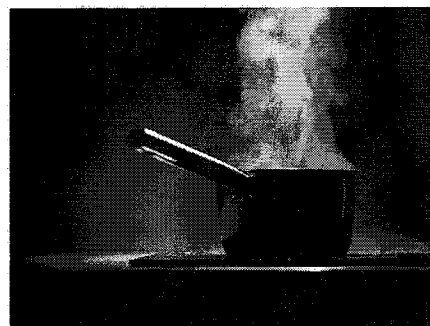


A representation of a synthesis reaction

Which of the following best summarizes what happens in a displacement reaction?

- A. Two elements react to form a compound.                      B. A compound breaks down into elements.  
C. An element and a compound react to form a different element and compound.                      D. An element and a compound react to form another compound.

5. If you aren't sure if a chemical reaction has occurred, look for evidence in the properties of the products. When a new substance forms, its properties will be different from the properties of the reactants. You might notice a change in color, smell or temperature. But be careful because some physical changes can look a lot like chemical reactions. A change of state—like from a solid to a gas—is not a chemical reaction. And a color change alone is not enough to know if a chemical reaction has taken place.



A change of state, like the change from liquid to gas, is not a chemical reaction.

The main purpose of this passage is to

- A. describe different physical properties of substances and how they can be observed.
  - B. describe what evidence can be used to determine if a reaction has taken place.
  - C. compare physical and chemical properties.
  - D. compare a change of state, color, smell and temperature.
6. Chemical reactions either release or store energy. In endothermic reactions, energy is stored as heat, and you might notice a decrease in temperature. In exothermic reactions, heat energy is released, and temperature will increase. Chemical reactions store or release chemical energy, too. Chemical energy is stored in chemical bonds, and when bonds break, that energy is released.

According to the passage, what evidence can show if a reaction is endothermic or exothermic?

- A. the presence of bubbles
- B. a temperature change
- C. glass breaking
- D. none of the above



After analyzing the text \_\_\_\_\_, I (believe, feel, from my perspective) the main idea (focus) of this section is \_\_\_\_\_. This section \_\_\_\_\_ (stressed, emphasizes, points out, focuses on) ideas about \_\_\_\_\_. There were three main (ideas, achievements, historical information) which included \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

The first (idea, achievement, historical information) was \_\_\_\_\_. This was (important or significant) because \_\_\_\_\_. For example, \_\_\_\_\_ (evidence)

The second (idea, achievement, and historical information) was \_\_\_\_\_. This was (important or significant) because \_\_\_\_\_. For example, \_\_\_\_\_ (evidence)

The third (idea, achievement, historical information) was \_\_\_\_\_. This was (important or significant) because \_\_\_\_\_. For example, \_\_\_\_\_ (evidence)

Words to use for information: Next, after that, another, in the first place, Then, In addition

\_\_\_\_\_