Lesson 1 Understanding Chemical Reactions

Scan *Lesson 1. Read the lesson titles and bold words. Look at the pictures. Identify three facts you discovered about chemical reactions. Record your facts in your Science Journal.*

Main Idea

Changes in Matter

I found this on page _____.

Details

Differentiate *a physical change from a chemical change.*

Physical Change	Chemical Change
Recall that matter can undergo two types of changes-chemical or physical. A physical change does not produce new substances. The substances that exist before and after the change are the same, although they might have different physical properties. This is what happens when liquid water freezes. Its physical properties change from a liquid to a solid, but the water, H,O, does not change into a different substance. Water molecules are always made up of two hydrogen atoms bonded to one oxygen atom regardless of whether they are solid, liquid, or gas.	Recall that during a chemical change, one or more substances change into new substances. The starting substances and the substances produced have different physical and chemical properties. For example, when brownie batter bakes, a chemical change OCcurs. Many of the substances in the baked brownies are different from the substances in the batter. As a result, baked brownies have physical and chemical properties that are different from those of brownie batter. alan is called a cheminal

Signs of a Chemical Reaction

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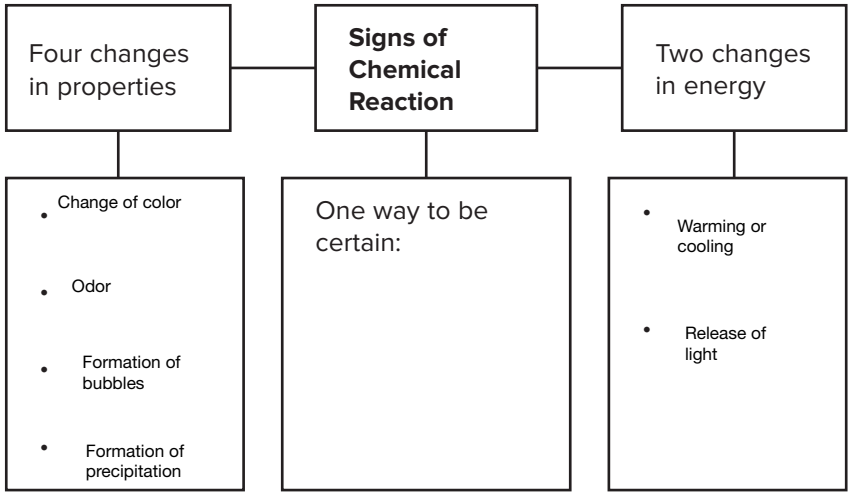
Identify *signs of a* chemical reaction.



What happens during a chemical reaction?

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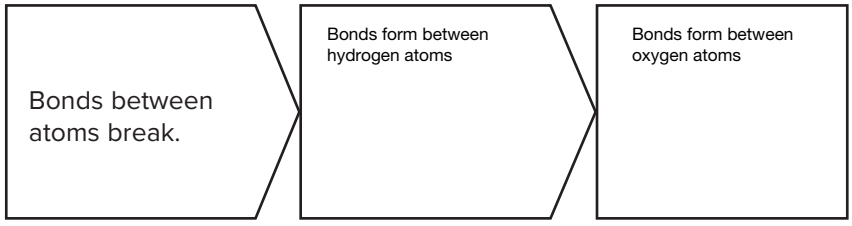
Sequence *changes in atoms during a* chemical reaction.



Main Idea

Chemical Equations

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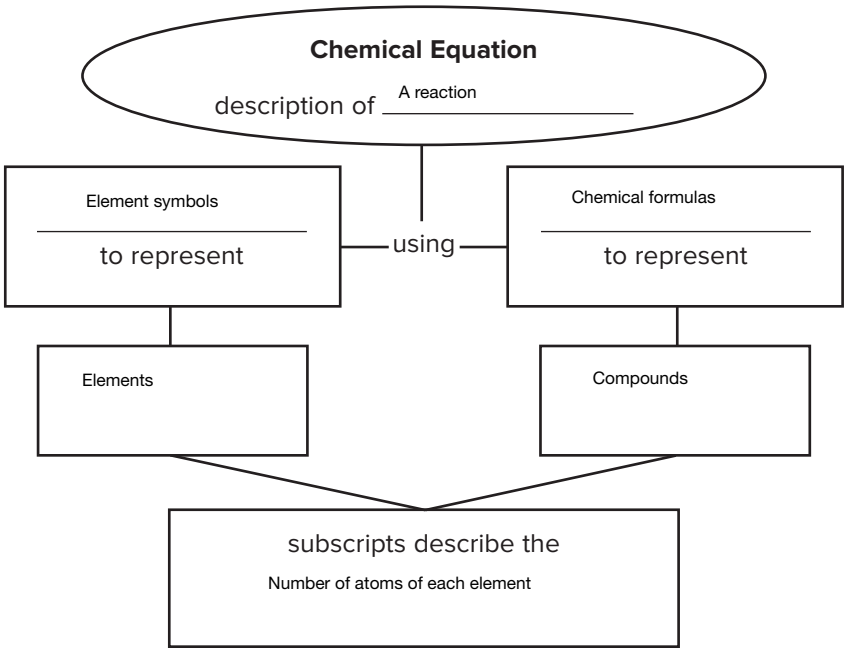
Details

Distinguish *the parts of a* chemical equation.



I found this on page _____.

Detail *information regarding the writing of* chemical equations.

Define *reactant.*	The starting substances in a chemical reaction
Define *product.*	The substances produced by a chemical reaction
Write the general structure for a chemical equation.	Reactant + reactant ——> product + product
How is the arrow sign read?	As "produces" or "yields"
Write the equation for "carbon plus oxygen produces carbon dioxide."	$C + O_2 ----> CO_2$

Conservation of Mass

I found this on page _____.

Restate *the* law of conservation of mass.

The total miss before a chemical reaction is the same as the total mass after a chemical reaction.

Main Idea

Details

I found this on page _____ .

Relate *atoms to mass in a* chemical reaction.

Mass before a chemical reaction	is equal to	
Number of atoms in the reactants		Number of atoms in the products

I found this on page _____ .

Paraphrase *what it means when you say a* chemical equation *is balanced.*

The specific numbers of types of atoms are the same on both sides of the equation

I found this on page _____ .

Explain *the meaning of chemical formulas. Circle the* coefficient.

H_2O	$2H_2O$
means One water molecule	means Two water molecules

I found this on page _____ .

Order *the steps in balancing a* chemical equation.

1. Write the unbalanced equation
2. Count atoms of each element in the reactions and product's
3. Add coefficient to balance the atoms
4. Write the balanced chemical equation

I found this on page _____ .

Balance *the* chemical equation *for carbon monoxide.*

$$C + O_2 \longrightarrow CO$$

Analyze It Look back at the picture of the firefly on the first page of Lesson 1. How could you conclude that the firefly's blinking is a chemical rather than a physical change simply by viewing the picture and without reading the text on the page?

The firefly's blink gives