Physical and Chemical Changes Notes

P5.5C Chemical Properties

Chemical properties describe the way a substance reacts with other substances.
Flammability is a chemical property. It describes a substances ability to burn or catch on fire.
Corrosion is when metals combine with nonmetals from the environment. Corrosiveness is a chemical property. Iron corrodes by rusting.

Boiling point is the temperature at which a substance boils.
Substances change from liquid to gas at their boiling point.
Freezing point is the temperature at which a substance freezes.
Substances change from a liquid to a solid at their freezing point.

P5.5C Physical and Chemical Changes

A physical change alters the form of an object without changing what type of matter it is. Changes to size and shape are physical changes. Cutting paper, sharpening your pencil, cutting your hair, melting ice are all examples of physical changes.
Combining 2 substances into a MIXTURE is also a physical change.
Physical changes can be reversed.
Chemical changes occur when atoms link together in NEW ways to create substances DIFFERENT from the original substance. This produces a chemical reaction. When you mix **baking soda and vinegar**, ***bubbles form***. Bubbles are a new substance so there was a chemical change.
A reactant is the original substance at the beginning of chemical reaction.
A product is the substance you are left with at the end of a chemical reaction.

P5.5C How to spot a chemical change

- A change in color – example **bleach**
- A tarnish is formed – example silver turning or **rust**
- A release of gas – example an antacid **bubbling** in water
- A precipitate is formed – Example sour milk forms **solid** lumps
- The release of energy – Example **light** and **heat** coming from fire

A precipitate is a solid formed from a chemical reaction of some solutions.

**Chemical changes are used to run cars and other machines. We use chemical changes to turn our food into energy our body can use to keep us going each day.*

P5.5C Physical or Chemical Change?

Physical:	**Chemical:**
• Did just the shape or size change? • Did it just make a mixture? • Did it just change state? (solid, liquid, or gas) • Could it be reversed? • Is it still the same substance? If you can say "yes", it is a **PHYSICAL CHANGE**.	• Did it create something new? • Did it create a gas? • Did it create a precipitate • Did it change temperature? • Did it change color? If you can say "yes", it is a **CHEMICAL CHANGE**.

P5.5C Law of Conservation of Mass

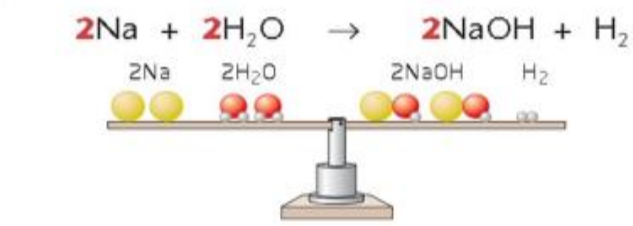
*When 2 or more substances are mixed together, the total weight is always equal to the weight of the original substances.

20g raisins + 20g M&Ms + 20g pretzles = 60g mixture

This is the same with chemical reactions.

The elements on the reactant side must equal the product side.

(reactant + reactant ⟶ product)



- Let's count the atoms

Reactants	Type of Atom	Products
	Na	
	H	
	O	

*Atoms are not lost or gained, **just rearranged**.