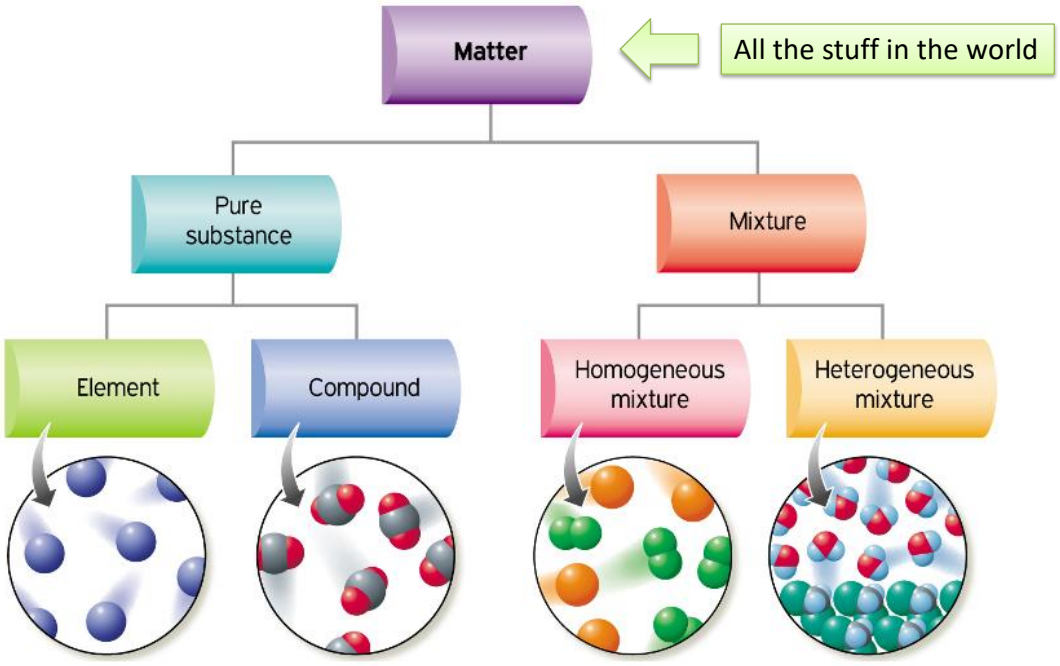
A few more chemical concepts that I want to remind you of…

MIXTURES

Mixtures vs. Pure substances



Mixtures

1. ***Homogenous mixture*** – composition of the mixture is the same throughout.

2. ***Heterogeneous mixture*** – composition is not uniform throughout.

Mixture or Pure substance

Item	Mixture or pure substance?
Oxygen	
Carbon dioxide	
Air	
Water	
Vitamin C (sodium ascorbate)	
Sodium chloride (i.e. table salt)	
Iodized Salt	
Salt water	
Sucrose (i.e. table sugar)	
Monosodium glutamate (i.e. MSG)	
Corn syrup	

Table salt mixed with a small amount of various salts of the element iodine. The ingestion of iodine prevents iodine deficiency.

Kitchen Mixtures

Solution

- material in which individual **ions** or **molecules** are dispersed (dissolved) in a liquid

Kitchen Mixtures

Suspension

- material in which a substance is dispersed in a liquid in clusters or particles
- Example: nonfat milk (milk-protein particles in water)

Kitchen Mixtures

Emulsion

- Suspension in which the dispersed substance is a liquid that cannot mix evenly with the containing liquid
- Fat-in-water emulsions
  - Whole milk
  - Mayonnaise
- Water-in-fat emulsions
  - Butter
  - Vinaigrette

Kitchen Mixtures

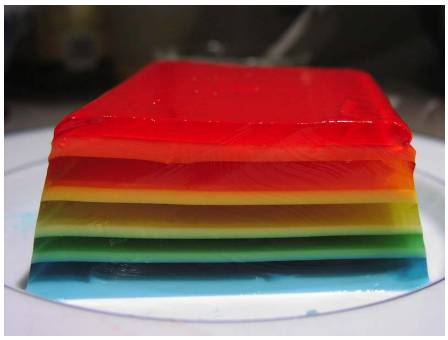
Foam

- Dispersion of gas bubbles in a liquid or solid
- Examples
  - Soufflés
  - Meringues
  - Bread
  - Ice cream

Kitchen Mixtures

Gel

- Dispersion of water in a solid
- Solid molecules form a sponge-like network and pockets of water are trapped in the network
- Examples
  - Jellies made with gelatin or pectin



Food is a Mixture of Molecules

All living things are made from atoms and molecules.

They are organized, interact and react as the building blocks for life.

Molecules are often divided into two categories, *organic* (those molecules containing carbon atoms) and *inorganic* molecules (everything else).

Nutrition Facts

Serving Size 1 medium orange (140g)
Servings Per Container 1

Amount Per Serving	
Calories 65	Calories from Fat 3
	% Daily Values*
Total Fat 0g	**0%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Potassium 238mg	**7%**
Sodium 0mg	**0%**
Total Carbohydrate 16g	**5%**
Dietary Fiber 3g	**12%**
Sugars 13g	
Protein 1g	**2%**
Vitamin A 6% •	Vitamin C 105%
Calcium 12%	

*Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2400mg	2400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Food is a mixture of molecules. Consider the nutrition data for a medium orange

Food molecules are typically classified in three main categories: Fat, Carbohydrate, and Protein.

Cholesterol is a molecule; it has the molecular formula $C_{27}H_{46}O$.

Vitamin A ($C_{20}H_{30}O$) and Vitamin C ($C_6H_8O_6$) are both molecules.

Sodium, Calcium and Iron are ionic compounds