Observing Matter

Chemistry is the observation of matter and how it behaves.

Matter: anything that has mass, volume and made up of elements.

Qualitative Observation: Physical characteristics or description of a substance.

Quantitative Observation: properties that require numerical measurements or calculations.

Table 1.2 in text pg. 12

Physical Properties		Chemical Properties
Qualitative	**Quantitative**	**Reacts with?**
state	melting point	water
colour	boiling point	air
odour	density	O_2
crystal shape	solubility	acid
malleability	electrical conductivity	pure substances
ductility	thermal conductivity	flammability
hardness		toxicity
brittleness		decomposition

CLASSIFY THE FOLLOWING...

H_2 (g)	
Chocolate milk	
SiO_2 (s), NaCl (s)	
Grape koolaid	
Sand and water	
NaCl (aq)	
$C_6H_{12}O_6$ (s)	
$Mg(OH)_2$ (s)	
Aluminum pop tab	
Carbon dioxide gas	

PHYSICAL OR CHEMICAL CHANGE...

A nail rusting		Water boiling in a kettle	
Wood burning in a fireplace		An ice cube melts in a cup of water	
Milk sours		A cake is baking in the oven	
Propane burns in the barbeque		A pencil leaves a mark on paper	
Butter melts on hot toast		Paper is made into confetti	
Trees are cut for furniture building		Oranges are squeezed into OJ	
Wet shirts dry on the clothes line		Stretching an elastic band	
Steel is magnetized		Milk is made into cheese	
Bread rises in the oven		Warming dinner plates	
Coffee beans are ground up		Water vapour becomes rain	
A mirror breaks into slivers		The door of a car rusts	
Glass tubing is heated and blown into a new shape			
Garbage piles produce methane gas			
Excess stomach acid is neutralized by Tums®			
Mothball crystals "disappear" into the atmosphere			