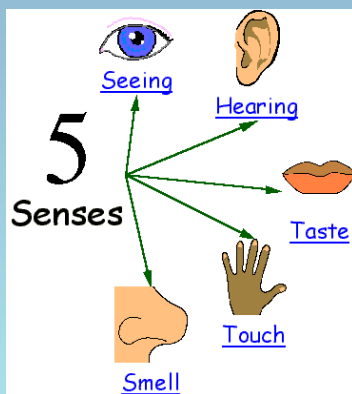




Physical Properties

One of the physical properties of matter is its state.

Another way to describe physical properties is using our senses.

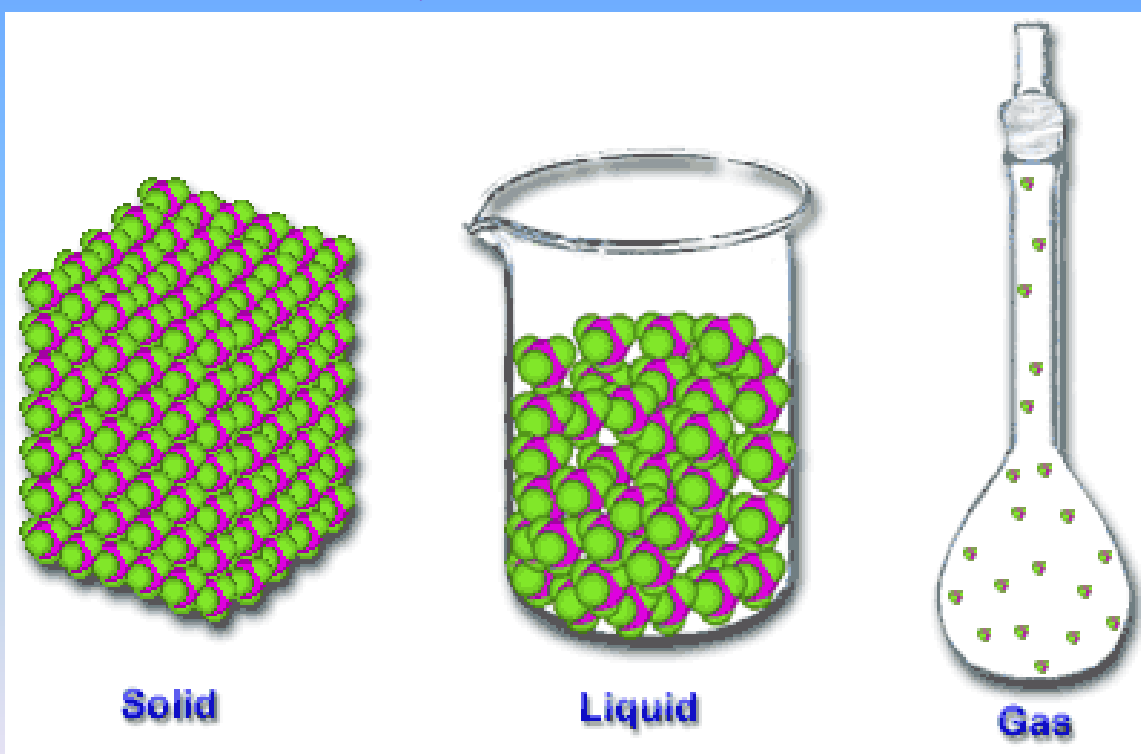


What could we observe from each of the 5 senses?

- i) **Sight:** color, bright, dull
- ii) **Hearing:** Bubbling, crackling, snapping
- iii) **Taste:** sweet, salty, bitter
- iv) **Touch:** Rough, soft, slimy,
- v) **Smell:** Sweet, rotten,

Types of Physical Properties

State



2)

Hardness

The measure of the resistance of a solid to being scratched or dented.



Cool Fact: The Millenium Star (above) is the second largest flawless diamond at 203 carats. These types of diamonds are considered the rarest and the most valuable set of diamonds created. One of these only 10 carat diamonds cost in excess of 10 million dollars.

Rank the following substances by how hard you think they are
1 being soft
4 being hard



2 glass

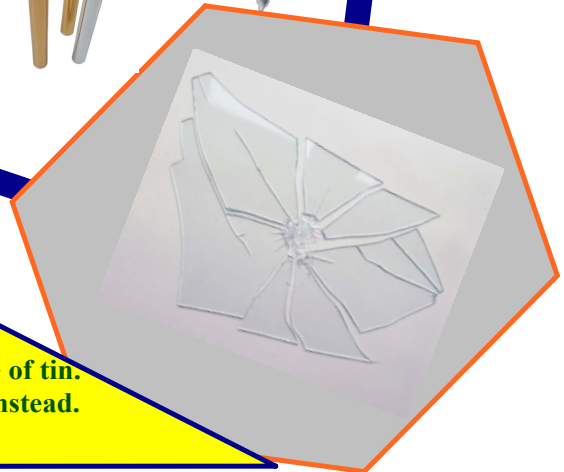
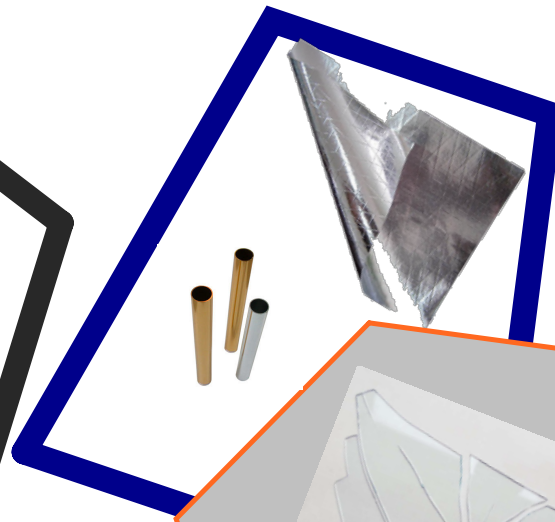
1
chalk



diamond



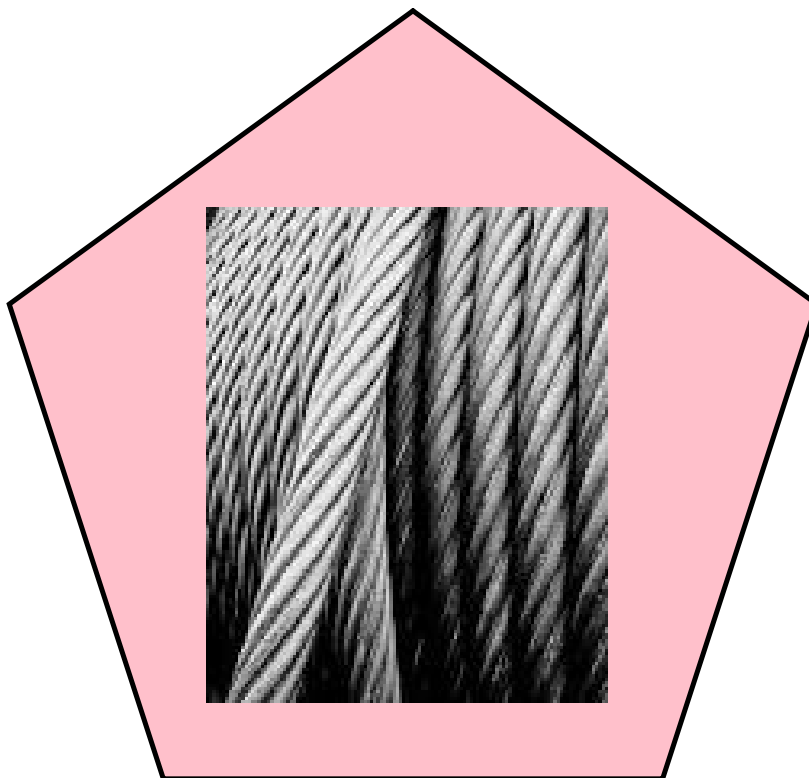
3) **Malleability:** ability of a substance to be hammered or bent into different shapes.



Cool Fact:

Older generations used to call aluminum foil, tin foil, because well... it was made of tin. In 1910, manufacturers started to use aluminum instead. Tin left a metallic taste on food, mmm.

4) **Ductility: the ability to be pulled into wire.**



5) Melting and Boiling Points

melting point = the temperature a substance changes from a solid to a liquid

Water $\rightarrow 0^{\circ}\text{C}$



boiling point = the temperature a substance changes from liquid to a gas

Water $\rightarrow 100^{\circ}\text{C}$



Does anyone know the melting point or boiling point of water?

Melting Point and Boiling Point of Substances

<http://worldearth.hubpages.com/hub/Freezing-Melting-and-Boiling-Points-of-Solids-Liquids-and-Gases-in-general-use-today>





6) Crystal form (another form of a solid)
A solid mineral structure with a regular pattern of 3-D shapes. Salt crystals are cubic, plastic has no crystal form



7) Solubility- The ability to dissolve in a solvent such as water. Salt is soluble in water, pepper/copper are insoluble in water.



8) Viscosity



A measure of how easily a liquid flows.

The thicker the liquid the less it flows therefore it is more viscous.

Maple syrup is more **viscous** than water.

What do you think would be more viscous water or tomato juice?

Cool Fact: The largest pancake ever made and flipped measured 15 m, was 2.5 cm deep and weighed three tonnes! Just imagine how much syrup you would need!

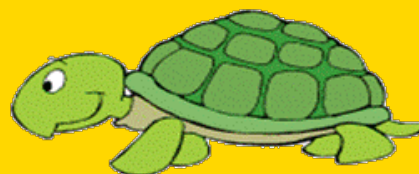


The saying



"Slower than cold molasses"

Has science behind it



Density- The amount of matter (mass) per unit of volume of a substance.

Lead is denser than feathers or some may say lead is heavier than feathers.

For example: Density of water is 1.0 g/cm^3 .



Chemical Properties

In nature, substances combine or react with each other.

When one substance can interact with another, that characteristic behaviour can be called a chemical property. (The ability to react is known as a chemical property)

For example, dynamite explodes because it combines with oxygen. The reaction produces new substances.



Chemical Properties

1) **Combustibility**- The ability of a substance to react rapidly with oxygen and release heat and light energy.

Gasoline is **combustible** or **flammable**.

Water is **nonflammable**.



Chemical Properties

2) Reaction with an acid- The ability of a substance to react with acid and produce gas.

↳ Magnesium metal reacts with acid to produce gas bubbles.

Gold does not react with acid.



Combustibility



Cool Fact: Beaumont, Texas, the "Home of the World's Largest Fire Hydrant" erected a 24 foot fire hydrant to promote the re-release of the 101 Dalmations. The hydrant weighs 4500 lbs and could blast 1500 gallons of water a minute.

3) Oxidation

↳ overtime causes Rust
When exposed to water and O_2

Reaction with Acid



Cool Fact: The strongest acid in the world is a million times stronger than concentrated sulfuric acid and about a billion times stronger than the acids found in your stomach. It is called a superacid.



Name That Property!!
Quiz

Take out a piece of paper

There will be 20 questions

1)

Please Choose the word that best describes this image



- a) State
- b) Viscosity
- c) Density
- d) Hardness
- e) Ductile

Ductility/ Malleability

2)

Please Choose the word that best describes this image

- a) Soluble
- b) Malleable
- c) Boiling point
- d) Combustible
- e) Viscosity



3)

Please Choose the word that best describes this image

- a) Soluble
- b) Malleable
- c) Hardness
- d) Combustible
- e) Crystal formation



Malleability

4)

Please Choose the word that best describes this image



- a) Hardness
- b) Malleable
- c) Ductile
- d) Combustible
- e) Viscosity

Hardness

5)

Please Choose the word that best describes this image

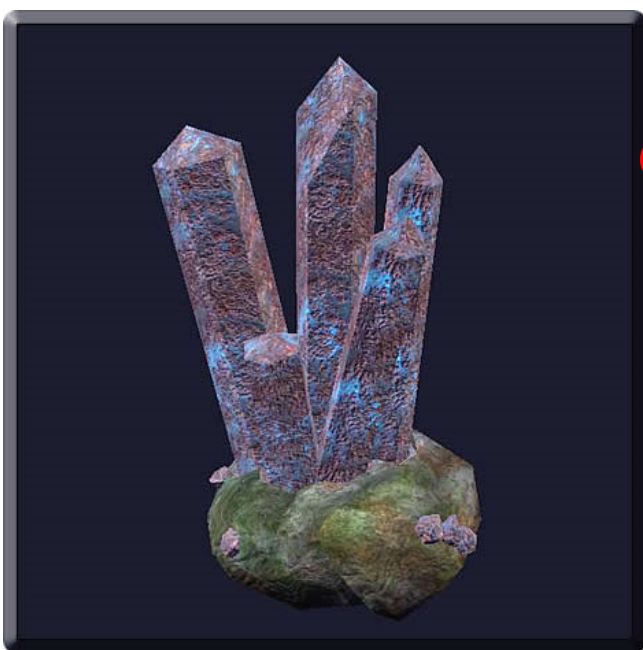


- a) Soluble
- b) Malleable
- c) Boiling point
- d) Combustible
- e) Viscosity

combustibility

6)

Please Choose the word that best describes this image



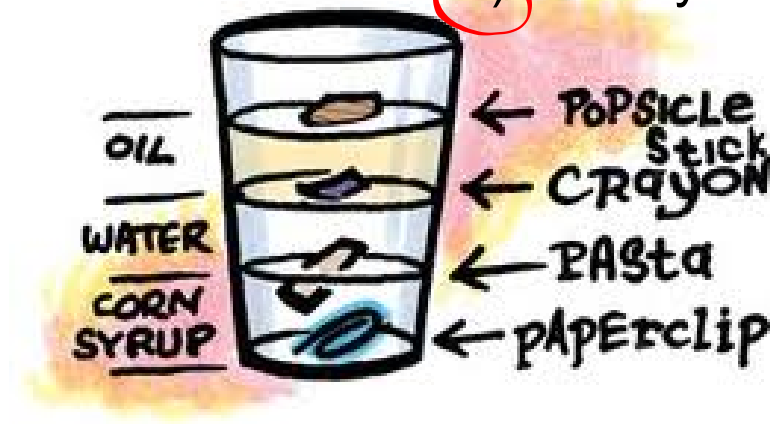
- a) Soluble
- b) Malleable
- c) Hardness
- d) State
- e) Crystal formation

Crystal Form

7)

Please Choose the word that best describes this image

- a) State
- b) Reaction with Acid
- c) Hardness
- d) Combustible
- e) Density

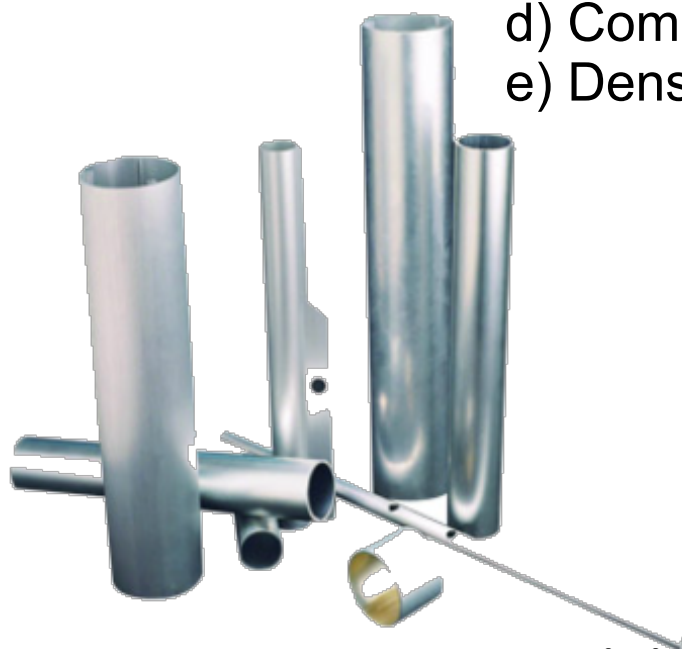


Density

8)

Please Choose the word that best describes this image

- a) Soluble
- b) Malleable
- c) Hardness
- d) Combustible
- e) Density



Malleability/**Ductility**

9)

Please Choose the word that best describes this image

- a) Melting Point
- b) Malleable
- c) Hardness
- d) Density
- e) Crystal Formation



Melting point

10)

Please Choose the word that best describes this image



- a) Soluble
- b) Malleable
- c) Hardness
- d) Density
- e) Melting point

Solubility

11)

Please Choose the word that best describes this image



- a) State
- b) Malleable
- c) Density
- d) Soluble
- e) Viscosity

Viscosity

12)

Please Choose the word that best describes this image

- a) Soluble
- b) State
- c) Density
- d) Hardness
- e) Viscosity



States

13)

Please Choose the word that best describes this image



- a) State
- b) Malleable
- c) Density
- d) Soluble
- e) Viscosity

Density

14)

Please Choose the word that best describes this image



a) Reaction with acid

b) Combustible

c) Density

d) Corrosive / Oxidization

e) Hardness

Corrosive

15)

Please Choose the word that best describes this image



- a) State
- b) Melting point
- c) Density
- d) Corrosive
- e) Hardness

Hardness

16)

Please Choose the word that best describes this image

- a) Reaction with acid
- b) Soluble
- c) Density
- d) Ductile
- e) Crystal formation



Solubility

17)

Please Choose the word that best describes this image



- a) Reaction with acid
- b) Combustible
- c) Density
- d) Corrosive
- e) Hardness

Reaction with acid

18)

Please Choose the word that best describes this image



- a) State
- b) Viscosity
- c) Density
- d) Hardness
- e) Ductile

Ductility

19)

Please Choose the word that best describes this image



- a) State
- b) Corrosive
- c) Viscosity
- d) Combustible
- e) Boiling point



Combustibility

20)



- a) Soluble
- b) Malleable
- c) Hardness
- d) Combustible
- e) Density

Malleability

CLASSWORK

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Questions 1 and 3