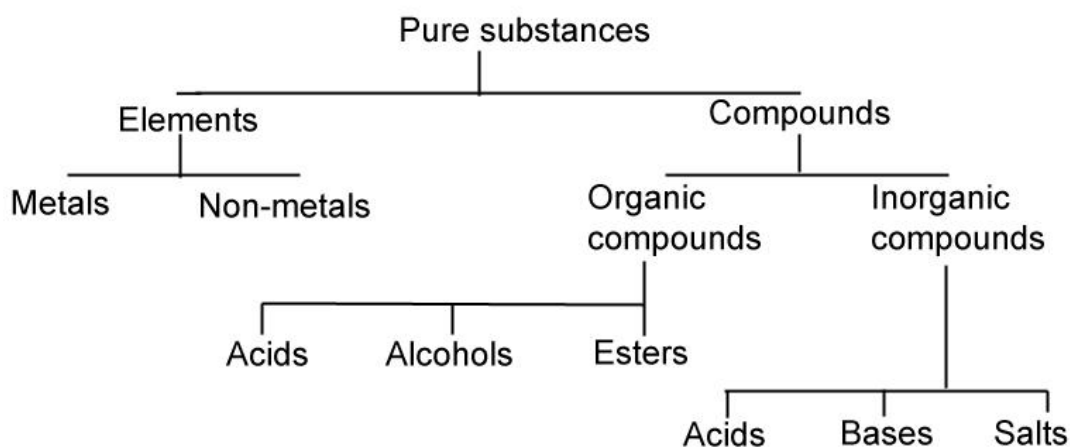


## Basic structures

There are	- three - several - a lot of	- kinds - types - sorts - classes - varieties	- of substances	
Substances are of	-----			
Substances can be	- classified - divided	into several - groups - classes - categories	according to	- their properties - whether they.....or not

### Now classify the following in the same way:

1. Engineering (e.g. mechanical, electrical, chemical)
2. Elements (four – earth, air, water, fire).
3. States of existence (four – solid, gas, liquid, energy).
4. States of matter (three – solid, liquid, gaseous).
5. Properties (different sorts).
6. Physical properties of solids (several – e.g., colour, solubility, melting point, etc.).
7. Properties of liquids (five – boiling point, density, mobility, odour, colour).
8. Physical properties of gases (several kinds – colour, taste, odour, density, and solubility in water).
9. Salts (many different kinds).
10. Metals (two - they conduct electricity or not).



**1. Match the words given below with these definitions:**

1. A/an .....is somebody who has stopped growing except around the waist.
2. A/an .....is somebody you know well enough to borrow money from, but not well enough to lend money to.
3. A/an .....is a set of holes tied together with a string.
4. A/an .....is somebody whose career is in ruins.
5. A/an .....is something one generation buys, the next generation gets rid of, and the following generation buys again.
6. A piece of .....is something everybody gives but few take.
7. A/an .....is a mechanical device for waking up people who do not have children.
8. A/an .....is somebody who thinks twice before saying nothing.
9. ....is the only thing money cannot buy.

antique - diplomat - net - archaeologist - alarm clock - acquaintance - adult - poverty - advice

**2. What is a good definition?**

$$T = G + (d_a + d_b + d_c + \dots d_n)$$

where T equals the thing to be defined  
= equals be

G equals a general class word

$d_a, d_b, \text{ etc.}$  are the properties which distinguish T from the other members of the general class

Example:

A catalyst (T) is a substance (G) which alters the rate at which a chemical reaction occurs ( $d_a$ ), but is itself unchanged at the end of the reaction ( $d_b$ ).

i.e.,  $T = G + d_a + d_b.$

**Exercise 1**

The definitions below have been mixed up. Write them correctly:

<i>An X</i>	<i>is a/an</i>	<i>class word</i>	<i>wh-word</i>	<i>.....</i>
A machine		device	which	converts one form of energy into another.
A dynamo		device	which	attracts bodies towards the centre of the earth.
A triangle		machine	which	measures temperature.
Gravity		figure	which	generates electricity.
A thermometer		device	which	has three sides.
An engine		force	which	enables us to use forces more conveniently.

Notice how **a device** can be broken down into these general class words:

1. An apparatus is a number of devices which are put together for a particular purpose as in physics or chemistry experiments.
2. An instrument is a device which is used in doing something, often of a sensitive nature. Typical examples are a microscope and an ammeter.
3. A machine is a mechanical device which is used to provide power.
4. A tool is a simple device, often without any moving parts. Examples are a hammer and a spanner.
5. Instrumentation is a group or collection of instruments, usually ones that are part of the same machine.
6. Equipment comprises the tools, machines, or other things necessary for a particular job or activity.

**Exercise 2**

Cross out the wrong general class words:

1. A screwdriver is a (an) tool/apparatus which tightens or loosens screws.
2. A drill is an instrument/apparatus which bores holes.
3. A condenser is a (an) equipment/tool which converts vapour into liquid.
4. An ammeter is a (an) machine/instrument which measures electrical current.
5. A fan is an instrument/apparatus which circulates air.
6. A generator is a (an) apparatus/machine which produces electricity.

### 3. Types of definitions

T - the word to be defined

G – general class word

DF – defining feature (distinguishing the T from the others of the same class; it states its use, function, size and shape, material, composition, structure, properties, etc.)

A/an T	is is defined as may be defined as	a/an G	DF
A/an T	is a name for is a name applied to	a/an G	DF
The name T term T	denotes refers to may be applied to	a/an G	DF
By a/an T	is meant is understood	a/an G	DF
A/an G	DF	is called may be called	a/an T

#### Examples:

1. A loudspeaker is a device used for converting variations of electric energy into corresponding variations of acoustic energy, i.e. sound.
2. E-mail is a name applied to a software application which allows people to communicate via the Internet.
3. The term ultrasonics (or supersonics) refers to sound vibrations whose frequencies are beyond auditory limit.
4. By noise is understood sound consisting of a mixture of air-borne vibrations which is completely irregular with regard to sound intensity, frequency, and phase.
5. The force with which the earth attracts an object, i.e., the gravitational force exerted upon it, is called weight.

#### Exercise 1 - reformulate the following definitions:

1. A switch is a general name for a device used for effecting the completion and interruption of an electric circuit.
2. "Dry ice" is a name sometimes applied to compressed carbon dioxide, i.e., solid carbon dioxide with a temperature of  $-79^{\circ}\text{C}$ .

3. The name “radar” denotes a method of scanning the surrounding space by means of high frequency radio waves, which are sent out from a powerful transmitter and are reflected by any object which they encounter. The name has been derived from the initial letters of the phrase “radio detecting and ranging”.
4. Fiction refers to books or stories about people and events invented by the author, rather than books about real events and things.
5. The science of determining the position and course of ships and aircraft is called navigation.

**Exercise 2 – form definitions of different kinds:**

1. Biology studies living things.
2. Physics is concerned with the study of matter and natural forces, such as light, heat, movement, etc.
3. A watch is used for measuring and indicating time.
4. A calculator can carry out number operations, but usually has no memory.
5. A telegraph receives or sends messages along wire by means of electric signals.
6. A telephone receives or sends sound, especially speech over long distances by electric means.
7. A computer can store and recall information and make calculations at very high speed.
8. Ecology is concerned with the study of the pattern of relationships of plants, animals, and people to their surroundings.
9. A bed consists of a flat rectangular surface about 2 metres long with a leg at each corner. It is used for sleeping.
10. The function of a thermometer is to measure temperature.
11. The function of an air-conditioning system is to keep the temperature and humidity of the air in rooms at values which provide a sense of comfort for human beings.
12. The function of a seismograph is to record the strength of earthquakes and the distance away from the epicentre.

**4. Notice what distinctive features can express:**

A T is a G (which is)	used for doing used to do	1.purpose and function
G (which is)	made from/of produced from obtained from prepared in the laboratory	2. material
G (which is) G -----	composed of consisting of containing --	3. composition and structure
G which is which has G -----	having	4. general appearance