Classifying

TASK 1. The following is a list of items given in no particular order. Turn it into a classification by ordering the items into groups.

gold, mixture, salt water, element, nitrogen, heterogenous mixture, granite rock, homogenous mixture, silver, carbon, oxygen, hydrogen, water, carbon dioxide, sulphuric acid, compound, sodium hydroxide, methane, sand, pure substance, soil, pure air, matter

TASK 2. Read the following passage and find another way matter may be classified. Underline the items. Then make a chart.

The Nature of Matter

Everything around us consists of matter: this paper, your body, the air you breathe, and the water you drink. Matter is anything that has weight or mass and takes up space.

All matter may be classified as either solid, liquid, or gas. Solids are firm and have a definite form. Rubber, wood, glass, iron, cotton, and sand are all classified as solids. A considerable force would be needed to change the shape or volume of an iron bar, for example, because the atoms or molecules of a solid are densely packed and have very little freedom of movement.

Solids may be further divided into two classes: crystalline and amorphous. Rocks, wood, paper, and cotton are crystalline solids. Crystalline solids are made up of atoms arranged in a definite pattern. When these solids are heated, the change to a liquid, known as melting, is sharp and clear. Amorphous substances include rubber, glass, and sulfur. In these substances, the pattern of atoms is not orderly, and when heated, they gradually soften.

Liquids, on the other hand, are not rigid. If water, milk, or oil is poured on a table, it will flow all over the surface. The atoms or molecules or liquids attract each other and thereby enable liquids to flow. But these atoms are loosely structured and do not keep their shape. Therefore a liquid will take the shape of any container in which it is poured. However, liquids have a definite volume: a quart of milk cannot fit in a pint container.

Gases, such as air, oxygen, and carbon dioxide, have no fixed shape or volume of their own. They diffuse or spread out to fill any container. If water is put into a tire, it will run to the bottom: if air is put into a tire, it fills the whole space inside the tire. The atoms or molecules of gases are widely spaced and move very rapidly. They either compress or expand to adapt to any area.

Everything we know is made of matter in solid, liquid or gaseous form.

What general criteria can be used in classification?

*The **logical ordering** we choose depends on our purpose in making the classification:*

- ***FROM GENERAL TO SPECIFIC**: focusing on the large (high-level) category and talking about its parts.*

Ex.: ►All matter may be classified as either solid, liquid, or gas.◄
Ex.: ►Solids may be further divided into two classes: crystalline and amorphous.◄

		classified grouped divided		divisions groups types
	is/are	arranged	into	classes
Matter	may be can be could be	categorized		categories classifications
		classified categorized classed grouped	as	solid, liquid, or gas

	types kinds classes categories		
There are three		of matter	

other frequently used expressions: has, is made up of, is composed of, comprises, consists of

- ***FROM SPECIFIC TO GENERAL**: what the smaller (or low-level) components make when they are put together.*

Ex.: ►Rocks, wood, paper, and cotton are crystalline solids.◄

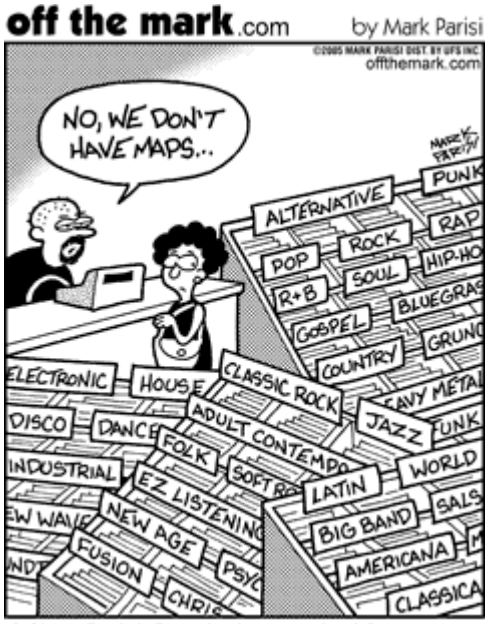
	may be	classified	
	can be	classed	as a gas
Oxygen	could be	categorized	
	is/are		

	a type of		
	a kind of		
Oxygen is	a form of	gas	
	an example of		
	a		

- ***TIME ORDER** (oldest to newest)*
- ***SCALE** (examples of scales are: **importance** (more important to least important), **size** (largest to smallest), **familiarity** (best known to least known).*

TASK 3. In each sentence of classification identify the general category and specific items

1. Copper, lead, mercury, and silver are nonferrous substances.
2. Steel is an alloy.
3. Five important classes of compounds are acids, bases, salts, metallic oxides, and non-metallic oxides.
4. Carbon exists in three forms: graphite, diamond, and amorphous.
5. Rocks are grouped into three categories: igneous, metamorphic, and sedimentary.
6. Coffee, tea, and paint are colloids.
7. Coal, wood, and oil may be classified as fuels.
8. Salts are inorganic compounds.
9. The two kinds of nucleic acid are deoxyribonucleic acid (DNA) and ribonucleic acid (RNA).



TASK 4 - Homework: Science and Technology

(Topic-based Vocabulary, J.Harbord)

Fill in the gap with the correct word

a. …….. are being carried out to find a cure for cancer.
   Experiences Experiments Trials Research

b. Microscopes ……..very small objects many times to make them visible.
   magnify enlarge expand increase

c. Radio signals are now often ……..by satellite.
   received delivered transmitted dispersed

d. Computers are able to …… vast amounts of data very quickly.
   process digest convert adapt

e. Solar power stations are able to …….. the energy of the sun.
   convert maximise drive harness

f. Other …… energy sources include wind and wave power.
   renewable recyclable returnable reusable

g. In some types of power station steam is used to ……turbines.
   force turn drive rotate

h. Mercury is a …….at room temperature
   fluid liquid solid gas

i. Hydrogen and oxygen are the two …….. that make up water.
   compounds atoms molecules elements

j. All ……..is composed of atoms.
   stuff material substance matter

k. The …… of lead is greater than that of aluminium.
   rigidity weight density volume

l. When water is heated it ……..more quickly.
   evaporates condenses melts solidifies