

DAISY CENTRE AND SCHOOL

SCIENCE STD 7

HOLYDAY ASSIGNMENT (18th to 23rd May 2020)

PROPERTIES OF MATTER

Dissolving solid in water

- The complete mixing of solids with liquid is known as dissolving.
- A solid that dissolves in a liquid is known as solute e.g. sugar, salt, glucose.
- The liquid in which the solid dissolves is called a solvent e.g. water.
- The complete mixture of solid and liquid form a solution. For example,
- Sugar + water = sugar solution
- (solute) (solvent) (solution)
- When a solid is capable of dissolving in a liquid, we say that it is soluble, e.g. sugar is soluble in water.
- When a solid cannot dissolve in a liquid, we say that it is insoluble.
- The ability of a solid to dissolve in a liquid is called solubility

Some soluble and insoluble solids

soluble	insoluble
Sugar	Flour
Salt	Sand
glucose	soil

- The following are ways in which the solubility of a solid can be increased:
 - i. Crushing or grinding the size of a solute.
 - ii. Increasing the temperature of the liquid by warming or boiling.
 - iii. Shaking or stirring the solid in a liquid.

Mixing liquids

Some liquids mix while others do not mix.

Liquids that mix and form a uniform solution are said to be miscible liquid e.g. water and milk.

Liquids that do not mix to form one are said to be immiscible liquids e.g. water and kerosene.

Miscible liquid	Immiscible liquid
Water and milk	Water and kerosene
Spirit and water	Cooking oil and water
Kerosene and cooking oil	Fresh milk and cooking oil

Immiscible liquids do not form a uniform solution. They form layers with the lighter liquid floating on the heavier one.

Magnetic and non – magnetic materials

Magnetic materials

- These are materials that are attracted by a magnet.
- Magnet attracts things that are made of the following material:
 - Steel Alinico
 - Iron Nickel
 - Cobalt Chromium

Non – magnetic materials

- These are materials that are not attracted by a magnet.
- They include:
 - Copper Aluminium
 - Wood Paper
 - Brass Glass

Separating mixtures

- Two or more different things put together form a mixture.
- The method of separating mixtures depends on whether:
 - i. The solids are soluble or insoluble.
 - ii. The materials mixed are magnetic or non – magnetic.

Methods of separating mixtures

Winnowing

- This is a method of removing lighter substances and dust from grains with the help of wind.
- The light substances are blown away by wind and are called chaff.
- Examples of grains that can be separated from chaff by winnowing are wheat, rice, maize, beans, sorghum and millet.

Sieving

- Sieving is a way of separating small and large solid particles.
- The small particles pass through the sieve leaving the large ones on the sieve.
- Sieving can also separate solid particles from a liquid.
- The mixtures that can be separated using a sieve include:
 - i. Fine and coarse sand.
 - ii. Wheat flour and husks.
 - iii. Sawdust from water.
 - iv. Tea leaves from liquid tea.

Picking

- Picking is used to separate mixtures of big and small solid particles.
- Examples of mixtures that can be separated by hand picking are: a mixture of maize and beans, rice and small stones, rice and rice husks.

Filtering

- This is a method of separating an insoluble solid from a liquid using a filter.
- The filter can be a piece of cloth or a filter paper.
- Example of mixtures that can be separated through filtering are:
 - i. Sand and water.
 - ii. Soil and water.

Decantation

- This is a process through which an insoluble solid is separated from a liquid e.g. sand and water, dregs and water.
- The solid is left to settle at the bottom of the container while the liquid is poured out slowly and carefully.

Use of magnets

- A magnet can be used to separate a mixture of magnetic and non – magnetic substances e.g. rice and iron filings.
- The magnet is passed over the mixture and attracts the iron filings.

Evaporation

- Evaporation is used to separate soluble solids such as sugar and salt from water

How to separate soluble solid (salt) from water

- Mix salt and water in a container.
- Stir until all the salt dissolves.

- Heat the solution until all the water evaporates.
- After all the water evaporates, a white substance is left in the container.
- The substance left in the container is salt.

NOTE: Evaporation is the only method that allows you to recover only one substance.

Questions

1. The complete mixture of solids with liquids is known as _____.
2. What is a solute?
3. Name two solids that are soluble in water?
4. State two ways in which you can increase the solubility of a solid?
5. Define the following terms
 - (i) Miscible liquid
 - (ii) Immiscible liquids.
6. Name two pairs of liquids that are miscible?
7. (a) What are magnetic materials?
 (b) Name three examples of magnetic materials.
8. How can you separate rice and wheat flour?
9. Name two substances that can be separated by dissolving and evaporation?
10. What do we call the liquid that passes through the filter cloth?
11. The best method of separating lighter substance from grains with the help of wind is called _____.
12. Explain how decantation as a method of separating mixtures can be used at home?
13. Which method of separating mixtures allows only one substance to be recovered?
- 14.. A mixture of rice and small stones can be separated by _____.
15. Explain why decantation is not a very good method of separating an insoluble solid from water?

