

GIRLS' HIGH SCHOOL & COLLEGE, PRAYAGRAJ

WORKSHEET-3

SESSION 2020-21

CLASS - 7 (A,B,C,D,E,F)

SUBJECT: CHEMISTRY

NOTE: Parents are requested to guide and help their child in solving questions related to the given topics. The child can search for the topic related details on internet.

LINK -<https://youtu.be/MrTxRn9MNWM>

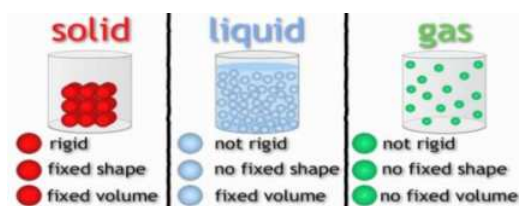
TOPIC 1- PROPERETIES OF SOLID, LIQUID AND GAS

➤ **Shape and volume**

A **solid** has a fixed shape and a fixed volume and it is generally hard. This is so because the molecules are so tightly held that they cannot move closer to or away from their positions.

A **liquid** has fixed volume but no fixed shape .It takes the shape of the container. The molecules in a liquid are not so tightly held as in solids .So, they can slip over one another. Such movement, however, stops at the surface of the container and so the liquid takes the same shape as the container. The volume of a liquid is fixed as the intermolecular space remains unchanged when the liquid changes shape.

A **gas** has neither a fixed volume nor a fixed shape. It assumes the shape and volume of the container. In a gas, the intermolecular force is so weak that the molecules are free to move to every part of the container and occupy its entire volume. Thus, a gas assumes the volume and the shape of the container.



➤ **Compressibility**

A solid is practically noncompressible , a liquid is compressible to a very little extent but a gas is compressible to a very great extent .This is because the intermolecular space is very small in a solid, large in a liquid and the largest in a gas. As the intermolecular space increases, the molecules can be pushed together more easily.

➤ **Fluidity**

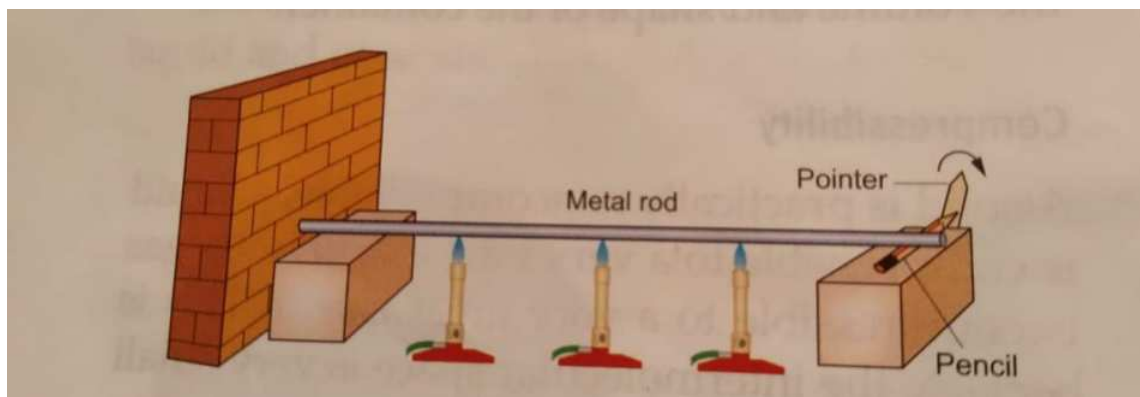
Solids do not flow, but liquids and gases can do. This is because cohesion is very strong in solids but not in liquids and gases. For this property, liquids and gases are called fluids.

➤ **Thermal expansion**

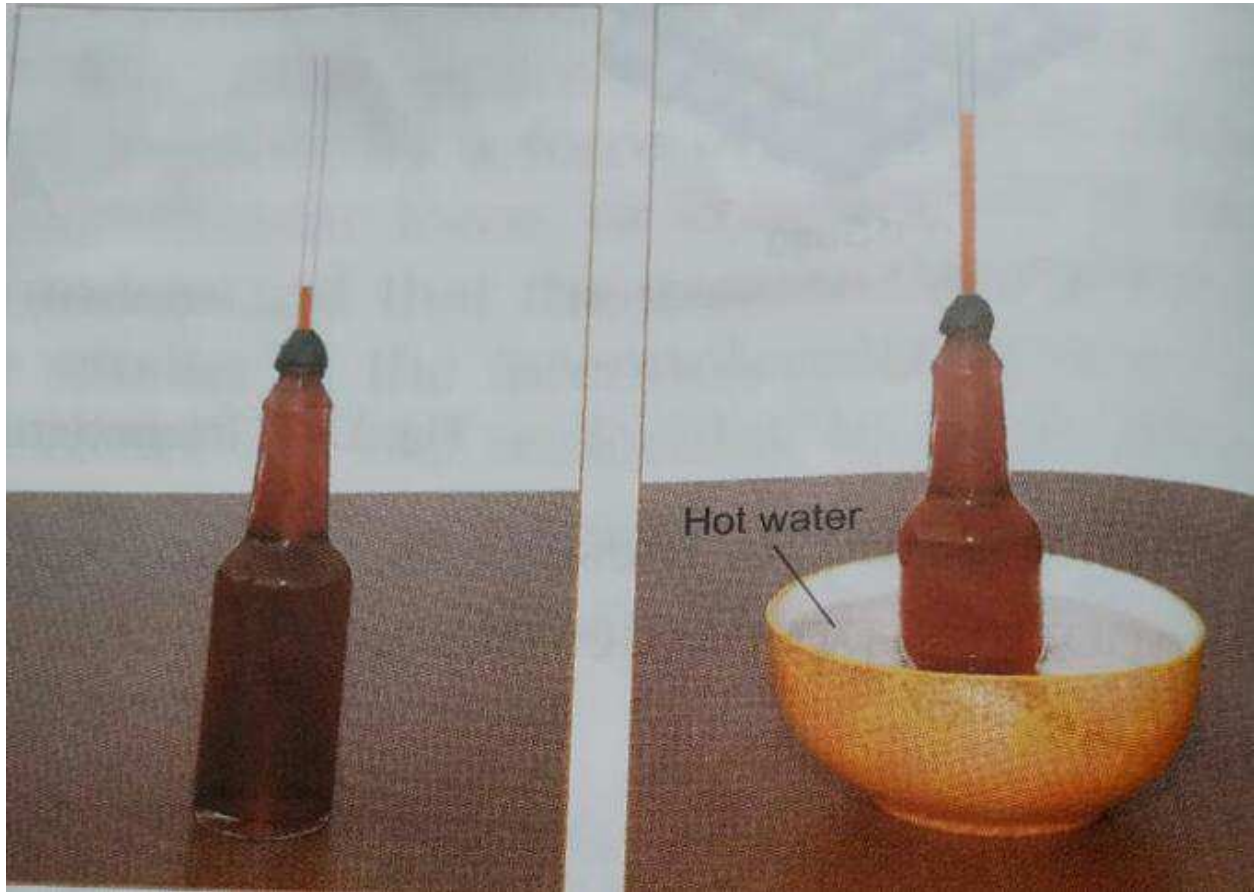
Thermal expansion means expansion on being heated. The thermal expansion of a solid is very small, that of a liquid is larger and that of a gas is the largest. On being heated, the molecules absorb energy and move farther apart. The smaller the intermolecular force, the farther the molecules will move and the larger is the expansion. This results in the above mentioned effect.

You can get an idea about thermal expansion by doing the following activities-

Activity 1. Place two wooden blocks of the same height in front of a wall. Place a metal rod on the blocks in such a way that one end of it is fixed to the wall. Attach a paper pointer to a round pencil. Place the pencil below the free end of the rod. Heat the rod. The rod expands and the pencil rotates. And so does the pointer, as shown in the figure given below.



Activity 2. Fix a transparent straw to a narrow mouthed bottle, filled with coloured water to the brim. Seal the mouth with a sealing paste like M-seal. Now place the bottle in a bowl of hot water. The level of the water in the straw rises because water expands on being heated. Take out the bottle and allow it to cool. The water level in the straw falls as water contracts on being cooled.



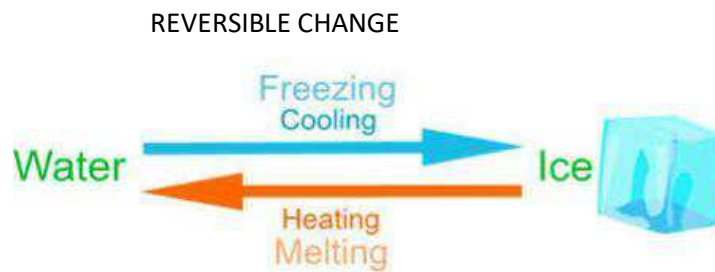
Activity 3. Fit an uninflated balloon to the mouth of a bottle. Place the bottle in a pan containing water and heat it. The balloon gets inflated as the air in the balloon expands as shown in the figure given below. Remove the bottle and allow it to cool. The balloon gets deflated as the air in the bottle contracts.



TOPIC 2- TYPES OF CHANGES -

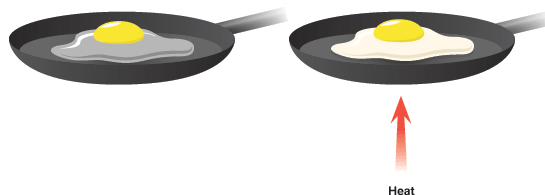
REVERSIBLE AND IRREVERSIBLE CHANGES –

A change is said to be reversible when the opposite change can be brought about by reversing the conditions. If you keep water in the freezer for some time, it transforms into ice. But as soon as you take it out of the freezer, it turns into water again. This is a reversible change. Similarly, if you boil water, it evaporates and becomes water vapour. When you cool this vapour down, it turns back to water.



A change is said to be irreversible when the opposite change cannot be brought about by reversing the conditions. When you burn a piece of paper, it turns to ash. It cannot become paper again. Your height cannot decrease. These are irreversible changes. They cannot be reversed at all.

IRREVERSIBLE CHANGE



DESIRABLE AND UNDESIRABLE CHANGES-

Changes which are desired (wanted/needed) are desirable changes.

Examples -Ripening of a mango, change of milk to curd etc.

Changes which are not desired (not needed/unwanted) are undesirable changes.

Examples- Earthquakes, volcanic eruptions etc.

Answer the following questions –

I. Long answer questions-

Q1. Explain the properties of solid, liquid and gas in detail.

Q2. What are reversible and irreversible changes? Give five examples of each.

II. Short answer questions-

Q1. Liquids have no fixed shape but solids have a fixed shape. Explain why?

Q2. What are desirable and undesirable changes? Give an example of each.

Q3. Is melting of an ice cube a reversible or an irreversible change? Give reasons to support your answer.

Q4. Why are gases and liquids called fluids?

Q5. Why solids can't be compressed?

III. Fill in the blanks –

1. Matter is made up of very small particles called _____.

2. Ripening of fruits is a _____ change.

3. The space between two molecules is called _____.
4. The process of expansion of matter on being heated is called _____.
5. Intermolecular space in a _____ is very small.
6. Molecules are the most loosely held in _____.
7. Ice melts at _____ .

IV. Classify the following into desirable and undesirable changes –

- 1 . The spoiling of food
- 2 . The rotting of an egg
- 3 . The digestion of food
- 4 . The decaying of a dead animal in open air
- 5 . The rusting of iron

V. State true or false -

1. The thermal expansion of a gas is the largest.
2. Cohesion is very strong in liquids.
3. A liquid does not have a definite shape.
4. The heating and cooling of the element of an electric heater are reversible changes.
5. Photosynthesis in plants is a reversible change.

VI. Draw suitable diagrams to show the arrangement of molecules in the three states of matter.

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