

CLASS-IX (CHEMISTRY)

CH-1: MATTER IN OUR SURROUNDINGS

WORKSHEET-1 (ANSWERS)

1. Fill in the blanks:

- (a) Anything that occupies space and has mass is called matter.
- (b) The intermixing of two kinds of particles on their own by the movement of the particles from the place of its higher concentration to the place of its lower concentration is called diffusion.
- (c) Matter is particulate in nature.
- (d) When temperature increase, rate of diffusion increase.
- (e) When temperature increases, kinetic energy or molecular motion of the particles increases.
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2. Identify and write which characteristic of the particles of matter is explained by each of the following observations:

- (a) When we try to break the stream of water with our fingers, the stream still remains together.

It shows particles of matter attract each other.

- (b) The smell of the hot sizzling food reaches several meters away within a few seconds.

It shows particles of matter are continuously moving.

(c) When we add salt in water to make the salt solution, the level of water remains the same.

It shows particles of matter have space / gap between them.

(d) On adding a drop of ink to a glass of water, it colours the entire water without stirring.

It shows particles of matter are continuously moving.

(e) The driver is able to cut through water in a swimming pool.

It shows particles of matter have space / gap between them.

3. Give reason:

(a) It is hard to break an iron nail by hammering than to break a rubber band by stretching.

It is hard to break an iron nail by hammering than to break a rubber band by stretching because the particles in the iron nail are held together with a greater force of attraction than that in the rubber band.

(b) We get the smell of the lighted incense stick sitting at a distance but to get the smell of the unlit incense stick we have to go near.

It is because of diffusion. And we know the rate of diffusion increase with increase in temperature. Hence we get the smell of the lighted incense stick sitting at a distance but to get the smell of the unlit incense stick we have to go near.

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WORKSHEET-2 (ANSWERS)

1. Compare using the sign '>' or '<' based on the mentioned criteria:

- (a) DENSITY- solid liquid gas
- (b) COMPRESSIBILITY- solid liquid gas
- (c) INTERMOLECULAR SPACE- solid liquid gas
- (d) INTERMOLECULAR FORCE OF ATTRACTION- solid liquid gas
- (e) KINETIC ENERGY- solid liquid gas
- (f) FLUIDITY- liquid gas
- (g) DIFFUSION RATE- liquid gas
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2. Fill in the blanks:

- (a) The smell of the perfume gradually spreads across a room due to diffusion.
- (b) Gas molecules at higher temperature have greater K.E than at cooler temperature.
- (c) Liquids and gases are called fluids.
- (d) When volume of a specific amount of gas decreases, its pressure increases.

(e) Gases exert pressure on the walls of the container in which they are kept.

3. Give reason:

(a) A sponge is a solid but can be easily compressed.

A sponge is a solid. It has minute holes, in which air is trapped and when pressed the air is expelled out and hence we are able to compress it easily.

(b) Solids are denser than liquids but ice floats on water.

It is because volume of ice is more than that of the equal amount of water. And as we know $\text{Density} = \text{Mass} / \text{Volume}$, therefore ice is having less density than that of water. Hence ice floats on water.

(c) Gases can be liquefied.

Since there is huge intermolecular space and least intermolecular force of attraction, gases are highly compressible. And if gases are kept under high pressure and reduced temperature, they can be liquefied easily.

(d) Solids do not diffuse.

The particles in a solid are tightly packed by a strong force of attraction between them. As they are rigid they do not have fluidity and hence they cannot diffuse.

(e) A drop of dettol gets evenly distributed in water by itself.

A drop of dettol gets evenly distributed in water by itself because of diffusion. There are huge numbers of particles in a single drop of dettol. As the particles of dettol liquid are continuously moving, they get into the spaces between water molecules.
