

worksheet

1. Which observation proves that there is space between particles of matter? A. Sugar dissolves in water without greatly increasing the volume B. A stone has mass C. A table has a fixed shape D. Ice is solid

2. Why does a liquid take the shape of its container? A. Its particles can move past one another B. Its particles are completely fixed C. It has no particles D. It has no attractive force

3. A perfume smell spreads throughout a room because: A. Gas particles are stationary B. Gas particles move continuously C. Gas has no particles D. Gas particles have no mass

4. When sugar dissolves in water, sugar particles: A. Destroy water particles B. Occupy spaces between water particles C. Become gases D. Disappear completely

5. Why does the smell of incense spread through a room? A. Smoke particles move and mix with air B. Air particles stop moving C. Particles become heavier D. Gravity pulls the smell

6. Why is diffusion faster at higher temperatures? A. Particles gain more kinetic energy and move faster B. Particles become stationary C. Particles disappear D. Attractive forces become infinite

7. Assertion: A solid retains its shape when transferred from one container to another. Reason: Its particles are strongly attracted and have restricted movement.

Assertion: Diffusion is faster in gases than in liquids. Reason: Gas particles move more freely and have larger spaces between them.

A group of students performed an experiment to investigate the behaviour of particles of matter. They took three beakers containing equal volumes of water. In the first beaker, they added a small amount of copper sulphate to cold water. In the second, they added the same amount of copper sulphate to warm water. In the third, they added a few drops of perfume to a closed room and observed that its smell gradually spread throughout the room.

The students also placed a small crystal of potassium permanganate in a large container of water. Without stirring, the purple colour slowly spread throughout the water. They concluded that particles of matter are continuously moving and that the rate of movement depends on temperature and the state of matter.

9. Why does copper sulphate spread faster in warm water than in cold water? Explain in terms of the kinetic energy of particles.

10. The perfume smell reaches a person standing several metres away even though the person does not move towards the perfume. Explain the phenomenon involved and the movement of particles responsible for it.

11. The students did not stir the potassium permanganate solution, yet its colour eventually became nearly uniform. What does this observation prove about the particles of matter?

12. Arrange the following in increasing order of the rate of diffusion and give a reason: Iron, water, oxygen gas

13. A student claims, "Particles of matter are continuously moving, but particles of a solid cannot move because a solid has a fixed shape." Do you agree? Give a scientifically correct explanation