CLASS 8 SCIENCE NCERT SOLUTIONS

NCERT Solutions for Class 8 Science Chapter 7: Particulate Nature of Matter – Free PDF Download

Chapter 7 — Particulate Nature of Matter — explains that all matter is made of extremely small particles, constantly in motion and held together by interparticle forces, and shows how the arrangement, spacing, and movement of these particles differ across solids, liquids and gases. This chapter has 4 in-text que...

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Chapter 7 — Particulate Nature of Matter — explains that all matter is made of extremely small particles, constantly in motion and held together by interparticle forces, and shows how the arrangement, spacing, and movement of these particles differ across solids, liquids and gases. This chapter has 4 in-text questions plus a full 10-question end-of-chapter exercise ('Keep the Curiosity Alive'). Below are complete, verified answers, sourced directly from the official NCERT PDF and cross-checked against independent sources. These Class 8 Science Chapter 7 solutions are also useful as quick revision notes before exams.

NCERT Solutions for Class 8 Science Chapter 7: Particulate Nature of Matter

In-Text Questions (4 Questions)

1. Is every speck of fine chalk powder still the same substance, or has grinding changed it into something else?
It's still **the same substance** — grinding only breaks the chalk into smaller pieces (a physical change); no new substance is formed.

2. Are the tiny units of chalk obtained by grinding the smallest possible units of chalk?
No — even the finest visible speck is still made up of far smaller constituent particles (molecules), which are the true basic units of the substance.

3. Do gases have a fixed volume?
No — a gas expands or is compressed to fill whatever container it's placed in, so its volume changes depending on the space available and how closely its particles are pushed together.

4. Sugar and sand are both solids. Why does sugar dissolve in water, but sand does not?
Sugar's particles are small enough and weakly enough held together to separate and fit into the gaps between water molecules, so they spread through the water (dissolving). Sand's particles form a rigid structure that water cannot break apart, so sand grains simply settle rather than dissolving.

Keep the Curiosity Alive — End-of-Chapter Exercise (10 Questions)

1. Choose the correct option: the primary difference between solids and liquids is that the constituent particles are...
Closely packed in solids, and move past each other in liquids — both states have closely packed particles, but only in a liquid can they slide past one another.

2. True or False, correcting any false statements: (i) melting ice is solid→liquid (ii) melting decreases interparticle attraction (iii) solids have fixed shape and volume (iv) interparticle interactions in solids are strong with very small gaps (v) heated camphor's smell reaches every corner of a room (vi) heating camphor adds energy which is "released as a smell".
(i)–(v) are all **True**. (vi) is **False** — the correct statement is that heating adds energy that lets the camphor sublime (turn directly into gas), and it's this camphor vapour itself that carries the smell, not an "energy release" as smell.

3. If all the constituent particles were removed from a chair, what would happen? Justify.
Nothing of the chair would remain — a chair's structure, shape and mass all come entirely from its particles; with none left, there is nothing to hold any form.

4. Why do gases mix easily, while solids do not?
Gas particles are far apart, move very fast in all directions, and have very weak interparticle attraction, so

they spread and mix into each other readily. Solid particles are locked in fixed positions by strong interparticle forces, so they can't move to mix with another solid.

5. Milk spilled on a table flows and spreads, but the glass tumbler holding it keeps its shape. Justify.
Milk is a liquid: its particles are free to move and slide past each other, so it flows and takes the shape of whatever surface it spreads on. The tumbler is a solid: its particles are fixed in position, so it keeps its own shape regardless of what's poured in or out of it.

6. Represent the change in particle arrangement as ice melts and then turns into water vapour.
In **ice (solid)**, particles are tightly packed in a fixed, regular structure and only vibrate in place. In **liquid water**, particles are still close together but can move and slide past one another, losing the fixed structure. In **water vapour (gas)**, particles are far apart and move rapidly and randomly in all directions, colliding with each other and their container.

7. Sketch the particle arrangement in (i) aluminium foil (ii) glycerin (iii) methane gas.
(i) Aluminium foil (solid): particles closely packed in a fixed, regular pattern. (ii) Glycerin (liquid): particles close together but arranged irregularly, free to move past one another. (iii) Methane gas: particles widely and randomly spaced, moving fast and freely in all directions.

8. A candle has just been extinguished. Identify the different states of wax present and match them to their particle arrangement.
The unburned **solid** wax (cool, away from the flame) has tightly packed, fixed particles. The **melted liquid** wax pooled near the wick has close but mobile particles. The **wax vapour/smoke** rising just after the flame goes out has widely spaced, freely moving particles.

9. Why does ocean water taste salty even though no salt is visible in it?
The salt is **dissolved** — its particles have separated and spread evenly throughout the water at a scale far too small to see, even though your tongue can still detect them by taste.

10. Grains of rice and rice flour both take the shape of their container. Are they solids or liquids? Explain.
Both are **solids**. Each individual grain (or flour particle) keeps its own fixed shape and volume; the "flowing" appearance comes from many separate solid particles sliding past each other with little friction, not from the substance itself becoming a liquid.

Why This Chapter Matters

The particle model of matter is the foundation for understanding states of matter, changes of state, dissolving, diffusion, and later chemistry topics like atoms, molecules, and chemical bonding — it explains everyday observations (smells spreading, sugar dissolving, ice melting) with one consistent underlying idea.

Class 8 Science Chapter 7 – Notes and Extra Questions

Along with these NCERT Solutions, students can also use the Class 8 Science Chapter 7 Extra Questions and Class 8 Science Chapter 7 Revision Notes for quick revision and extra practice.