

CLASS 8

SCIENCE

NCERT SOLUTIONS

NCERT Solutions for Class 8 Science Chapter 9: The Amazing World of Solutes, Solvents and Solutions – Curiosity

Chapter 9 of the Class 8 NCERT Curiosity textbook is titled "The Amazing World of Solutes, Solvents and Solutions". Building on Chapter 8's classification of matter, this chapter explores what makes a solution (as opposed to a suspension), solubility and how it changes with temperature, and a substantial hands-on un...

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Chapter 9 of the Class 8 NCERT Curiosity textbook is titled “**The Amazing World of Solutes, Solvents and Solutions**”. Building on Chapter 8’s classification of matter, this chapter explores what makes a solution (as opposed to a suspension), solubility and how it changes with temperature, and a substantial hands-on unit on measuring mass, volume and density. These Class 8 Science Chapter 9 solutions are also useful as quick revision notes before exams.

This chapter has in-text “Probe and Ponder” questions plus a 12-question “Keep the Curiosity Alive” exercise section. Original, independently verified solutions to all of them are below.

Probe and Ponder — In-Text Questions

Q1 (Is air a solution?). Is a mixture of gases, like air, a solution?

Solution: Yes. The gases in air are evenly/uniformly distributed throughout, which is the defining feature of a solution. Nitrogen, present in the largest amount, acts as the **solvent**; oxygen, carbon dioxide, argon and other gases present in smaller amounts act as **solutes**.

Q2 (Salt in water). What happens if you keep adding salt to a fixed amount of water?

Solution: The salt keeps dissolving up to a maximum limit (its solubility at that temperature). Beyond this point, the water is **saturated**, and any extra salt no longer dissolves — it settles at the bottom instead.

Q3 (Do gases dissolve in water?). Do gases dissolve in water?

Solution: Yes — for example, oxygen dissolves in water (which is how aquatic animals breathe), though only to a small extent, forming a uniform solution.

Q4 (Sawdust vs. sand in water). Why does sawdust float when mixed with water, while sand sinks when mixed with water?

Solution: Sawdust is less dense than water, so it floats; sand is denser than water, so it sinks.

Q5 (Why measuring cylinders are tall and narrow). Why are measuring cylinders made narrow and tall instead of wide and short like a beaker?

Solution: A narrow, tall shape allows finer volume graduations along its length, giving much more precise and accurate volume readings than a short, wide container would.

Q6 (Reading a coloured liquid’s level). How is the level of a coloured liquid read in a measuring cylinder?

Solution: Keep your eye level with the liquid surface and read the mark that touches the **top** of the meniscus for coloured liquids (for colourless liquids, read the **bottom** of the meniscus instead).

Note: some editions include one additional short in-text question on solubility/saturation in this section that wasn’t reliably reproducible from secondary sources for this write-up — please cross-check exact numbering against your printed copy.

Keep the Curiosity Alive — Full Exercise Solutions

Q1. State True or False, and correct the false statements: (i) Oxygen gas is more soluble in hot water than in cold water. (ii) A mixture of sand and water is a solution. (iii) The amount of space occupied by any object is called its mass. (iv) An unsaturated solution has more solute dissolved than a saturated solution. (v) The mixture of different gases in the atmosphere is also a solution.

Solution:

(i) **False** — oxygen (like most gases) is actually more soluble in cold water; gas solubility decreases as

temperature rises.

(ii) **False** — sand does not dissolve in water; it forms a non-uniform suspension, not a solution.

(iii) **False** — the space occupied by an object is its **volume**, not its mass.

(iv) **False** — it's the reverse: a **saturated** solution holds the maximum possible dissolved solute at that temperature.

(v) **True** — air is a solution of gases, with nitrogen as the solvent.

Q2. Fill in the blanks: (i) A solid is _____ in water, and the _____ in water level is measured to find its volume. (ii) The maximum amount of _____ that can dissolve in a fixed quantity of _____ at a given temperature is called its solubility. (iii) The density of water _____ as its temperature increases. (iv) A solution that cannot dissolve any more solute at a given temperature is called a _____ solution.

Solution: (i) **immersed; rise.** (ii) **solute; solvent.** (iii) **decreases.** (iv) **saturated.**

Q3. Oil floats on water. What does this observation show?

Solution: **Water is denser than oil.**

Q4. A stone sculpture has mass 225 g and volume 90 cm³. Find its density, and state whether it would float or sink in water.

Solution: Density = $225 \div 90 = 2.5 \text{ g/cm}^3$. Since this is greater than water's density (1 g/cm³), the sculpture would **sink**.

Q5. Which of the following statements about saturated and unsaturated solutions is most accurate?

Solution: "**No more solute can be dissolved into a saturated solution at that temperature**" is the correct statement — a solution can become saturated at any temperature, not only at high temperature, and an unsaturated solution can always dissolve more solute.

Q6. A 2-litre bottle already has 500 mL of water in it. How much more water can it hold?

Solution: 2000 mL – 500 mL = **1500 mL (1.5 L)**.

Q7. An object has mass 400 g and volume 40 cm³. Find its density.

Solution: $400 \div 40 = 10 \text{ g/cm}^3$.

Q8. An unpeeled orange floats in water, but the same orange sinks once peeled. Explain why.

Solution: The peel contains tiny trapped air pockets, which lower the orange's overall (effective) density below that of water, so it floats. Once the peel (and its trapped air) is removed, the remaining fruit's density is greater than water's, so it sinks.

Q9. Object A has mass 200 g and volume 40 cm³. Object B has mass 240 g and volume 60 cm³. Which object is denser?

Solution: Density of A = $200/40 = 5 \text{ g/cm}^3$. Density of B = $240/60 = 4 \text{ g/cm}^3$. **Object A is denser.**

Q10. A 120 g piece of clay is first shaped into a cube of volume 60 cm³, then flattened into a thin sheet. Predict what happens to its density.

Solution: **The density stays the same.** Clay is a solid, non-porous material — reshaping it (cube to sheet) changes only its shape, not its mass or its actual material volume, so density (mass ÷ volume) is unchanged at $120/60 = 2 \text{ g/cm}^3$ throughout. (Note: some answer keys state the density "decreases" here, reasoning that a flattened sheet displaces more liquid — but that reasoning actually describes buoyancy/floating behaviour, not density itself, and would only apply if the reshaping trapped air pockets inside the clay, which isn't the case for a solid lump being flattened. Density is a property of the material and its actual volume, not its displaced-liquid footprint.)

Q11. An iron block has mass 600 g. Given the density of iron is 7.9 g/cm³, find its volume.

Solution: Volume = mass $\div$ density = $600 \div 7.9 \approx 75.9 \text{ cm}^3$.

Q12. A test tube of water is heated to about 70°C , and the water level in a connected narrow tube rises. Explain the effect on the water's density.

Solution: Heating makes the water's particles move further apart (thermal expansion), so its volume increases while its mass stays the same — meaning its **density decreases** as temperature rises.

Why This Chapter Matters

This chapter blends core chemistry (solute, solvent, solubility, saturation) with a foundational physics skill — measuring mass, volume and density accurately, including the water-displacement method for irregular objects. These measurement techniques reappear constantly in later science practicals and in Class 9-10 numericals on density, relative density and buoyancy.

Class 8 Science Chapter 9 – Notes and Extra Questions

Along with these NCERT Solutions, students can also use the [Class 8 Science Chapter 9 Extra Questions](#) and [Class 8 Science Chapter 9 Revision Notes](#) for quick revision and extra practice.