

CLASS 8

SCIENCE

REVISION NOTES

## Revision Notes for Class 8 Science Chapter 8: Nature of Matter – Elements, Compounds and Mixtures

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Condensed revision notes for Class 8 Science Chapter 8: Nature of Matter - Elements, Compounds and Mixtures (Curiosity).

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**Matter:** anything with mass that occupies space (light, heat and sound are forms of energy, not matter).

**Pure substance:** has a fixed composition throughout — includes elements and compounds only.

**Element:** made of only one kind of atom; cannot be broken into simpler substances by chemical means (e.g. aluminium, gold, oxygen, nitrogen, sulphur, hydrogen).

**Compound:** two or more different elements chemically combined in a fixed ratio (law of definite proportions); has properties completely different from its constituent elements; formed by chemical change; separable only by chemical methods (e.g. water, carbon dioxide, sodium chloride, magnesium oxide, iron sulphide, glucose, baking soda, rust).

**Mixture:** two or more substances physically combined in variable proportions; each component keeps its own properties; separable by physical methods (filtration, evaporation, distillation, magnetic separation).

**Homogeneous (uniform) mixture:** same composition throughout (air, salt solution, alloys, soda water).

**Heterogeneous (non-uniform) mixture:** visibly distinct components (sand + water, muddy water, fruit salad).

**Alloys** (e.g. brass = copper+zinc, steel = iron+carbon) are homogeneous mixtures of metals — NOT compounds, despite their uniform appearance.

**Test for carbon dioxide:** turns lime water milky (forms calcium carbonate) — a chemical change.

**Electrolysis of water:**  $\text{H}_2\text{O} \rightarrow \text{H}_2$  (cathode, “pop” test) +  $\text{O}_2$  (anode, relights glowing splint) in a 2:1 volume ratio — proves water is a compound.

**Heating sugar:** chars into carbon + water vapour, proving sugar is a compound of carbon, hydrogen and oxygen.

**Iron + sulphur:** before heating = magnetic, separable mixture; after heating = iron sulphide ( $\text{FeS}$ ), a non-magnetic compound that cannot be separated physically.

**Mineral:** a naturally occurring substance with a definite composition in the Earth’s crust (may be an element like gold, or a compound); an **ore** is a mineral from which a metal can be profitably extracted.

**Key test:** mixtures separate by physical methods and show variable composition; compounds require chemical methods to break down and always show fixed composition.

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