What is Matter?

Chemistry · CBSE Class 9 · Matter in Our Surroundings · PrayogX short notes

▸ **Video explanation:** Watch the PrayogX reel on Instagram

In one line: anything that **has mass** and **occupies space** (has volume) is matter, even air, which we cannot see.

Key definitions

Term	Meaning	SI unit
Matter	Anything that has mass and occupies space.	–
Mass	The amount of matter in an object.	kilogram (kg)
Volume	The space an object occupies.	cubic metre (m^3); also litre (L), 1 L = 1 dm^3 = 1000 mL

Rule to remember

MASS + SPACE (volume) = MATTER. Both conditions must be true.

Is air matter? Two tests

1. **Space:** blow air into a balloon. It swells, so air occupies space.
2. **Mass:** balance a full and an empty balloon on a metre stick. The stick tips towards the full balloon, so air has mass.

Air passes both tests, so **air is matter**.

Matter and not matter

Matter	Not matter
Pencil, water, food, air, our own body, stones, steam	Light, sound, heat, feelings (anger, joy), thoughts

Light, sound and feelings do not occupy space and have no mass in the everyday sense, so

they are not matter.

Common mistakes

- "Only things we can see or touch are matter." Air is invisible but is matter.
- "Sound is matter because it travels through air." Sound travels *through* matter; it is not matter itself.
- Mixing up mass and volume: a balloon can have a large volume but a small mass.

Quick check

1. Is smoke matter? *Yes; it has mass and occupies space.*
2. Is the smell of food matter? *Yes; the smell is tiny particles of food reaching your nose.*
3. Is a shadow matter? *No; it is only an absence of light.*

Takeaway

If it has mass and takes up space, it is matter. And yes, air is matter too!

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