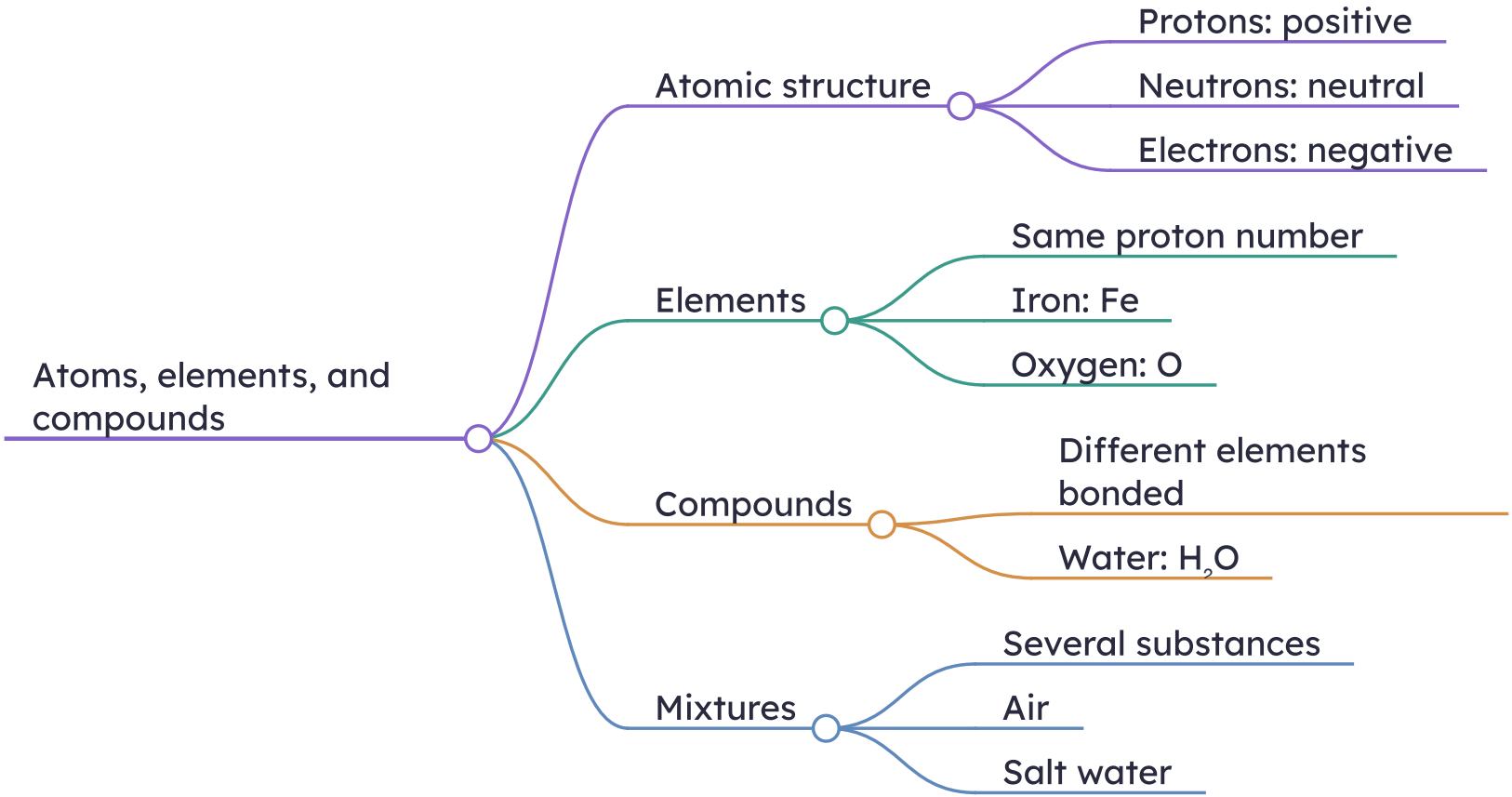
Atoms, elements, and compounds

Distinguish the particles of matter from the ways substances are combined.



Read one branch at a time. Then cover the details and explain them in your own words.

Understand the topic

Atoms contain protons, electrons, and usually neutrons. The number of protons identifies an element. A compound contains atoms of different elements chemically combined in fixed proportions. A mixture contains more than one substance without requiring a new compound to form.

How the map is organized

Start with atomic structure, then compare elements, compounds, and mixtures using concrete examples.

> **Watch out for this**
> A molecule is not necessarily a compound: O_2 contains only one element.

Try it yourself

Classify iron, pure water, air, and salt water. Explain each choice, then use O_2 to test the distinction between a molecule and a compound.

Two questions to answer

What identifies an element?

Atoms of the same element have the same number of protons.

Why is air a mixture?

Air contains substances including nitrogen and oxygen.

Sources

openstax.org
https://openstax.org/books/chemistry-2e/pages/1-2-phases-and-classification-of-matter

Original practice material compiled by Studera.ai. Explore at studera.ai/en/resources/mind-map-examples.