Your notes

GCSE Chemistry: revision notes

The periodic table

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How the table is arranged

- Elements are arranged in order of atomic (proton) number.
- Elements with similar properties are in columns called **groups**. Rows are called **periods**.
- It is called a **periodic table** because similar properties occur at regular intervals.
- Elements in the same **group** have the same number of electrons in their outer shell, so they have similar chemical properties.

Developing the periodic table

- Before protons, neutrons and electrons were known, scientists arranged elements in order of **atomic weight**.
- Early tables were incomplete, and some elements were put in the wrong **groups** if the order of **atomic weight** was followed strictly.
- **Dmitri Mendeleev** left gaps for elements he thought had not yet been discovered, and in some places changed the order based on **atomic weights** so elements with similar properties lined up.
- Elements with the properties Mendeleev predicted were later discovered and filled the gaps.
- Knowing about isotopes explains why ordering by **atomic weight** was not always correct.

Metals and non-metals

- **Metals** are elements that react to form positive ions. Most elements are **metals**; they are found to the left and towards the bottom of the table.
- **Non-metals** do not form positive ions. They are found towards the right and top.
- **Metals** are usually shiny, good conductors of heat and electricity, **malleable** and have high melting points. **Non-metals** are usually dull, poor conductors and brittle when solid.

Key terms

Periodic table	A table of the elements arranged in order of atomic number, with similar elements in columns.
Group	A vertical column of elements with the same number of outer electrons.
Period	A horizontal row of elements.
Dmitri Mendeleev	The chemist who arranged the elements, leaving gaps for undiscovered ones.
Atomic weight	An old name for relative atomic mass, used to order early periodic tables.
Metal	An element that reacts to form positive ions.
Non-metal	An element that does not form positive ions.
Malleable	Able to be hammered into shape without breaking.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. In what order are elements arranged in the modern periodic table?
2. What are the columns of the periodic table called?
3. Why do elements in the same group have similar properties?
4. What did Mendeleev do that earlier scientists did not?
5. Why was ordering by atomic weight sometimes wrong?
6. Where are metals found in the periodic table?
7. What type of ions do metals form?
8. Which property is typical of a non-metal?

Answers

1. Atomic number
2. Groups
3. They have the same number of outer electrons
4. Left gaps for undiscovered elements
5. Because of isotopes
6. To the left and towards the bottom
7. Positive ions
8. Poor conductor of electricity

What to do next

Practise 10 questions on this topic

Try 7 exam questions, with mark schemes

Read the lesson, one step at a time

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