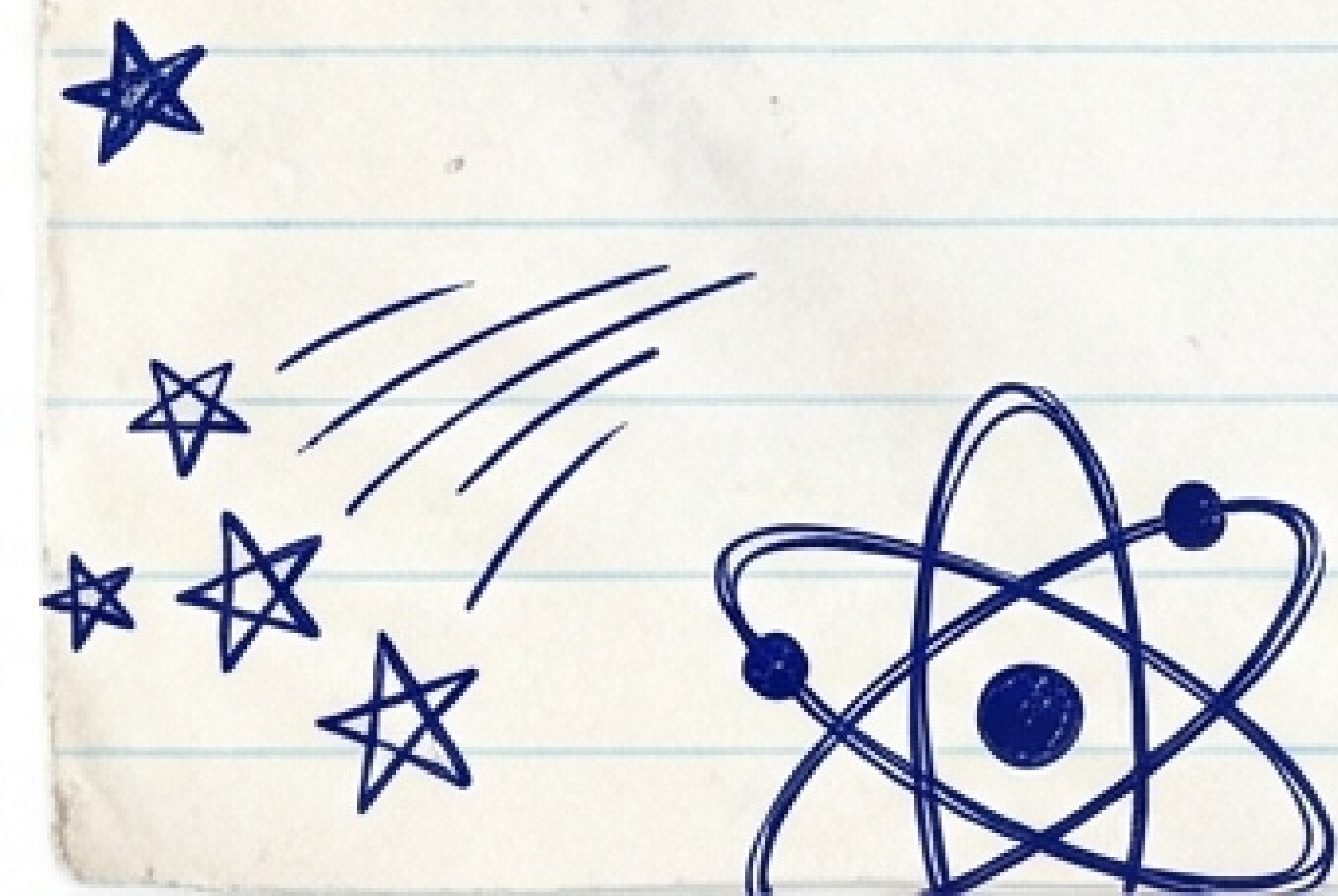


Periodic Classification of Elements

Complete Revision Notes

Module 1
Chemistry -
Key Concepts &
Trends!

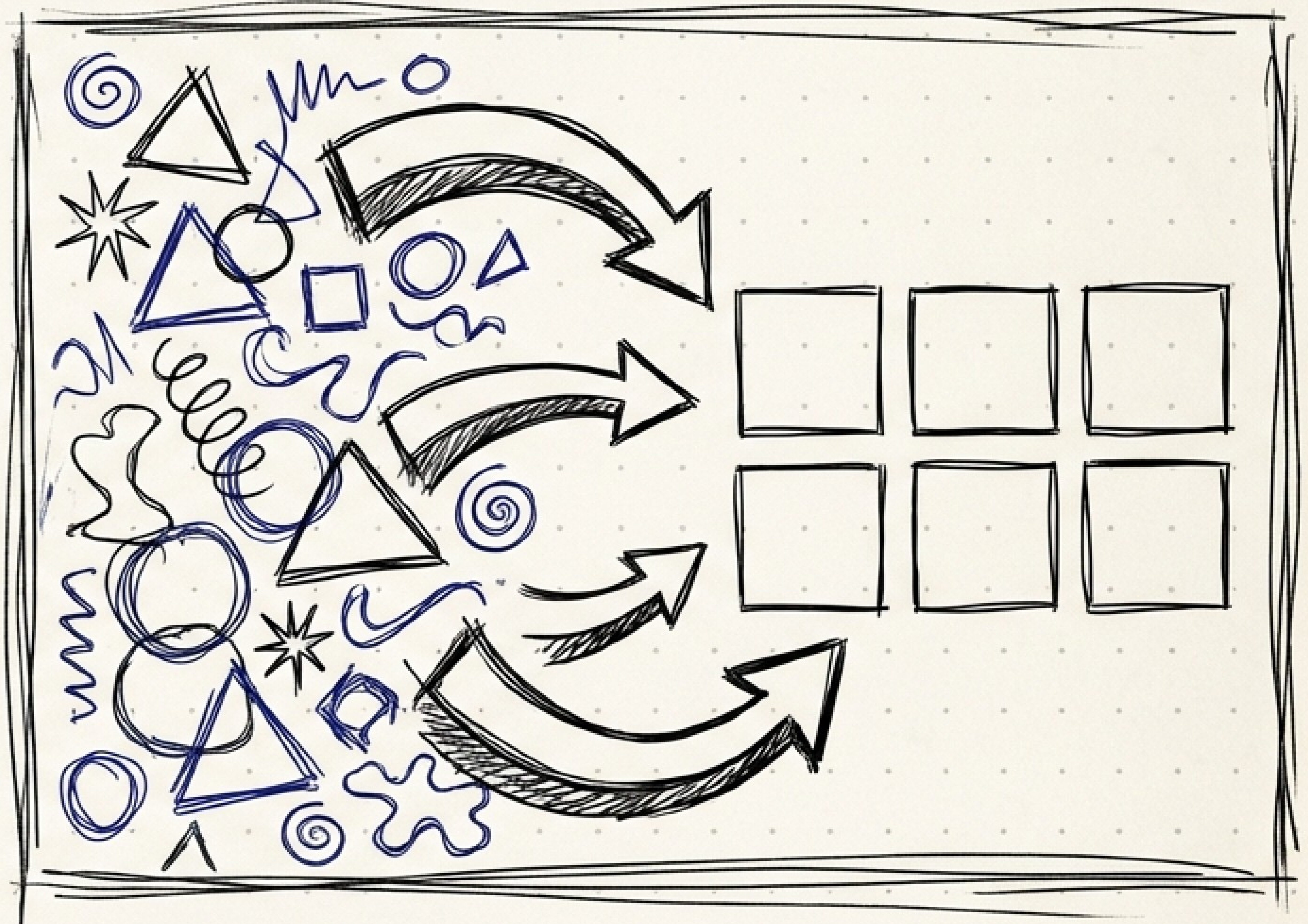


Making Sense of the Chaos

✘ A system to arrange chemical elements into a table.

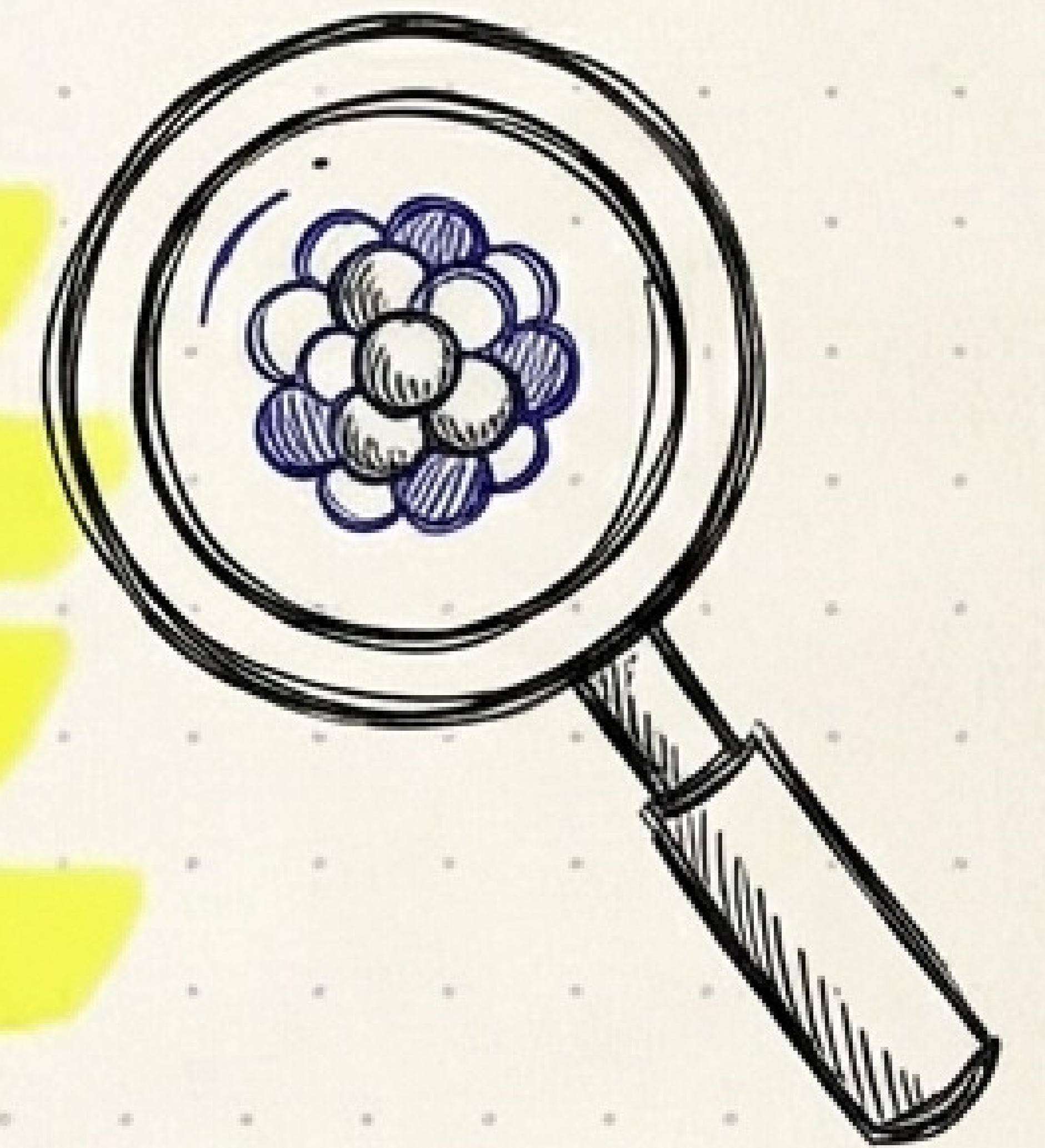
✘ Arranged by atomic number, electron configuration, and recurring chemical properties.

Why do this? It helps scientists easily understand relationships between different elements!

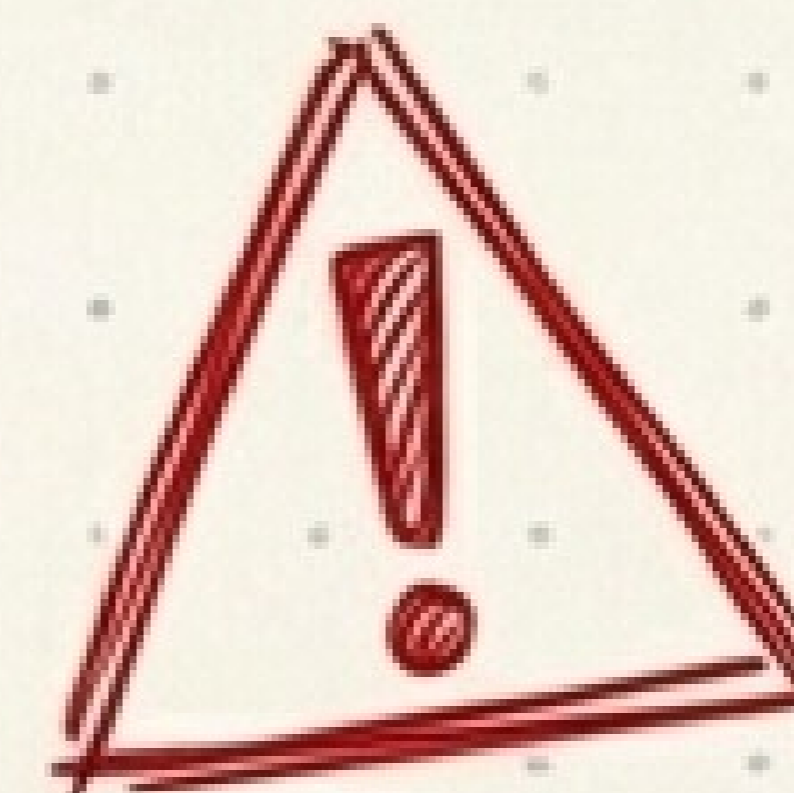


The Modern Periodic Law

The physical and chemical properties of elements are periodic functions of their atomic numbers.

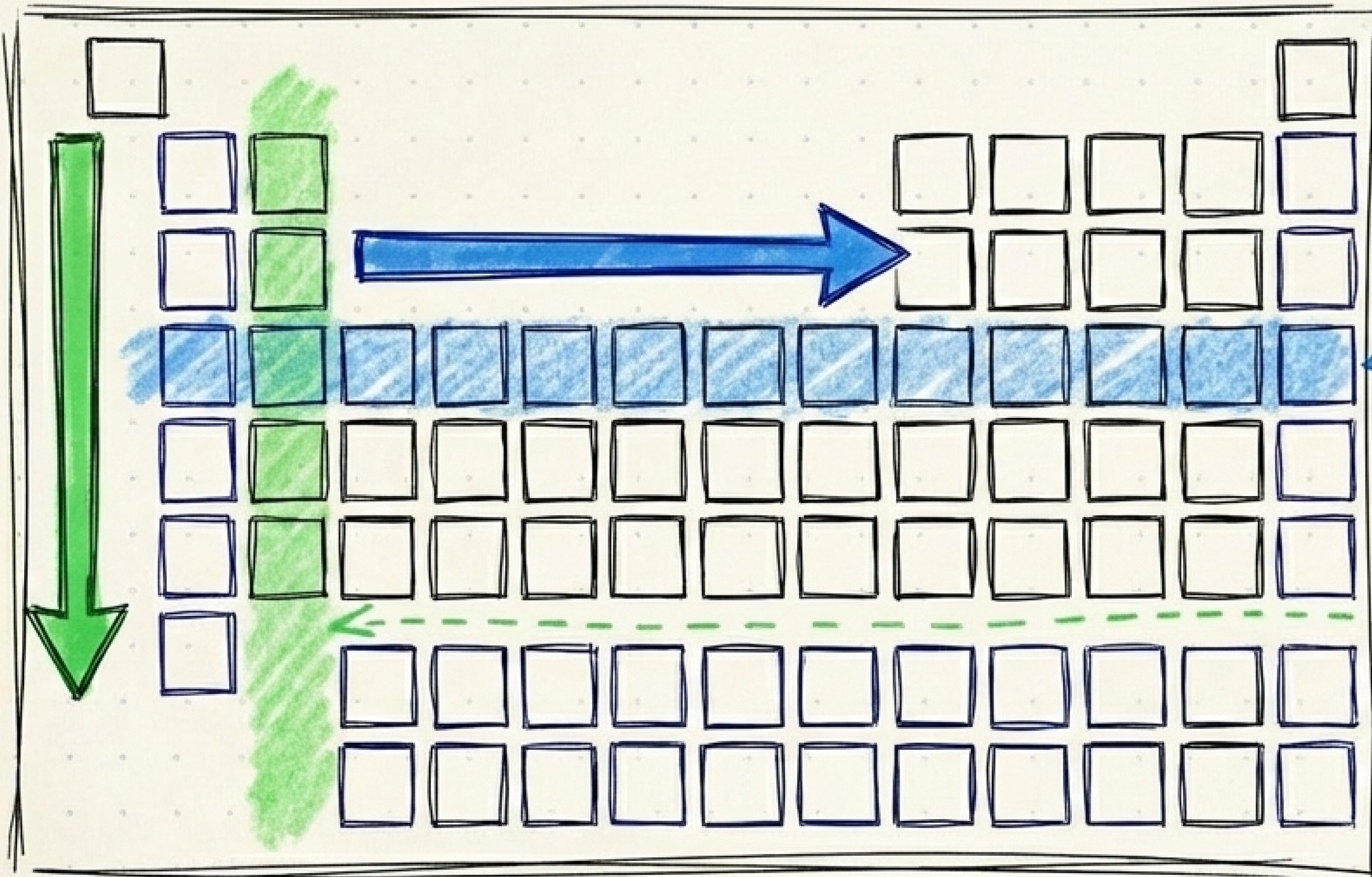


Proposed by Moseley.



Crucial detail! It's all about the atomic number (the number of protons!), not the mass!

Grid Architecture: Rows and Columns



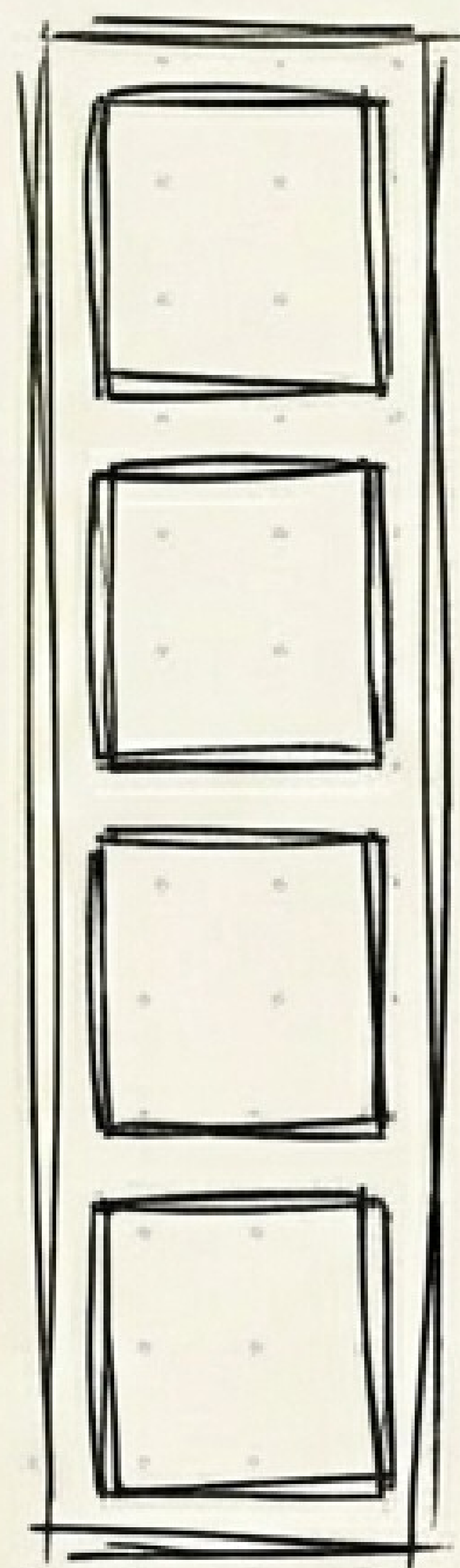
*Periods (Horizontal rows).
There are 7 periods in total.
Moving left to right across
a period, the atomic number
increases.*

*Groups (Vertical columns).
There are 18 groups in total.
Moving down a group, the
number of electron shells
increases.*

Why do Groups matter?

Elements in the same group share similar chemical properties.

Because they have the SAME number of electrons in their outermost shell!



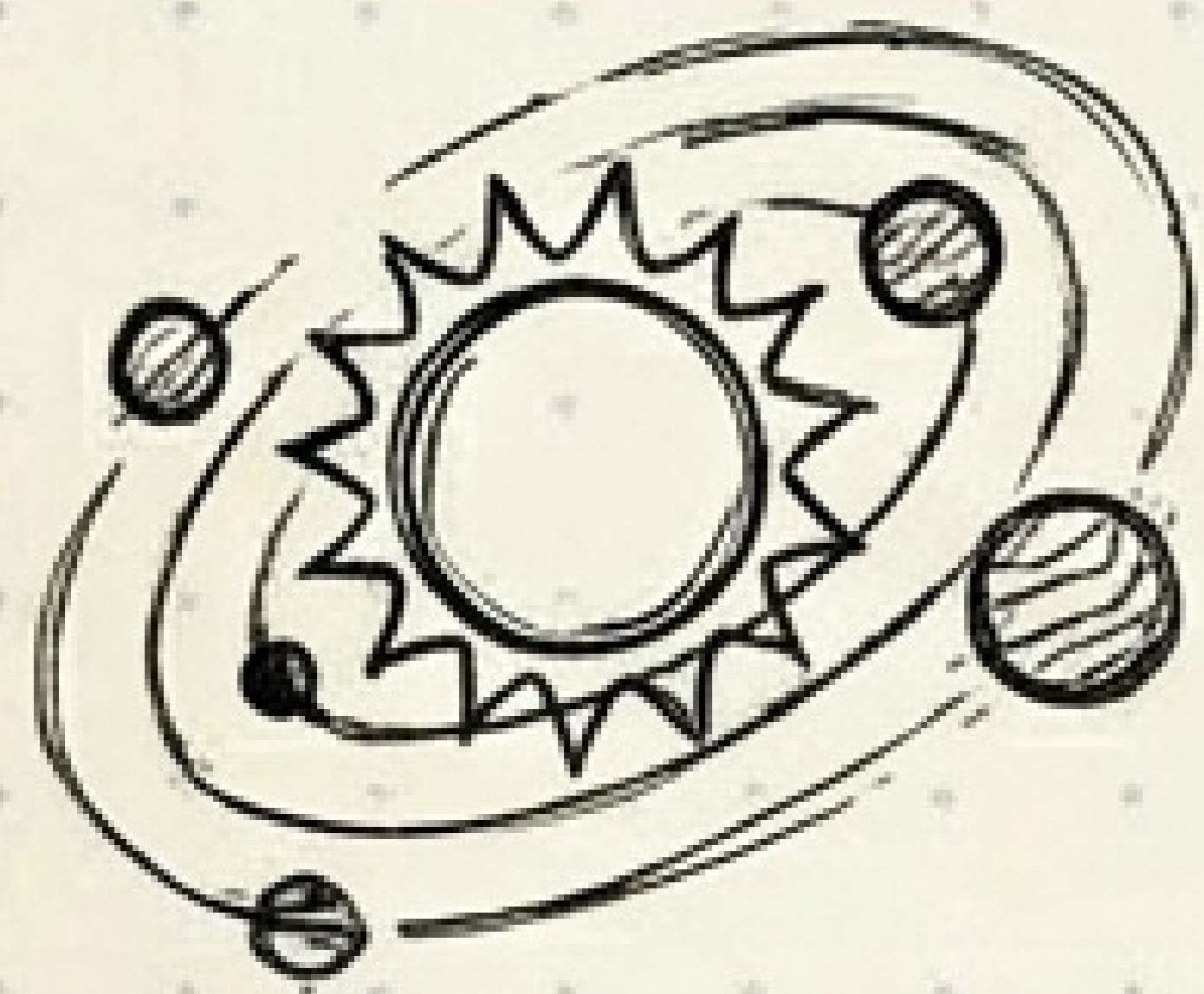
Example: Group 1 Elements

Lithium (Li), Sodium (Na),
Potassium (K)

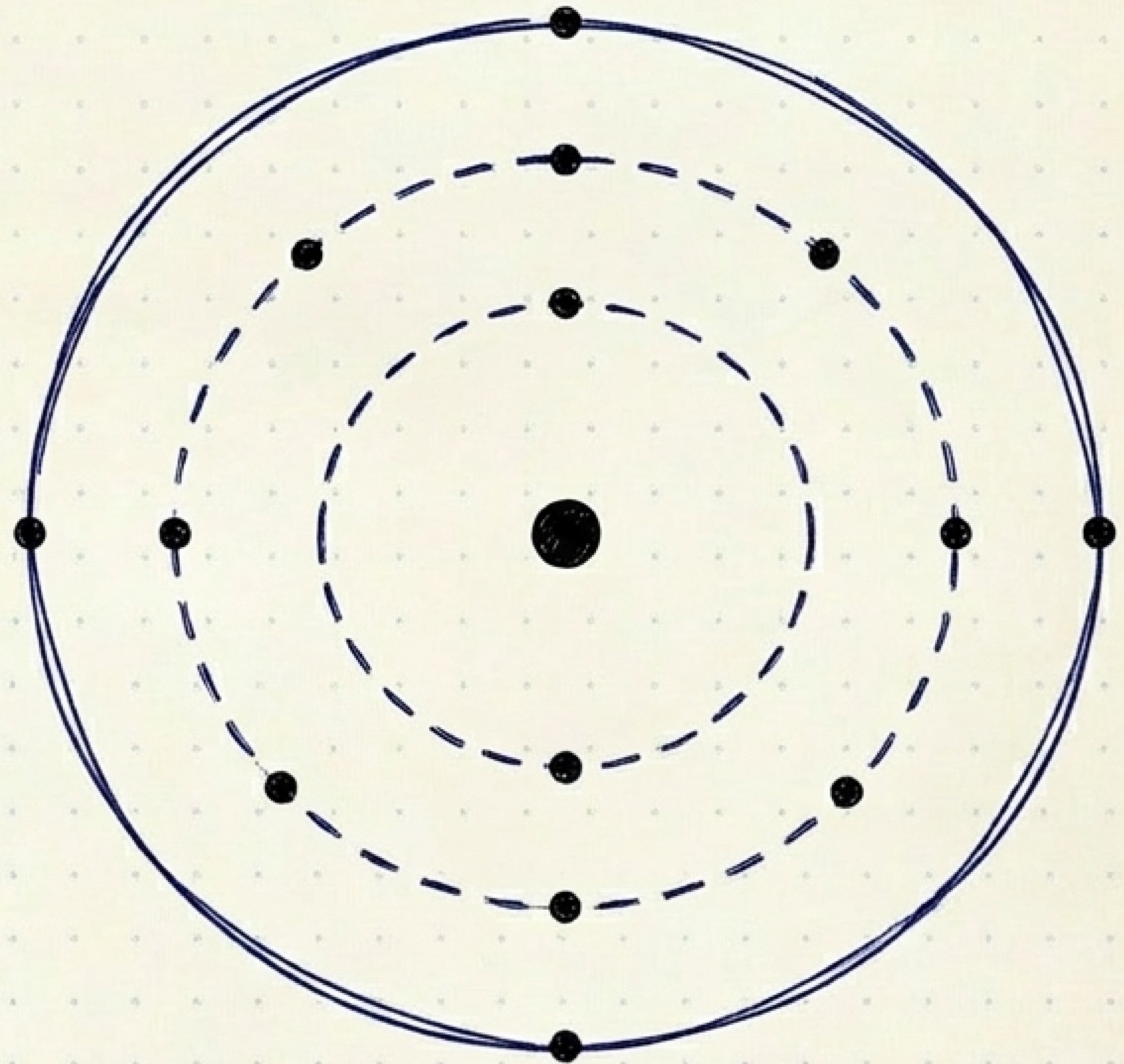
Highly reactive metals!

The Secret Code: Electronic Configuration

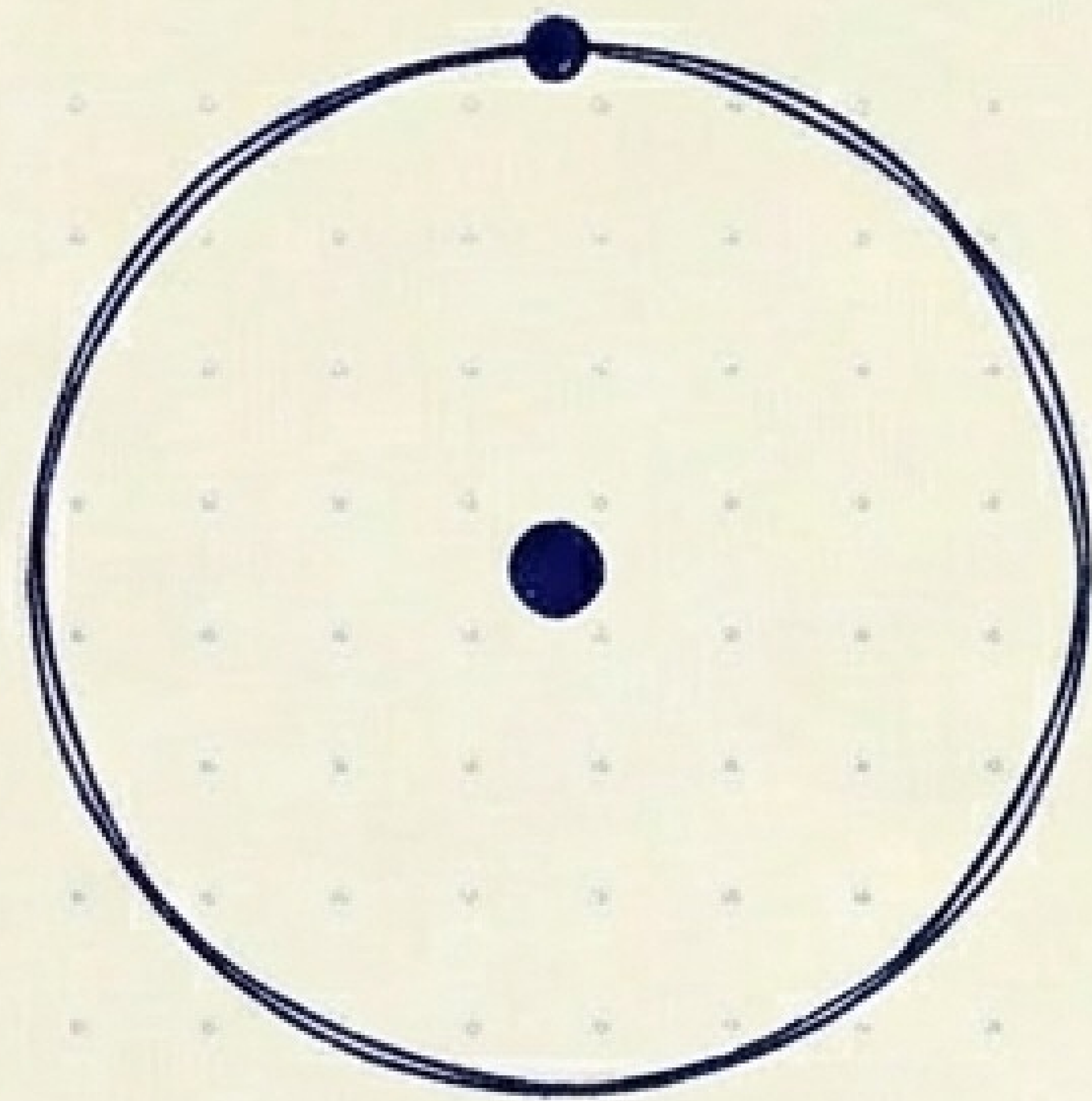
This describes the exact arrangement of electrons in different energy levels (shells) around the nucleus of an atom.



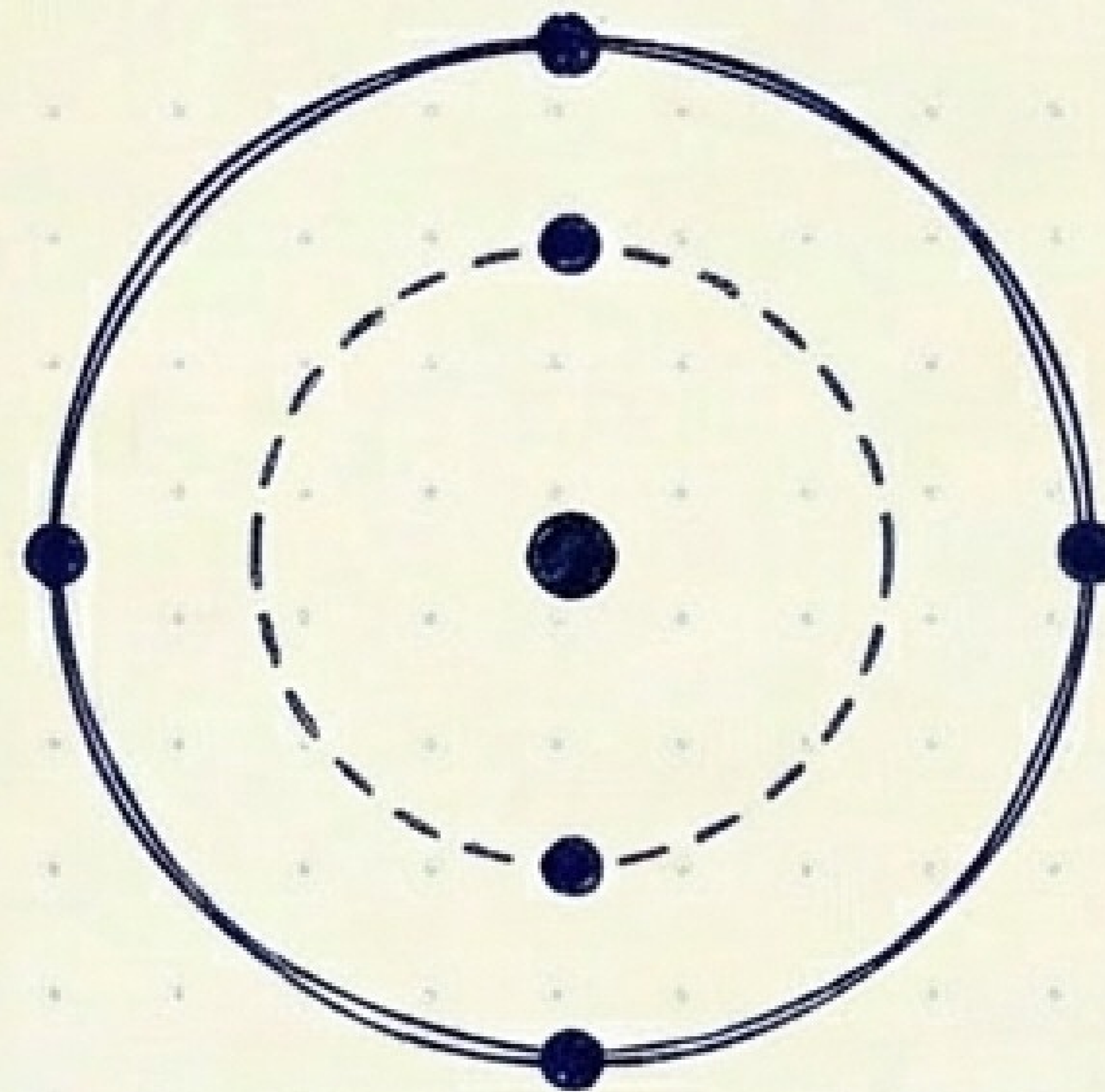
Think of the nucleus as a sun, and the shells as planets orbiting around it!



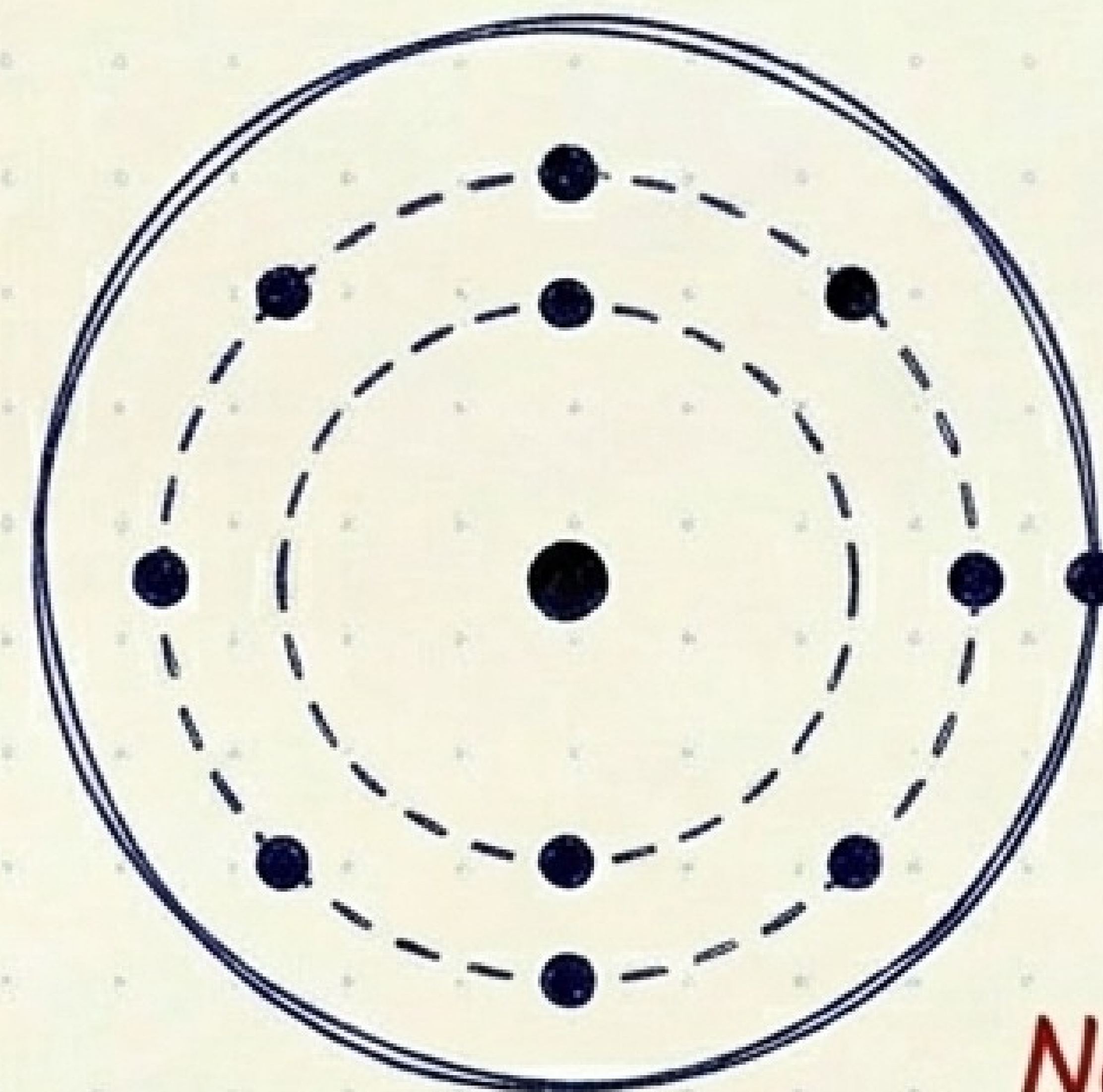
Configurations in Action



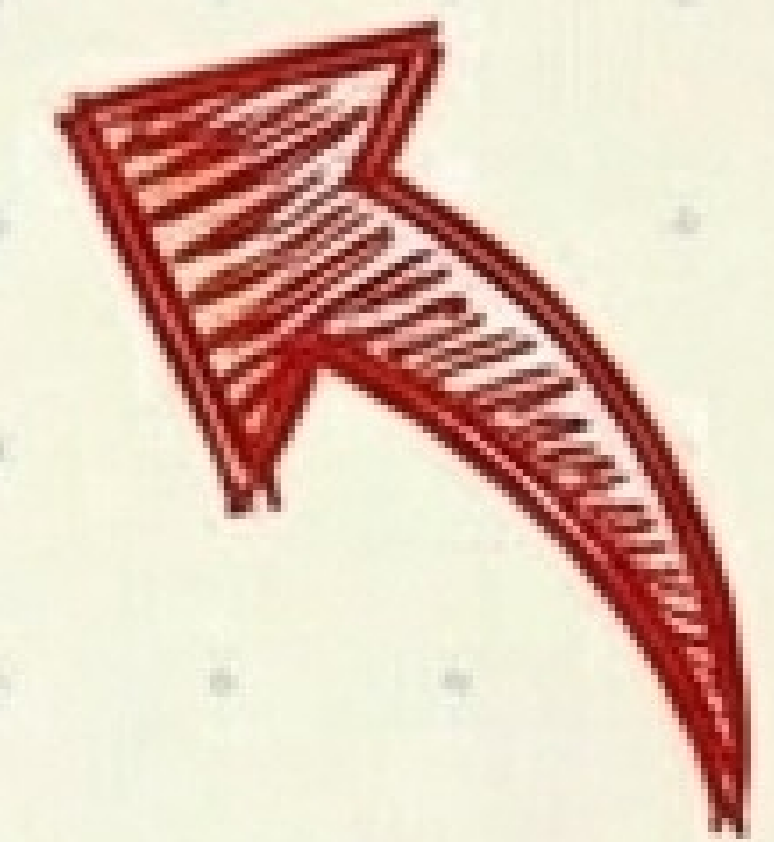
Hydrogen
(Atomic number 1)
→ Configuration: 1



Carbon
(Atomic number 6)
→ Configuration: 2, 4



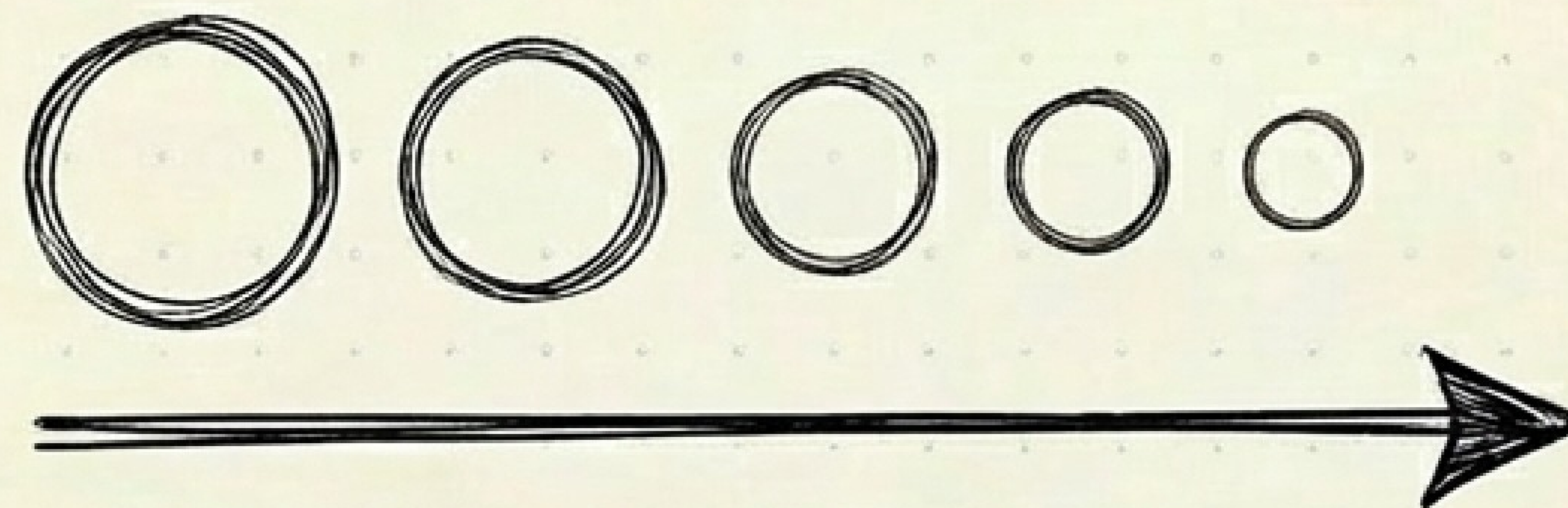
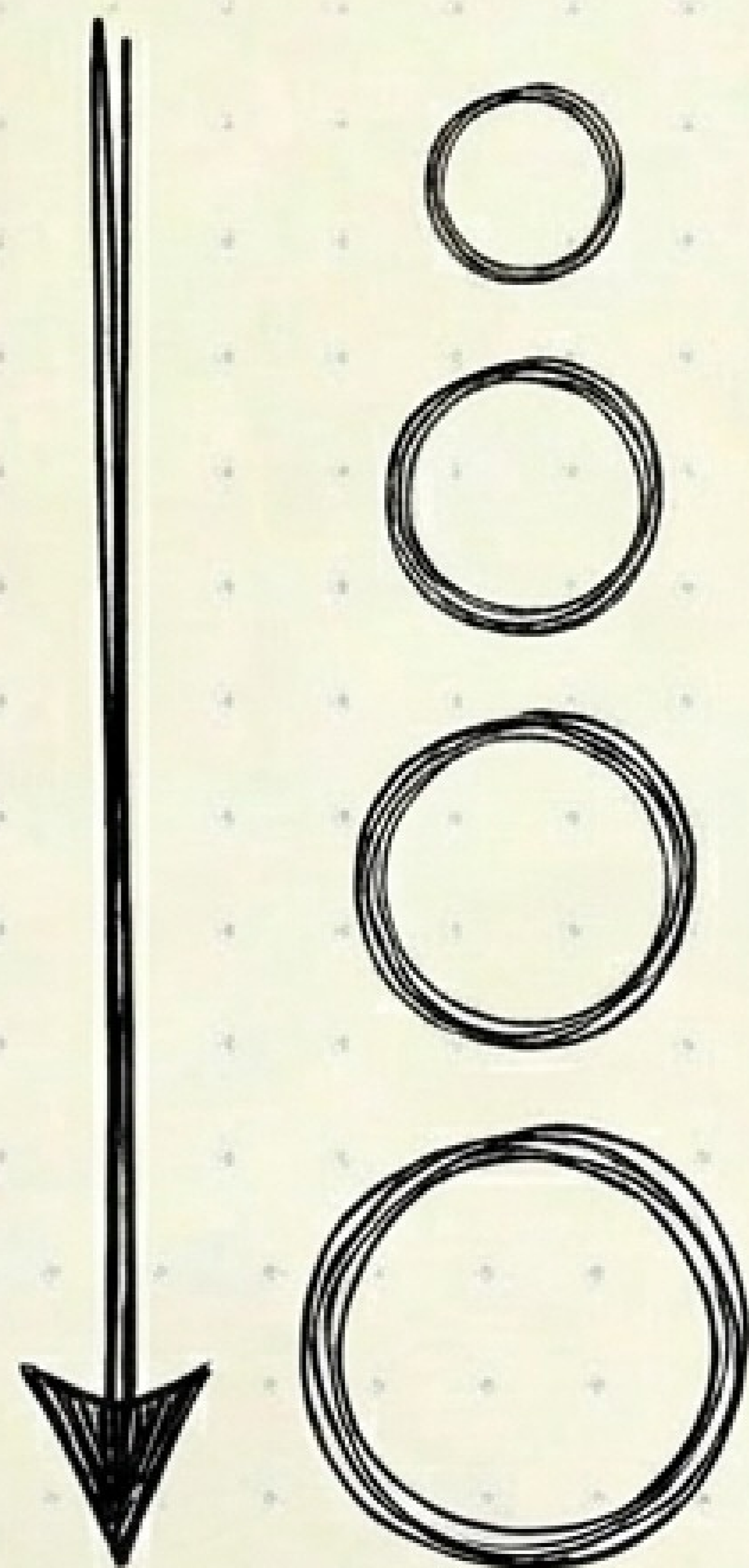
Sodium
(Atomic number 11)
→ Configuration: 2,
8, 1



Notice the single
outer electron?
That's what
makes it a
Group 1
element!

Tracking the Trends: Atomic Size

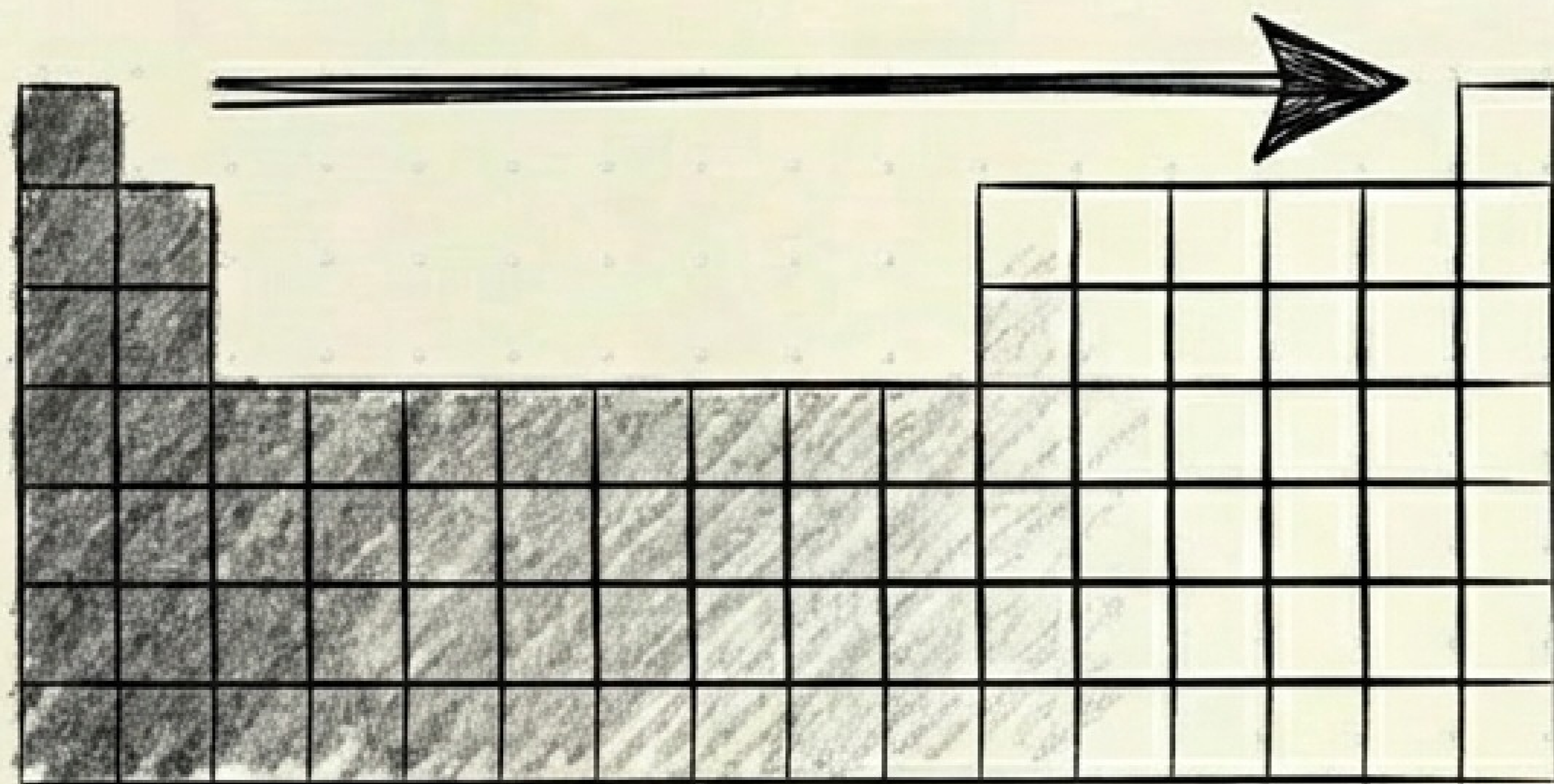
Atomic size
increases
down a group.



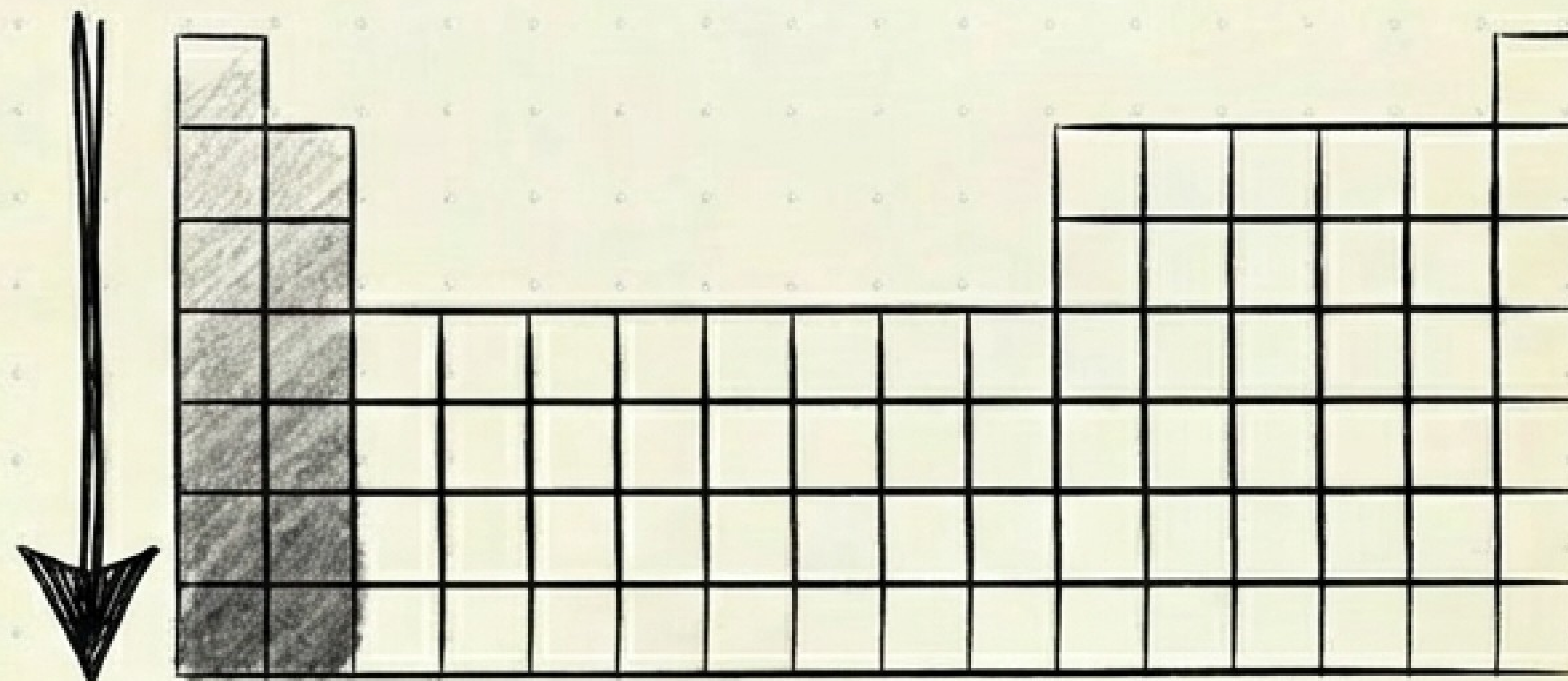
Atomic size generally
decreases across a period.

In-detail clarification: As you
move across, more protons in
the nucleus act like a stronger
magnet, pulling the outer
electron shells closer together!

Tracking the Trends: Metallic Character



*Metallic character
decreases across a period.*



*Metallic character
increases down a group.*

**Metals love to lose electrons. As size increases down a group, outer electrons are further from the nucleus and easier to lose!*

Revision Time: Knowledge Check

Let's see what you remember from the notes!

5 Multiple Choice Questions ahead.
Think of your answer before looking
at the red grading marks!



Q1: Who proposed the modern periodic law?

A) Mendeleev

B) Moseley

C) Dalton

D) Rutherford



Q2: Horizontal rows in the periodic table are called:

A) Groups

B) Periods

C) Blocks

D) Series



Remember, periods
go across, groups
go down!

Q3: Elements in the same group have similar:

A) Atomic mass

B) Chemical properties

C) Size

D) Density



Because they have the same outer shell electronic configuration!

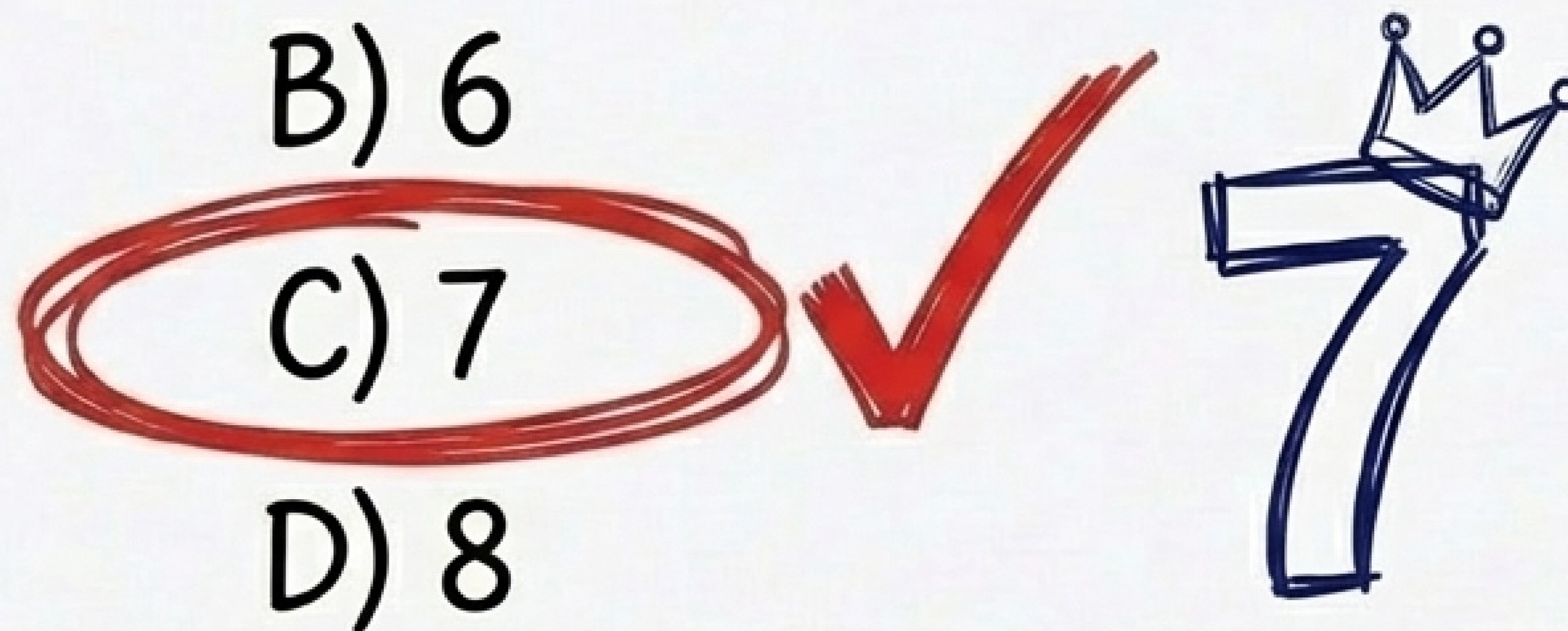
Q4: How many periods are in the modern periodic table?

A) 5

B) 6

C) 7

D) 8



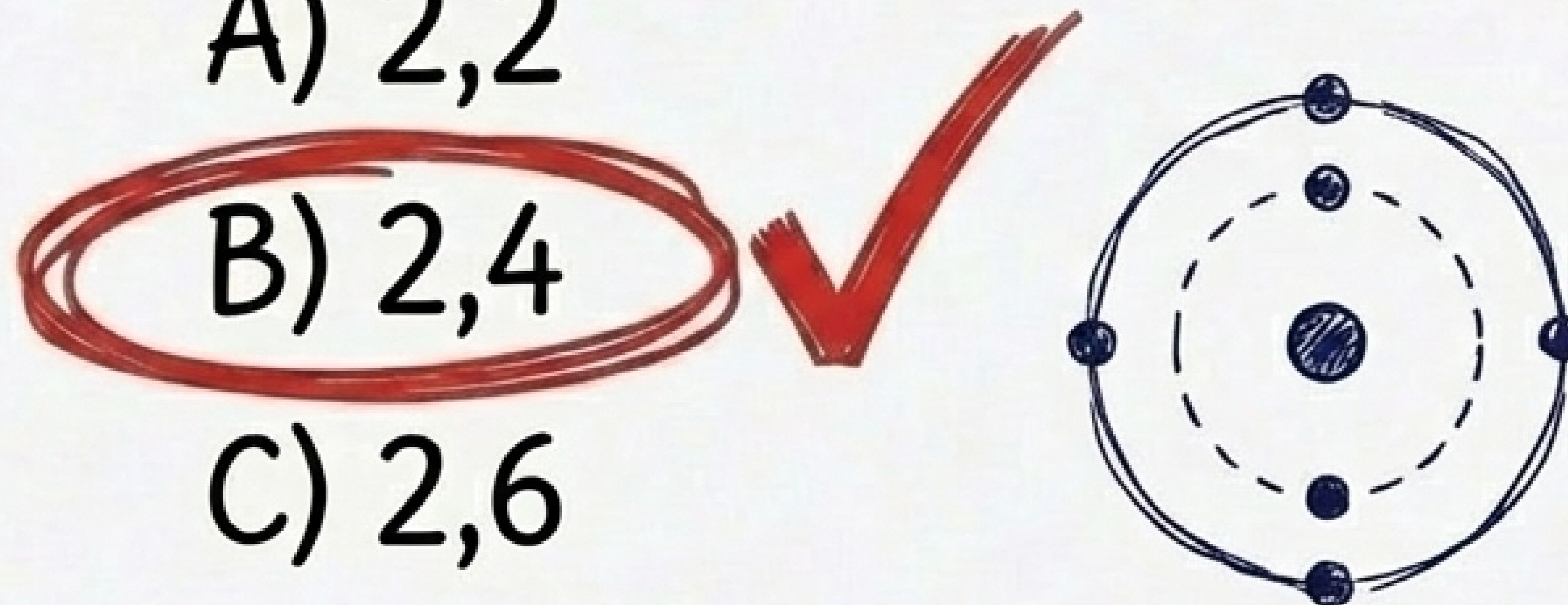
Q5: Electronic configuration of carbon is:

A) 2,2

B) 2,4

C) 2,6

D) 4,2



Carbon's atomic number is 6. 2 go in the first shell, leaving 4 for the outer shell!