OCR (A) Chemistry A-level

Topic 2.2.1 - Electron Structure

Flashcards

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What does the principal quantum number indicate?

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What does the principal quantum number indicate?

The shell occupied by the electrons

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What is a shell?

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What is a shell?

A group of orbitals with the same principal quantum number

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How many electrons can the 1st shell hold?

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How many electrons can the 1st shell hold?

2

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How many electrons can the 2nd shell hold?

CC BY NC ND

How many electrons can the 2nd shell hold?

8

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How many electrons can the 3rd shell hold?

CC BY NC ND

How many electrons can the 3rd shell hold?

18

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How many electrons can the 4th shell hold?

CC BY NC ND

How many electrons can the 4th shell hold?

32

What is an orbital?

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What is an orbital?

A region around the nucleus that can hold up to two electrons with opposite spins

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How many electrons can an orbital hold?

CC BY NC ND

How many electrons can an orbital hold?

2

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What are the 4 types of orbitals?

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What are the 4 types of orbitals

- s orbital
- p orbital
- d orbital
- f orbital

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What is the shape of a s-orbital?

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What is the shape of a s-orbital?

Spherical

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What is the shape of a p-orbital?

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What is the shape of a p-orbital?

Dumb-bell shape

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How many orbitals are found in a S subshell?

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How many orbitals are found in a S subshell?

1

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How many electrons can be held in a S subshell?

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How many electrons can be held in a S subshell?

2

CC BY NC ND

How many orbitals does P subshell have?

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How many orbitals does P subshell have?

3

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How many electrons can be held in a P subshell?

CC BY NC ND

How many electrons can be held in a P subshell?

6

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How many orbitals are present in a D subshell?

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How many orbitals are present in a D subshell?

5

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How many electrons can be held in a D subshell?

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How many electrons can be held in a d-sub shell?

10

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How many orbitals are found in a F subshell?

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How many orbitals are found in a F subshell?

7

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How many electrons can fill F subshell?

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How many electrons can fill F subshell?

14

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When using ‘electrons in box’ representation, what shape is used to represent the electrons?

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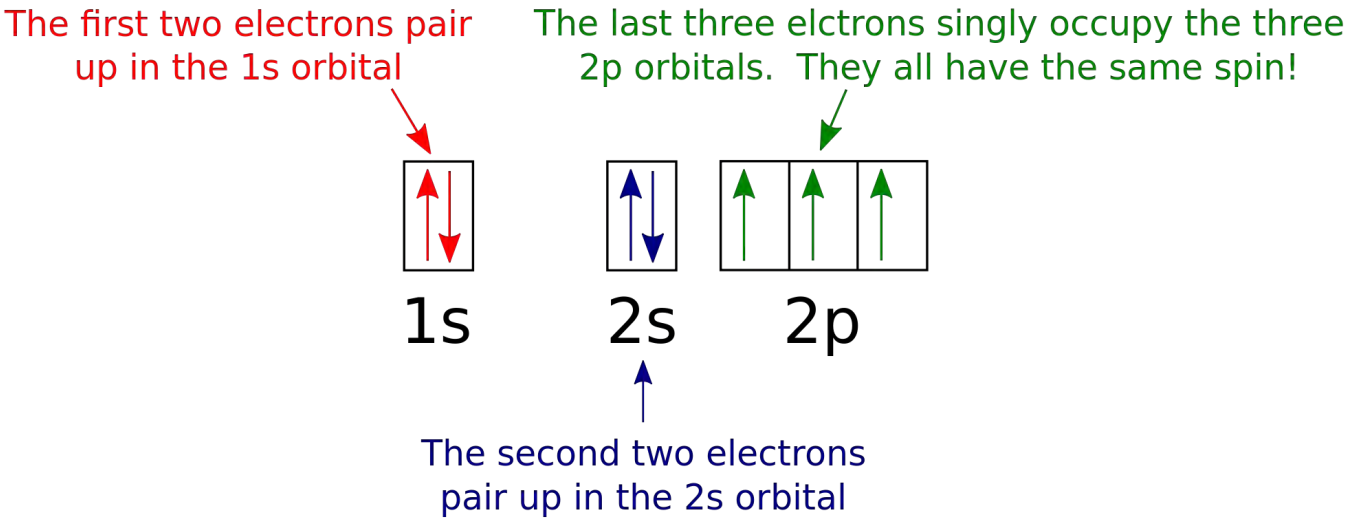
When using ‘electrons in box’ representation, what shape is used to represent the electrons?

Arrows



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What letter used to represent shell number?

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What letter is used to represent the shell number?

n

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From which shell onwards is S orbital present?

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From which shell onwards is S orbital present?

$n = 1$

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From which shell onwards is P-orbital present?

CC BY NC ND

From which shell onwards is P orbital present?

$n = 2$

CC BY NC ND

From which shell onwards is D-orbital present?

CC BY NC ND

From which shell onwards is D orbital present?

$n = 3$

CC BY NC ND

From which shell onwards is F-orbital present?

CC BY NC ND

From which shell onwards is F orbital present?

$n = 4$

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What are the rules by which electrons are arranged in the shell? (5)

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What are the rules by which electrons are arranged in a shell?

- Electrons are added one at a time
- Lowest available energy level is filled first
- Each energy level must be filled before the next one can fill
- Each orbital is filled singly before pairing
- 4s is filled before 3d

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Why does 4s orbital fill before 3d orbital?

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Why does 4s orbital fill before 3d orbital?

4s orbital has a lower energy than 3d before it is filled

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What is the electron configuration of krypton?

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What is the electron configuration of krypton?

$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6$

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Which electrons are lost when an atom becomes a positive ion?

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Which electrons are lost when an atom becomes a positive ion?

Electrons in the highest energy levels

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