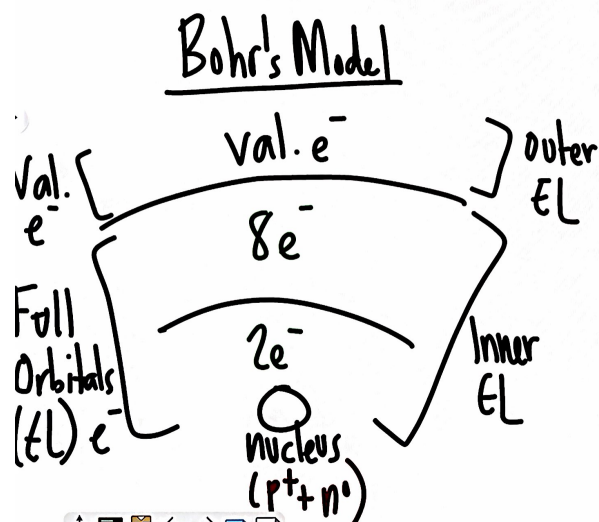


Review: Atomic Structure and Energy Levels (EL)

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Atomic Structure

Period	Inner EL's	Outer EL
1	0	1 ^{st.}
2	1	2 ^{nd.}
3	2	3 ^{rd.}
4	3	4 ^{th.}
5	4	5 ^{th.}
6	5	6 ^{th.}
7	6	7 ^{th.}

Periodic Trends

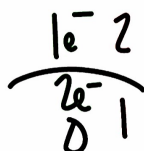
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The change in atomic structure/properties within group or per.

Atomic Size (up/down group) [group trend]

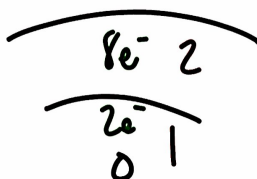
Lithium (per. 2, group 1A)

2 EL, smaller



Sodium (per. 3, group 1A)

3 EL, larger



Atoms get larger down a group

Why?

More EL = Larger Atom

Periodic Trends

Atomic Size (left/right period) [period trend]

More p^+
= More e^- pull
 e^- less e^-
↓ less ↓ more
 $11p^+$ $17p^+$

Na (11)
 $1e^-$
 $8e^-$
 $2e^-$
 $11p^+$
less pull
larger

Cl (17)
 $7e^-$
 $8e^-$
 $2e^-$
 $17p^+$
more pull
smaller

Atoms get smaller across a period

Why?
More p^+ pull = smaller atom

Periodic Trends

Ion Size

Cation (lose e^- , +)

Li
 $1e^-$
 $2e^-$
O
larger
lose $1e^-$
Li⁺
empty
 $2e^-$
O
smaller

Anion (gain e^- , -)

F
 $7e^-$
 $2e^-$
O
smaller
gain $1e^-$
F⁻
 $8e^-$
 $2e^-$
O
larger

Cation (+, lose e^-)
Cation smaller than neutral atom

Why? Lose outer EL

Anion (-, gain e^-)
Anion larger than neutral atom

Why? More e^- = more $e^- \leftrightarrow e^-$ repulsion