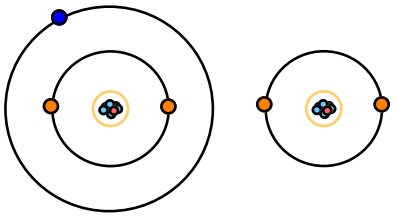
CONCEPT: PERIODIC TREND: IONIC RADIUS (SIMPLIFIED)

- **Ionic Radius:** Distance between an ion's nucleus and its outer electron shell.
  - □ **Periodic Trend:** Ionic radius _____ as the number of electrons _____.

Ionic Radius

Ionic Radius (Cation)

□ Cations tend to be smaller than their neutral parent form.

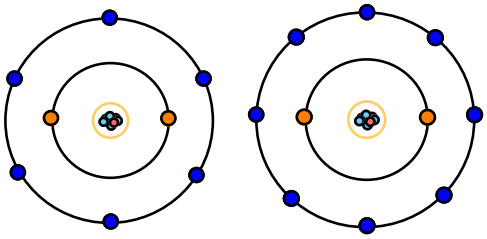


Li atom
$1s^2 2s^1$

Li^+ ion
$1s^2$

Ionic Radius (Anion)

□ Anions tend to be larger than their neutral parent form.



O atom
$1s^2 2s^2 2p^4$

O^{2-} ion
$1s^2 2s^2 2p^6$

□ Losing an electron(s) _____ ionic radius.

□ Gaining an electron(s) _____ ionic radius.

EXAMPLE: Which of the following statements is false?

a) The calcium ion has a smaller ionic radius than the calcium atom.

b) The sulfide ion has a larger ionic radius than the sulfur atom.

c) The cadmium ion has a larger ionic radius than the cadmium atom.

d) The bromide ion has a larger ionic radius than the bromine atom.

PRACTICE: Which of the following statements is false?

a) The phosphide ion has a smaller ionic radius than the phosphorus atom.

b) The phosphide ion has a larger ionic radius than the phosphorus atom.

c) The phosphide ion's ionic radius cannot be compared to the phosphorus atom.

d) The phosphide ion has an equal ionic radius than the phosphorus atom.