W-PS Physical Science Week 18

Ions → positively and negatively charged atoms
cations anions

Different number of electrons than protons.

Group 1

Na Sodium

⊕11 p⊕
-10 e⊖
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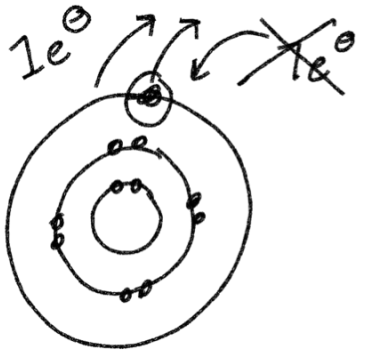
+1 total charge




Stability requires an octet (8) electrons in the outermost (valence) shell.

$Na^{\oplus}$ cation

Group 17

Cl Chlorine

+17 p⊕
-18 e⊖
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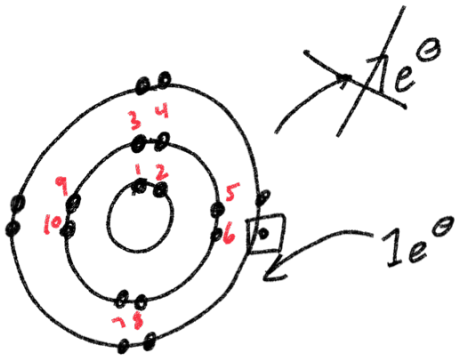
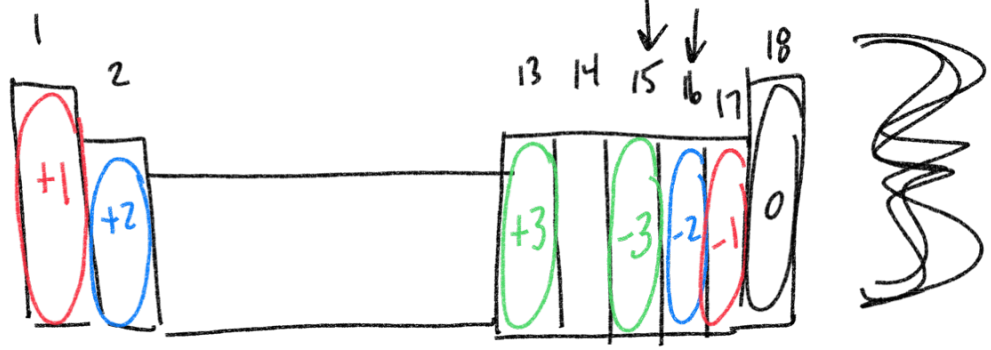
-1 total charge

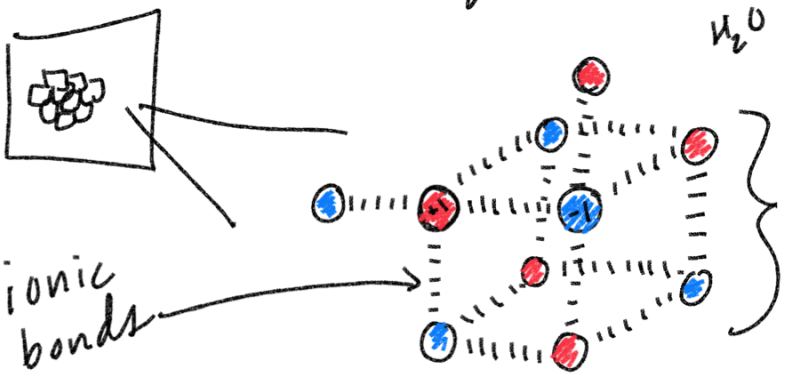


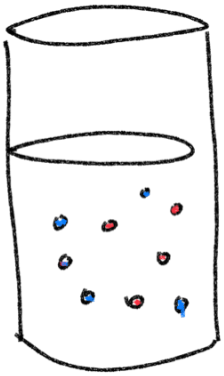

$Cl^{\ominus}$ anion

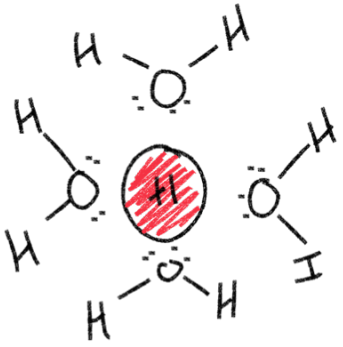


NaCl → table salt crystals

lattice of ions





Ions separated and surrounded (solvated) by water molecules

$N \xrightarrow[-3]{} N^{-3}$ (+ 3e⊖)

$K \xrightarrow[+1]{} K^{+}$

$O \xrightarrow[-2]{} O^{-2}$

$Ne \xrightarrow[0]{} Ne$

$Ca \xrightarrow[+2]{} Ca^{+2}$

$S \xrightarrow[-2]{} S^{-2}$

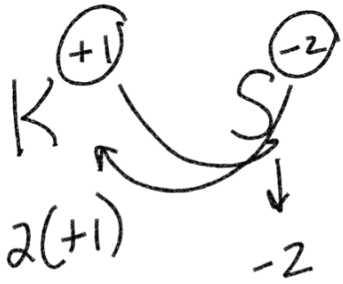
$Al \xrightarrow[+3]{} Al^{+3}$

$F \xrightarrow[-1]{} F^{-1}$

# Ionic Compounds

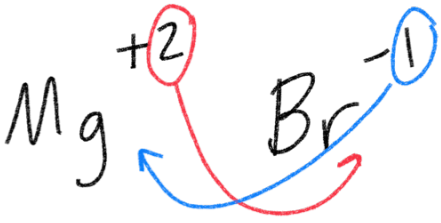

NaCl


$CaCl_2$




$K_2S$

$+2 + (-2) = 0$




$MgBr_2$

$+2 + 2(-1) = 0$

1 Magnesium for every 2 Bromine

3 clear glasses

Fill each with 1 cup of water

3 different temperatures

~70°F ~90°F ~50°F ~110°F

Take two tablespoons of salt

Introduce the salt into each glass one at a time.

Use a stopwatch to time how long it takes for the salt to completely dissolve.

Temp of water: _____

time to dissolve: _____

HW

Online HW 18 } Feb 17th

Quiz 18 }

Salty Experiment

HW/Quiz 17 due Feb 10th