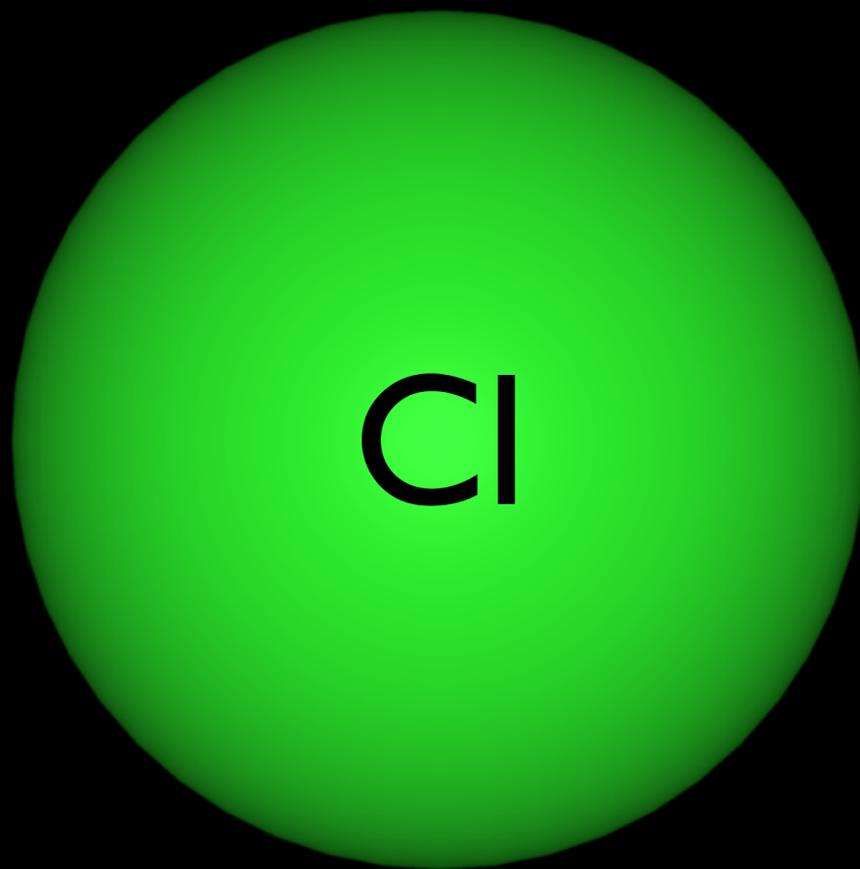


# Ionic Bonding

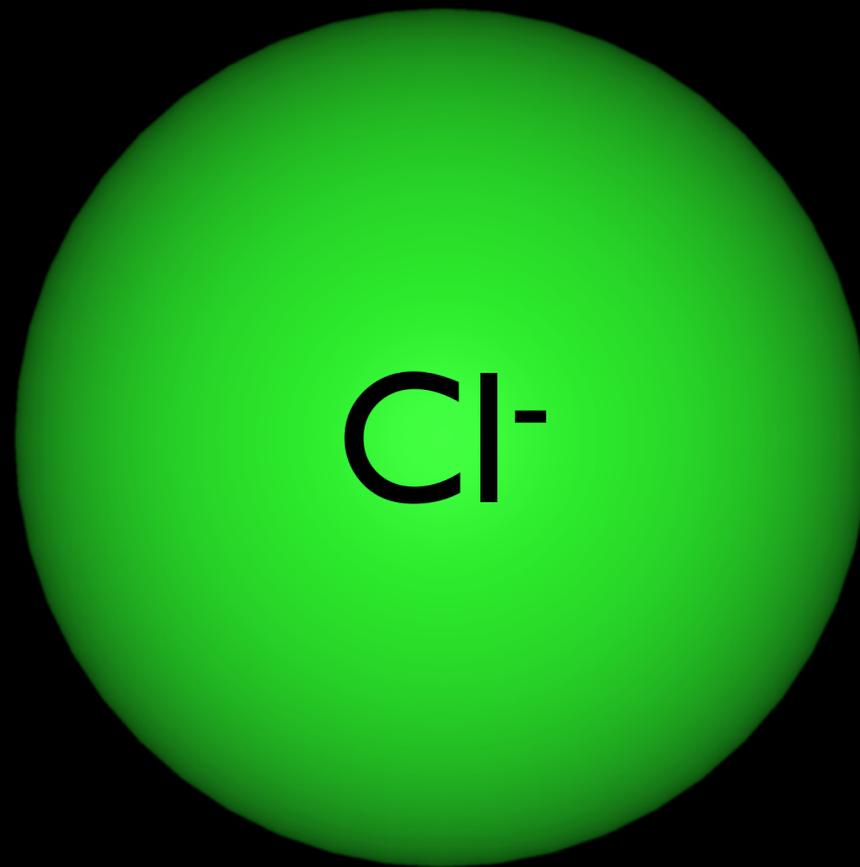


Chemistry Essentials - 020

# Ionic Bonding



[Ne]



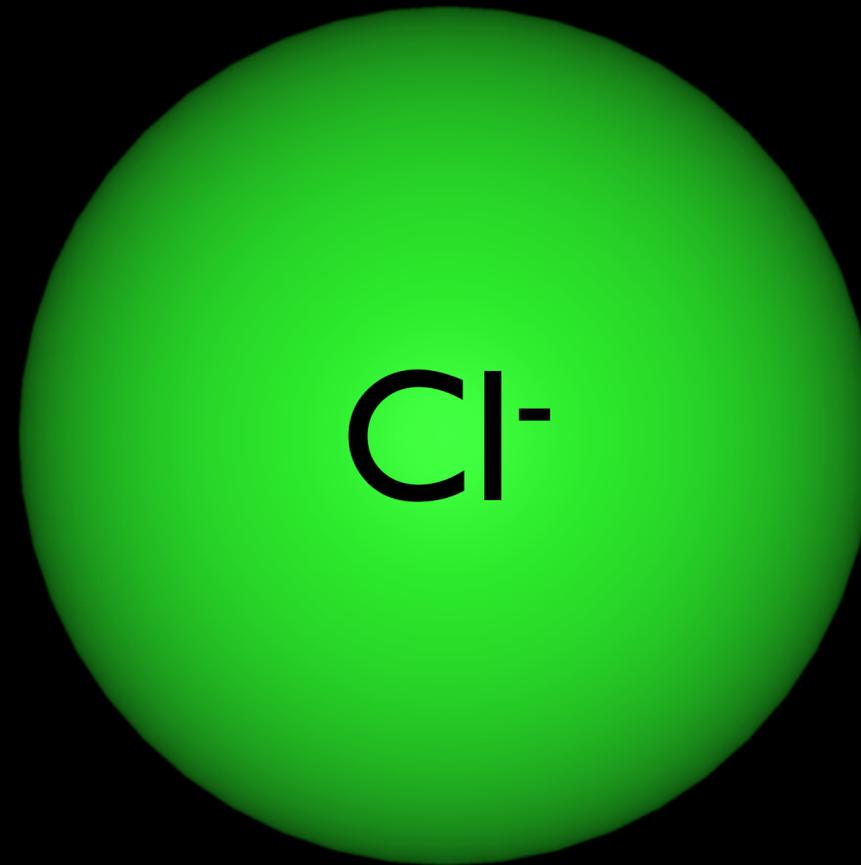
[Ar]

Chemistry Essentials - 020

# Ionic Bonding



Cation



Anion

Chemistry Essentials - 020

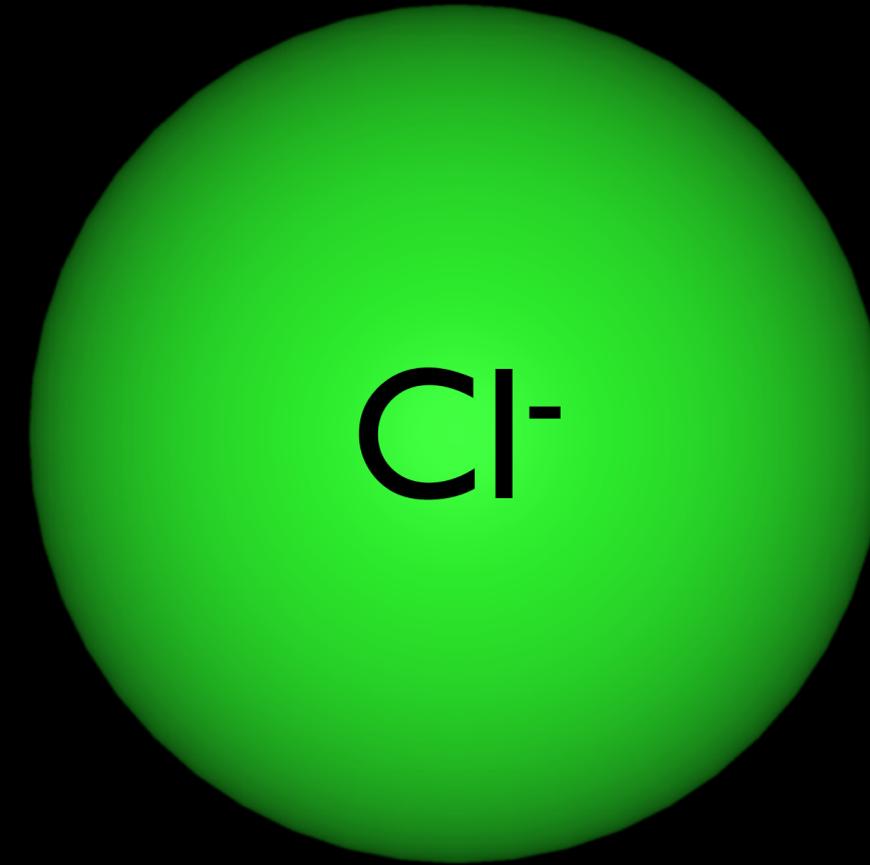
# Ionic Bonding

$\text{Na}^+$



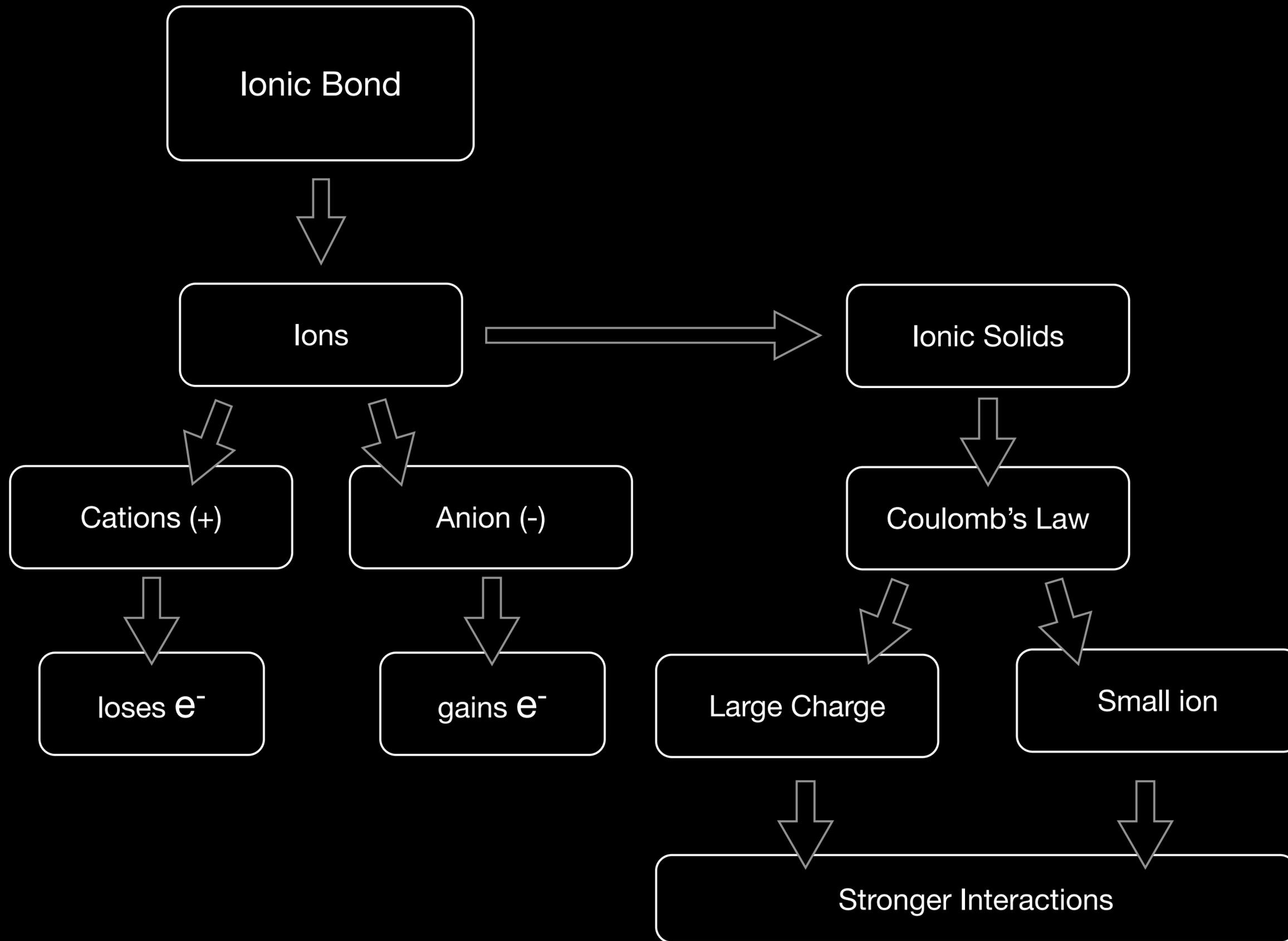
Cation

$\text{Cl}^-$

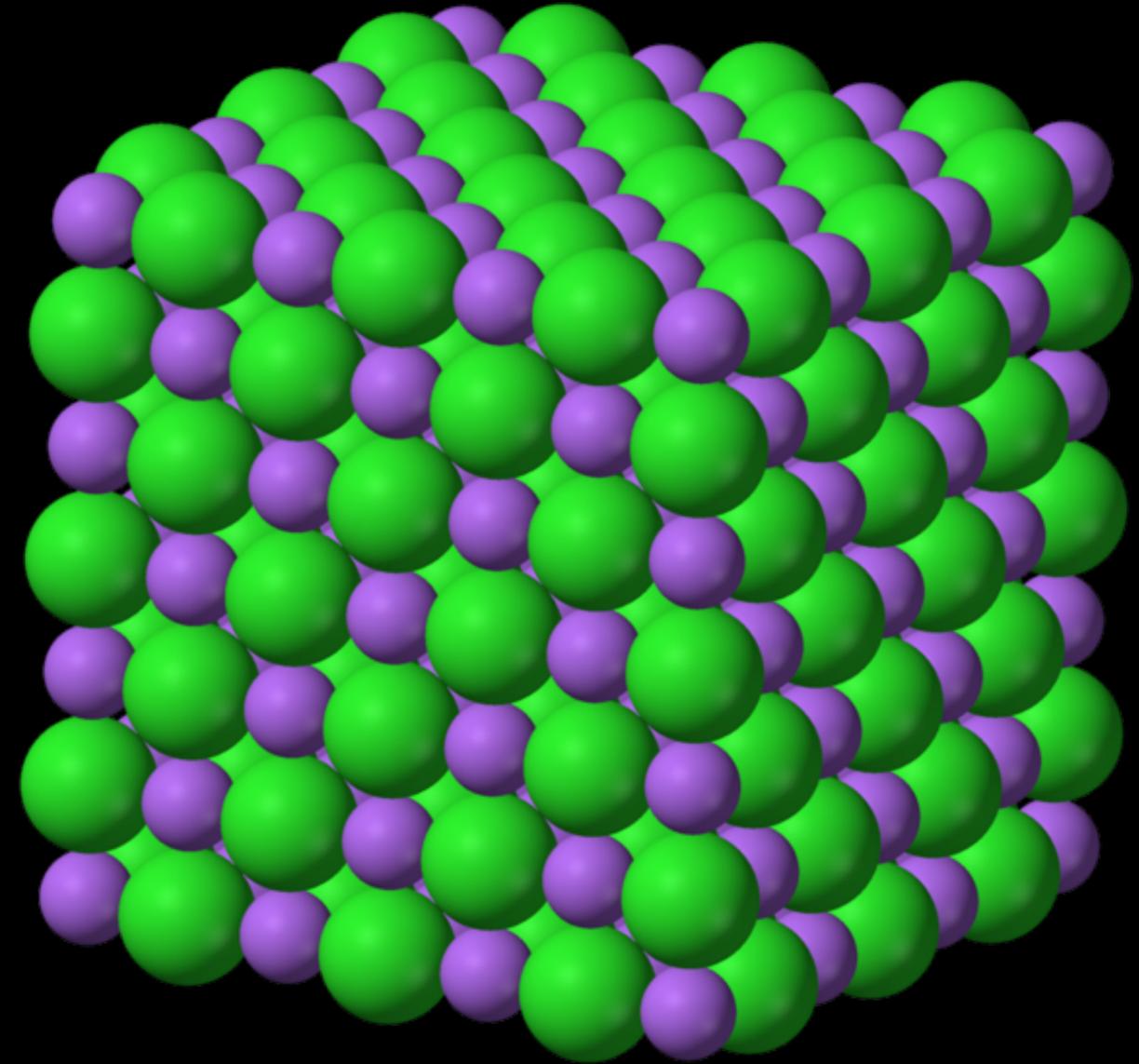
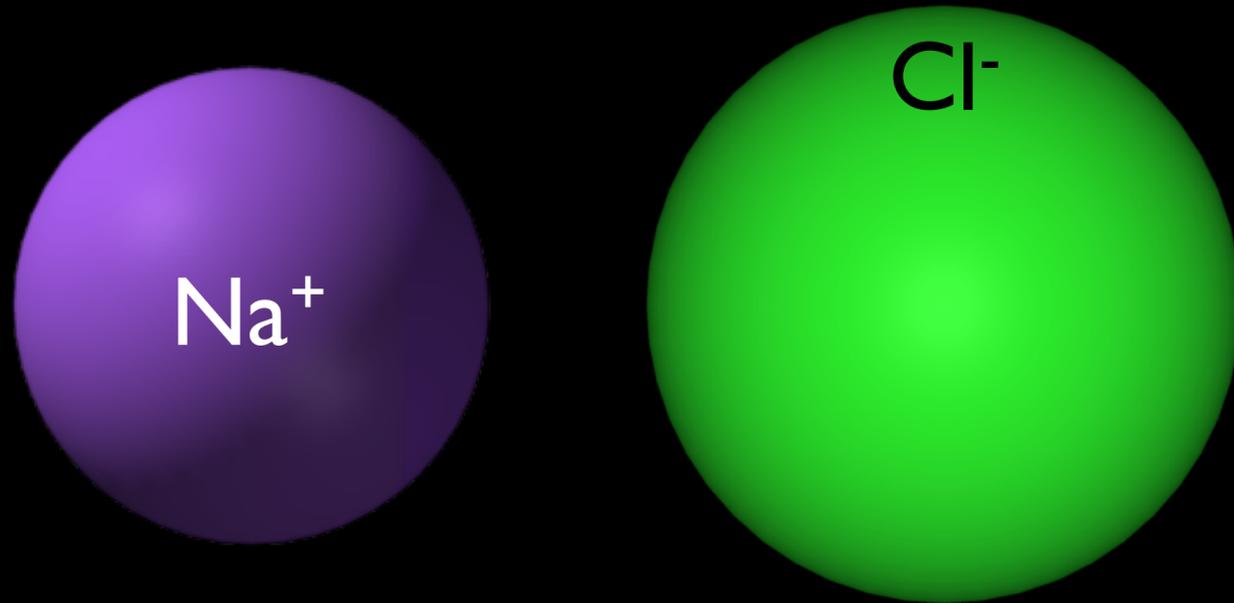


Anion

Chemistry Essentials - 020

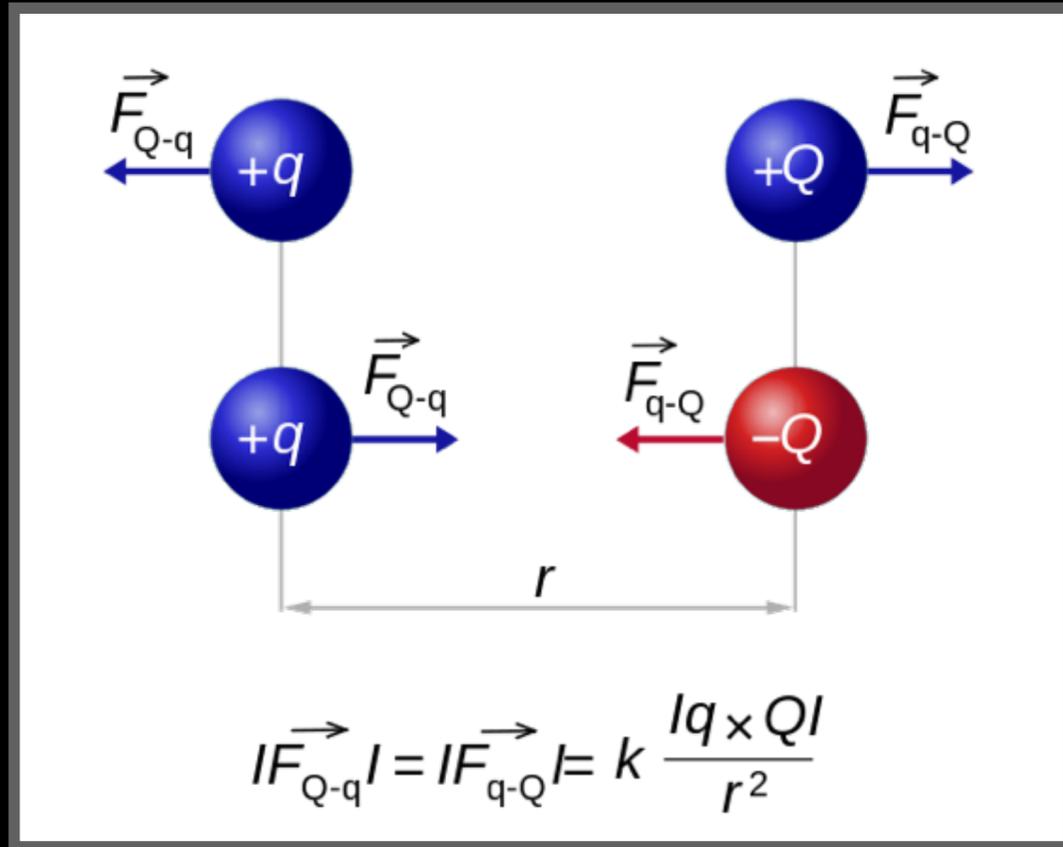


# Ionic Solid

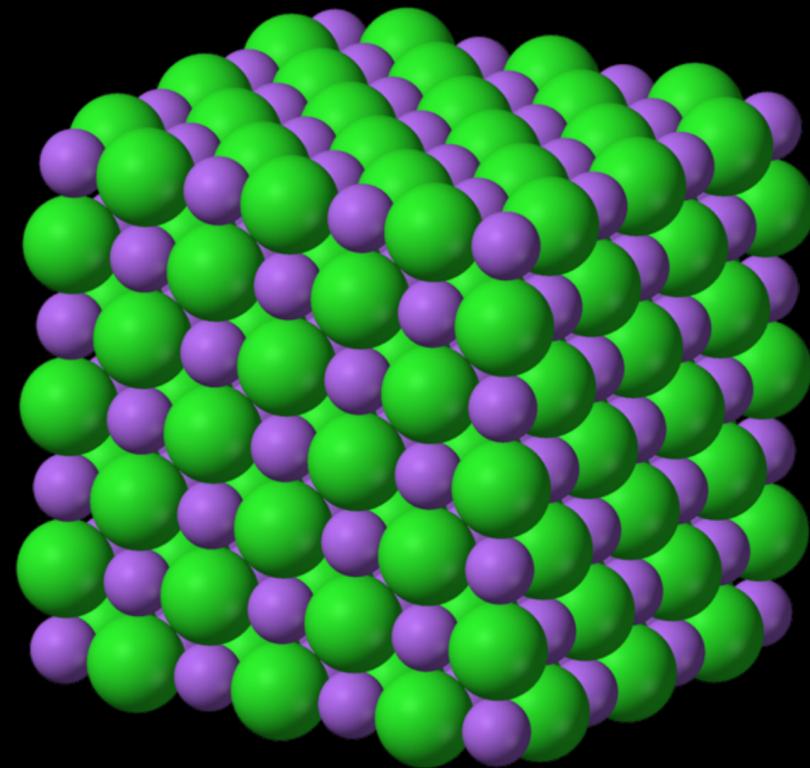
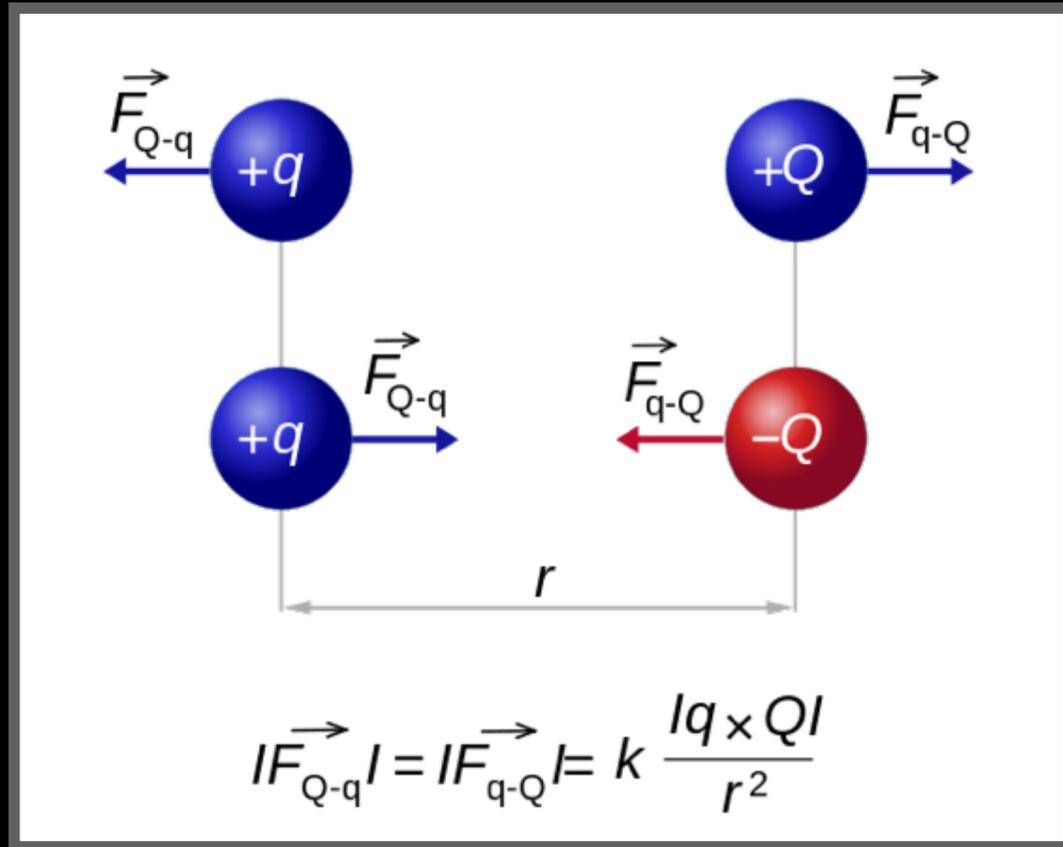


$\text{NaCl}$

# Coulomb's Law



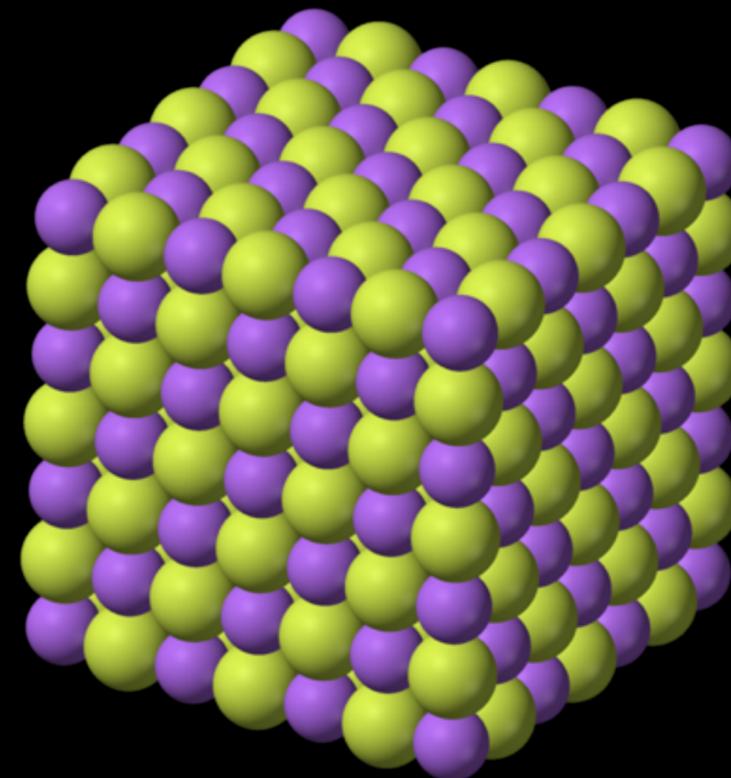
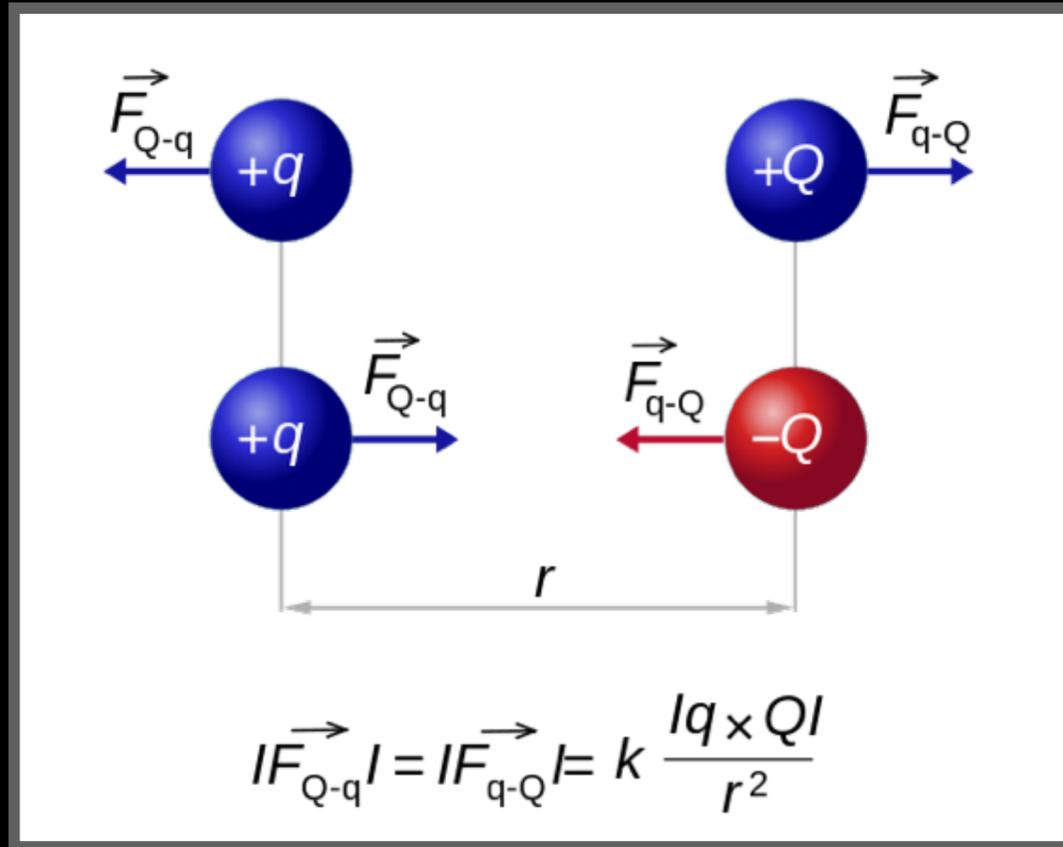
# Coulomb's Law



lattice energy 788 kJ/mol

	9 <b>F</b> Fluorine 19.00
11 <b>Na</b> Sodium 22.99	17 <b>Cl</b> Chlorine 35.45
	35 <b>Br</b> Bromine 79.90
	53 <b>I</b> Iodine 126.90

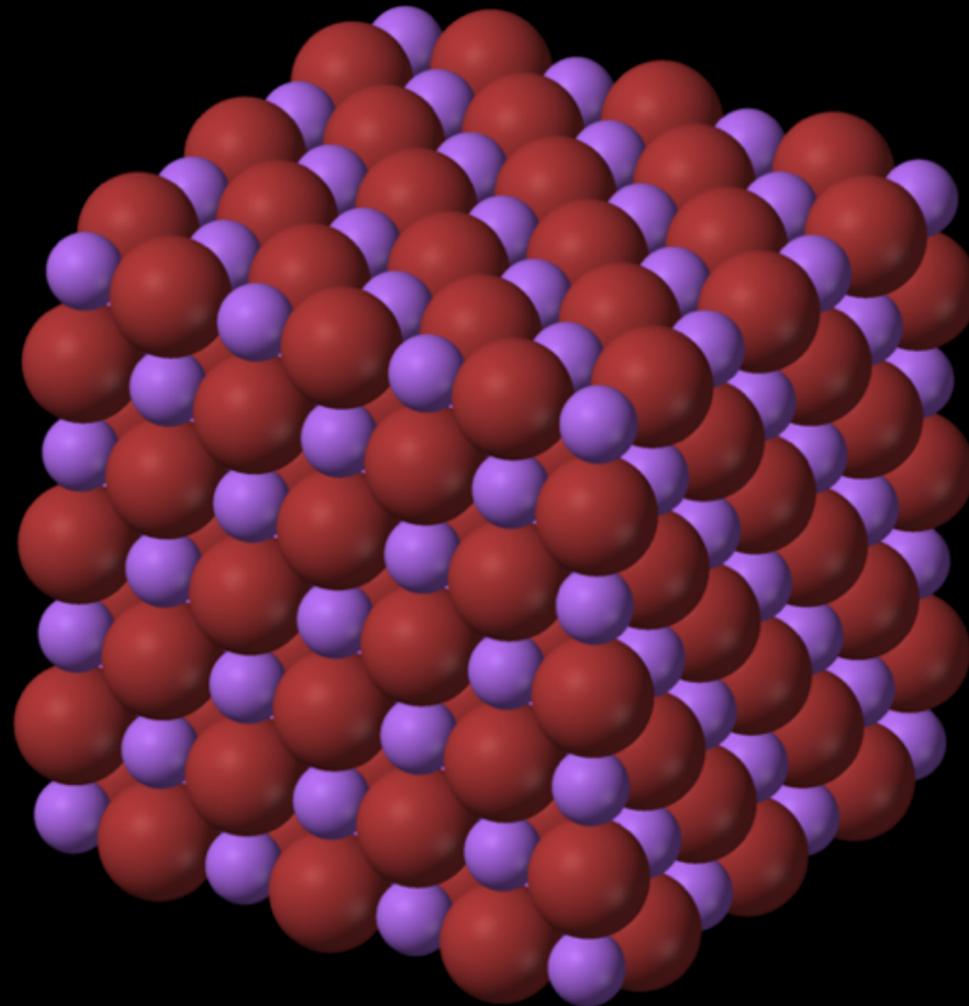
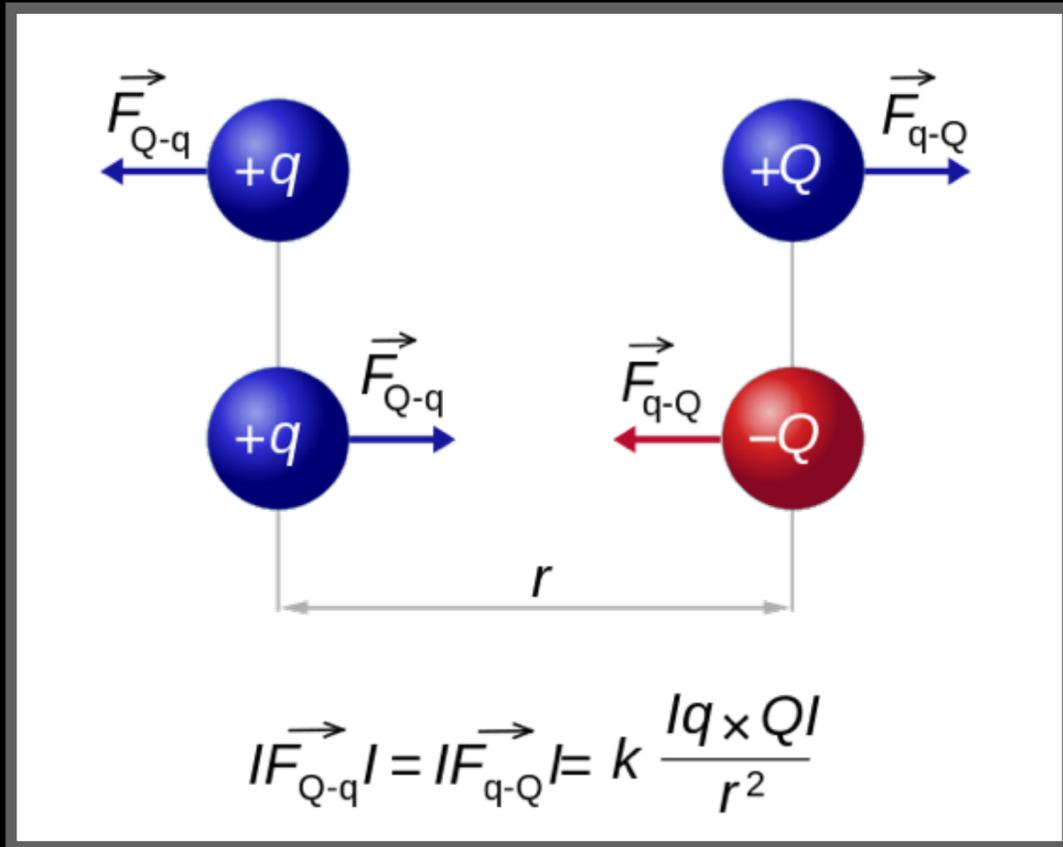
# Coulomb's Law



lattice energy 1030 kJ/mol

11 <b>Na</b> Sodium 22.99	9 <b>F</b> Fluorine 19.00
	17 <b>Cl</b> Chlorine 35.45
	35 <b>Br</b> Bromine 79.90
	53 <b>I</b> Iodine 126.90

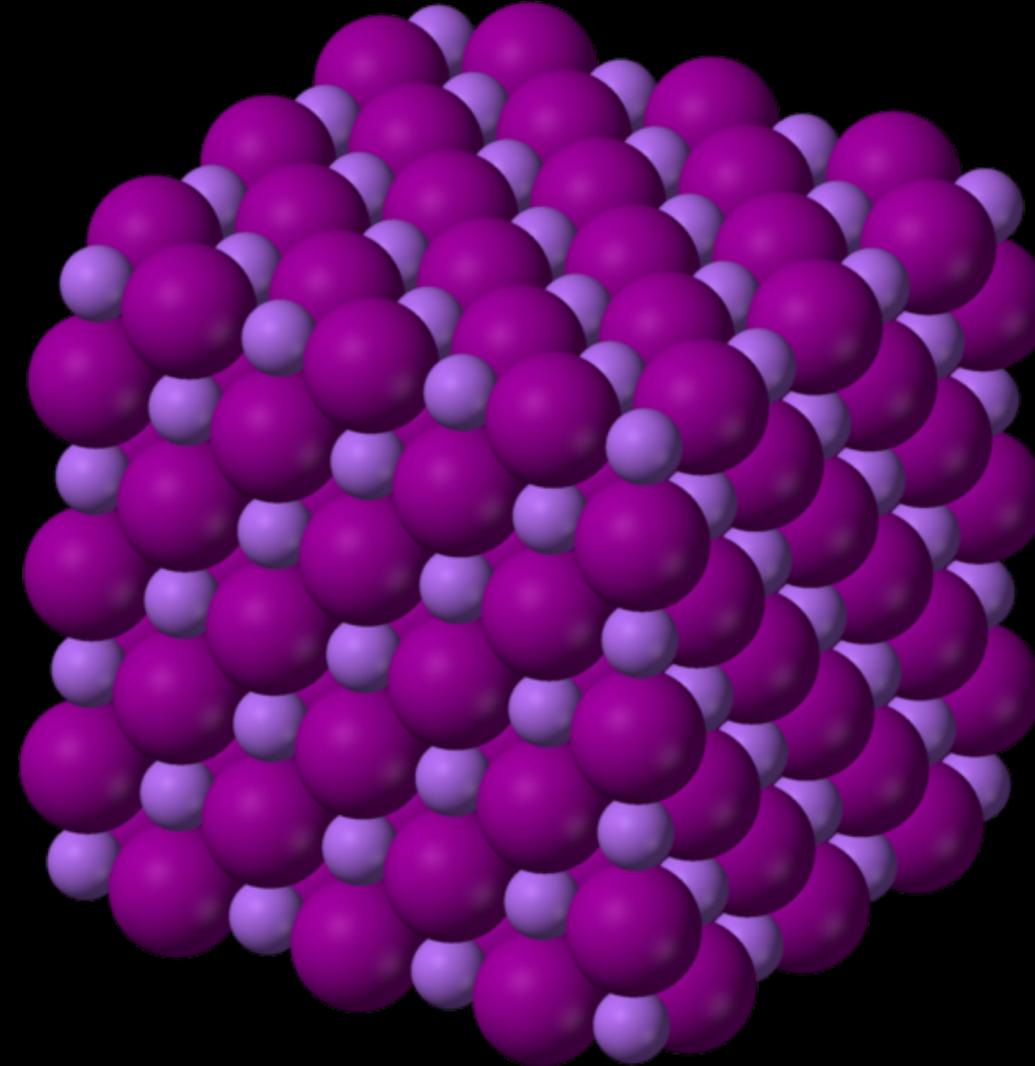
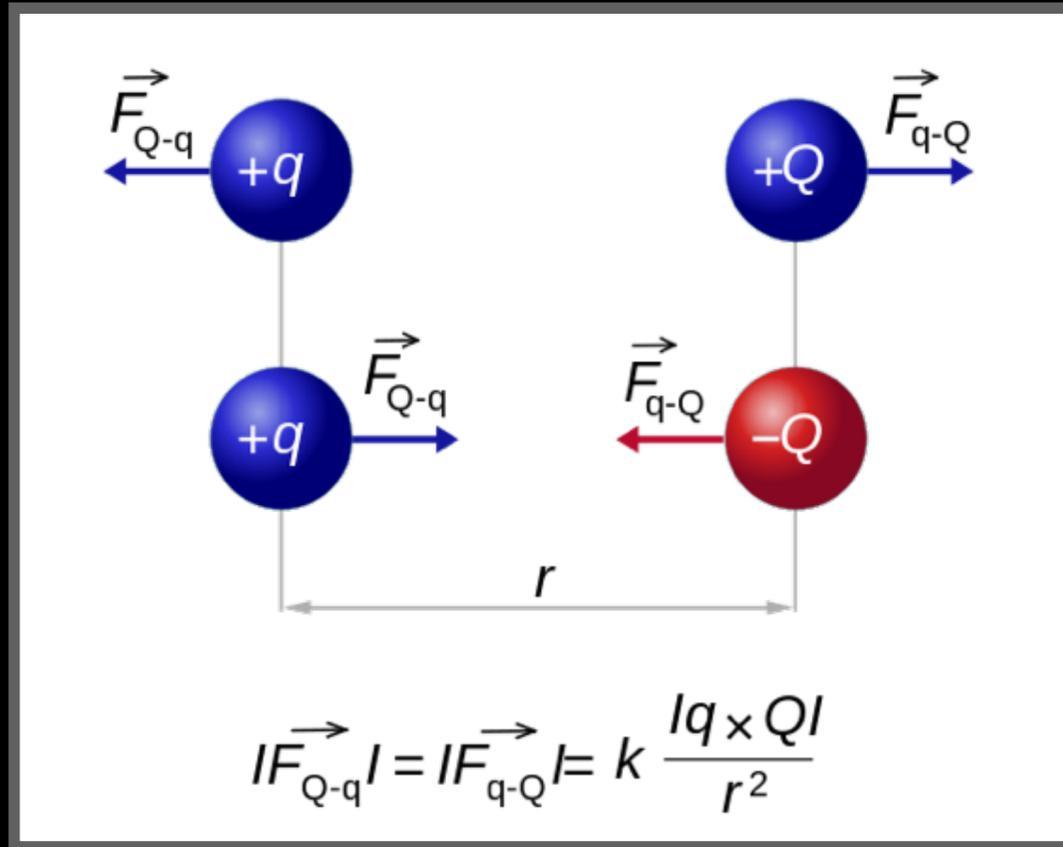
# Coulomb's Law



lattice energy 732 kJ/mol

9 <b>F</b> Fluorine 19.00	17 <b>Cl</b> Chlorine 35.45
11 <b>Na</b> Sodium 22.99	35 <b>Br</b> Bromine 79.90
	53 <b>I</b> Iodine 126.90

# Coulomb's Law

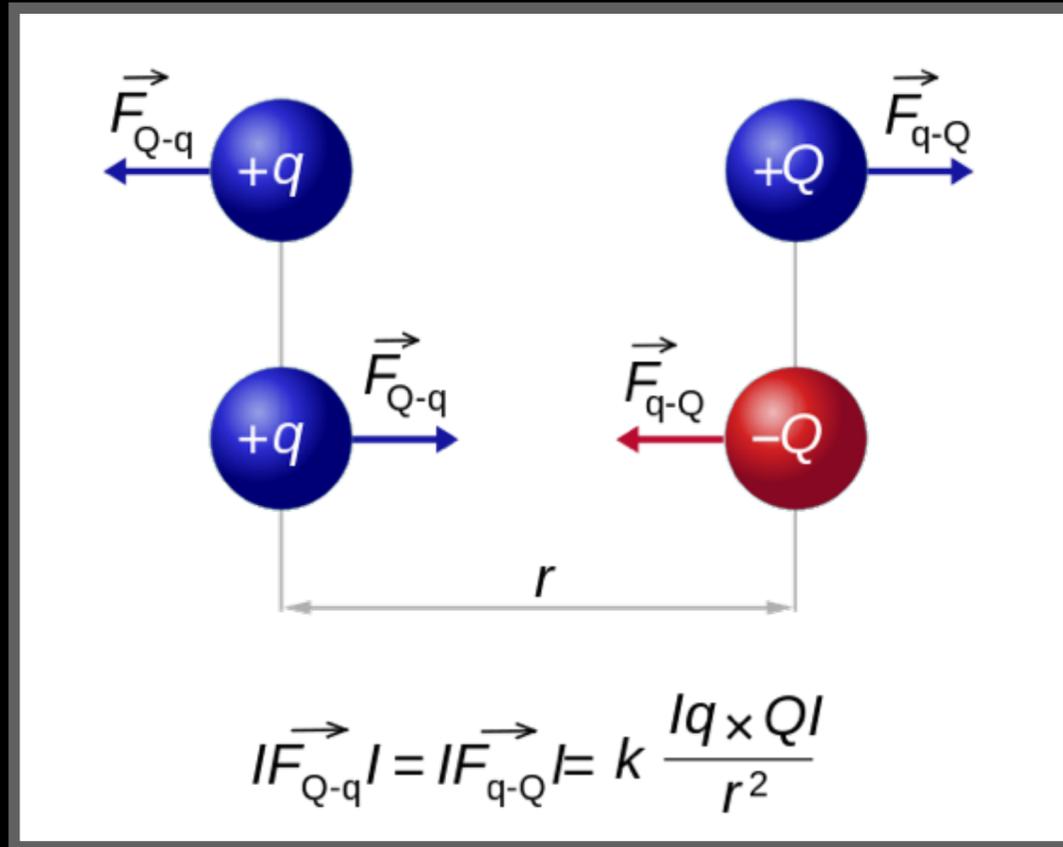


lattice energy 682 kJ/mol

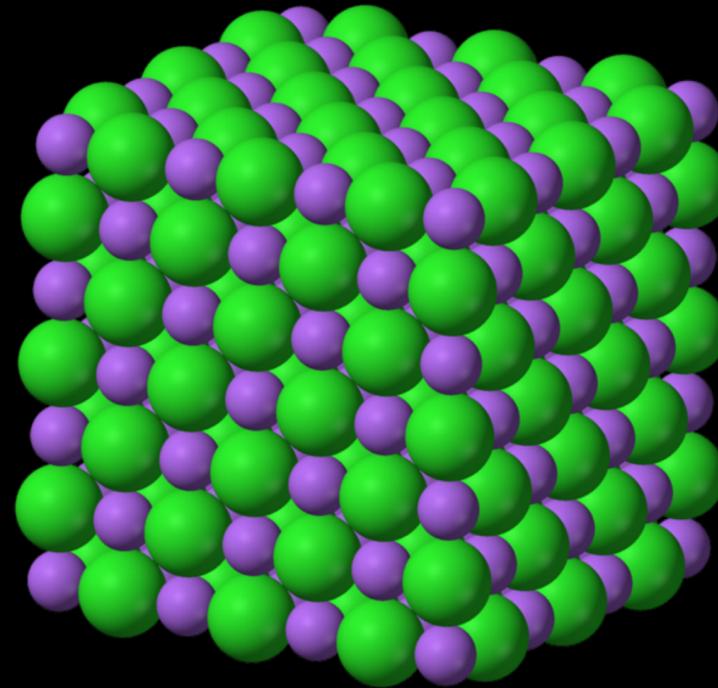
9 <b>F</b> Fluorine 19.00	17 <b>Cl</b> Chlorine 35.45
35 <b>Br</b> Bromine 79.90	53 <b>I</b> Iodine 126.90

11 <b>Na</b> Sodium 22.99
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# Coulomb's Law

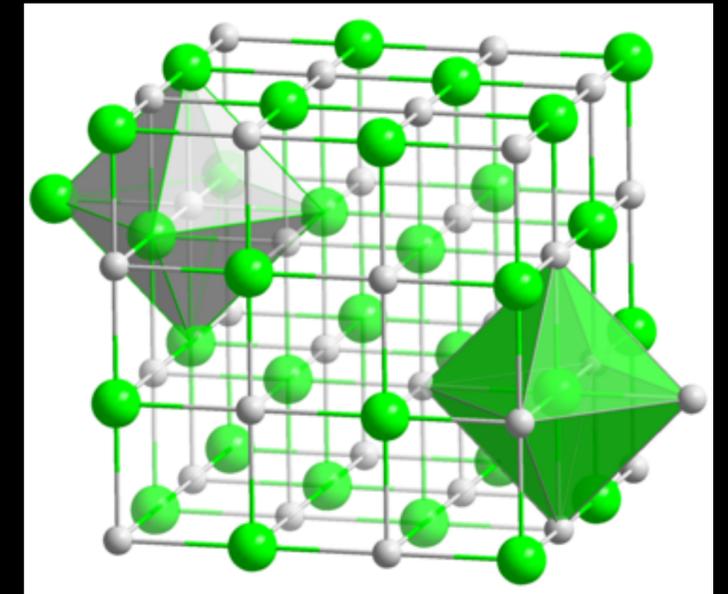


Sodium chloride



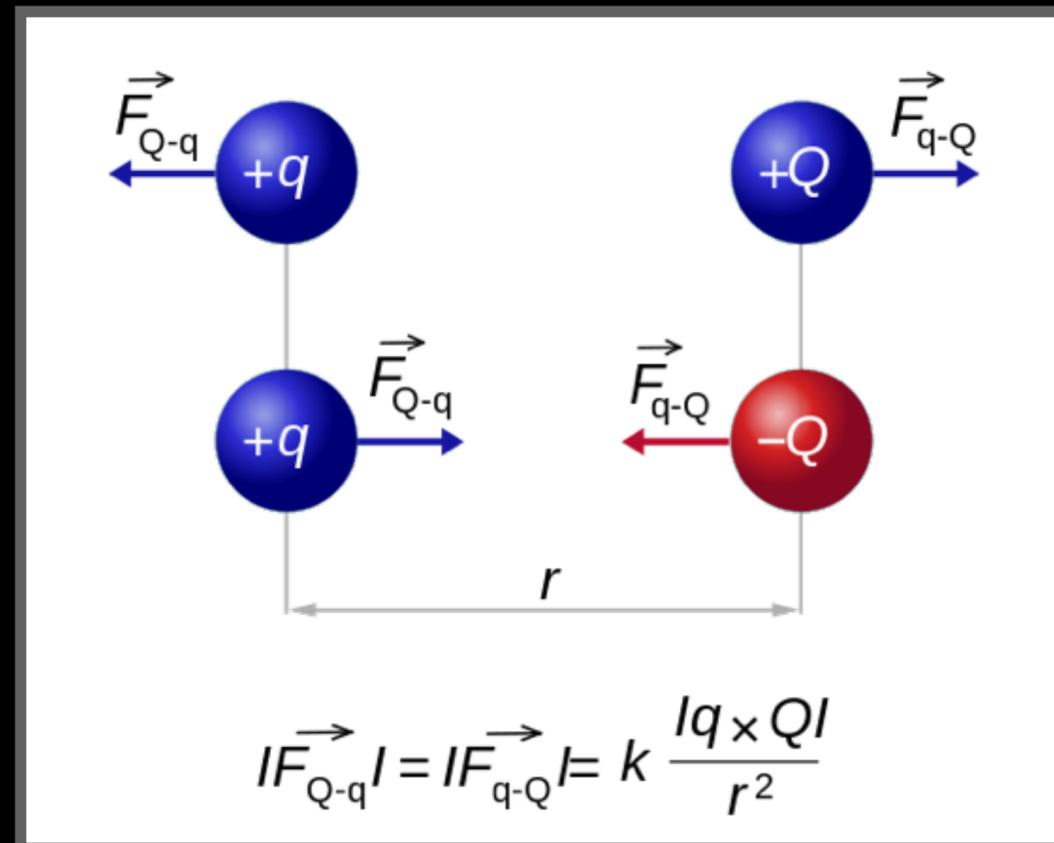
lattice energy 788 kJ/mol

Barium oxide



lattice energy 3054 kJ/mol

Did you learn?



To connect microscopic structure to macroscopic properties in ionic solids.

## Acknowledgements

“File:Cat November 2010-1a.jpg,” July 19, 2013. [http://en.wikipedia.org/w/index.php?title=File:Cat\\_November\\_2010-1a.jpg&oldid=517556234](http://en.wikipedia.org/w/index.php?title=File:Cat_November_2010-1a.jpg&oldid=517556234).

“File:Chloride-Ion-3D-vdW.png,” August 12, 2013. <http://en.wikipedia.org/wiki/File:Chloride-ion-3D-vdW.png>.

“File:CoulombsLaw.svg,” August 12, 2013. <http://en.wikipedia.org/wiki/File:CoulombsLaw.svg>.

“File:NaCl Polyhedra.png,” August 12, 2013. [http://en.wikipedia.org/wiki/File:NaCl\\_polyhedra.png](http://en.wikipedia.org/wiki/File:NaCl_polyhedra.png).

“File:NaCl.png,” August 12, 2013. <http://en.wikipedia.org/wiki/File:NaCl.png>.

“File:Periodic Trends.svg,” August 12, 2013. [http://en.wikipedia.org/wiki/File:Periodic\\_trends.svg](http://en.wikipedia.org/wiki/File:Periodic_trends.svg).

“File:Sodium-Bromide-3D-Ionic.png,” August 12, 2013. <http://en.wikipedia.org/wiki/File:Sodium-bromide-3D-ionic.png>.

“File:Sodium-Fluoride-3D-Ionic.png,” August 12, 2013. <http://en.wikipedia.org/wiki/File:Sodium-fluoride-3D-ionic.png>.

“File:Sodium-Iodide-3D-Ionic.png,” August 12, 2013. <http://en.wikipedia.org/wiki/File:Sodium-iodide-3D-ionic.png>.



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