

Electronegativity is the ability of an atom to attract electrons during bonding.

A higher group number generally means:

- a smaller atomic radius
- higher electronegativity
- less metallic character

A period further down the table generally means:

- a larger atomic radius
- lower electronegativity
- more metallic character

Atoms react to achieve a stable valence shell. Elements like sodium (1 valence electron) will tend* to lose electrons, while elements like chlorine (7 valence electrons) will tend to gain electrons.

The periodic table shows the trend from metals to non-metals, with metalloids in the middle.

Metals:

- lose electrons during reactions
- low electronegativities
- form basic oxides (oxides that react with acids)
- shiny (lustrous)
- high melting/boiling points
- malleable (stretch and bend)

Non-metals:

- gain electrons during reactions
- high electronegativities
- form acidic oxides (oxides that react with bases)
- not shiny (have no lustre)
- low melting/boiling points
- brittle (snap instead of bending)

Metalloids display properties of either, depending on the situation. They have intermediate electronegativities.