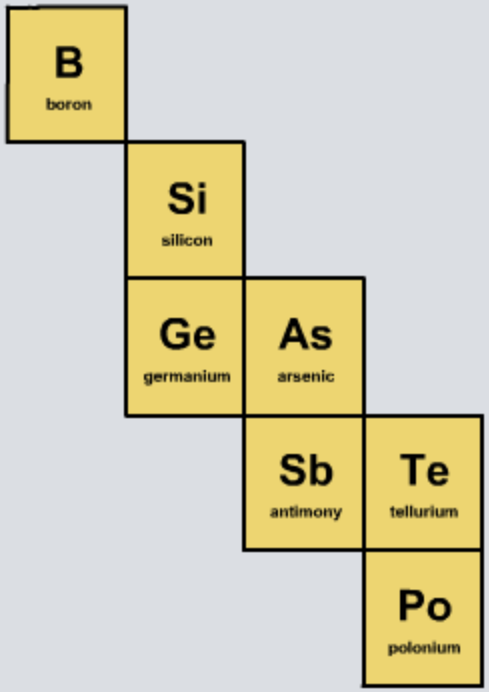
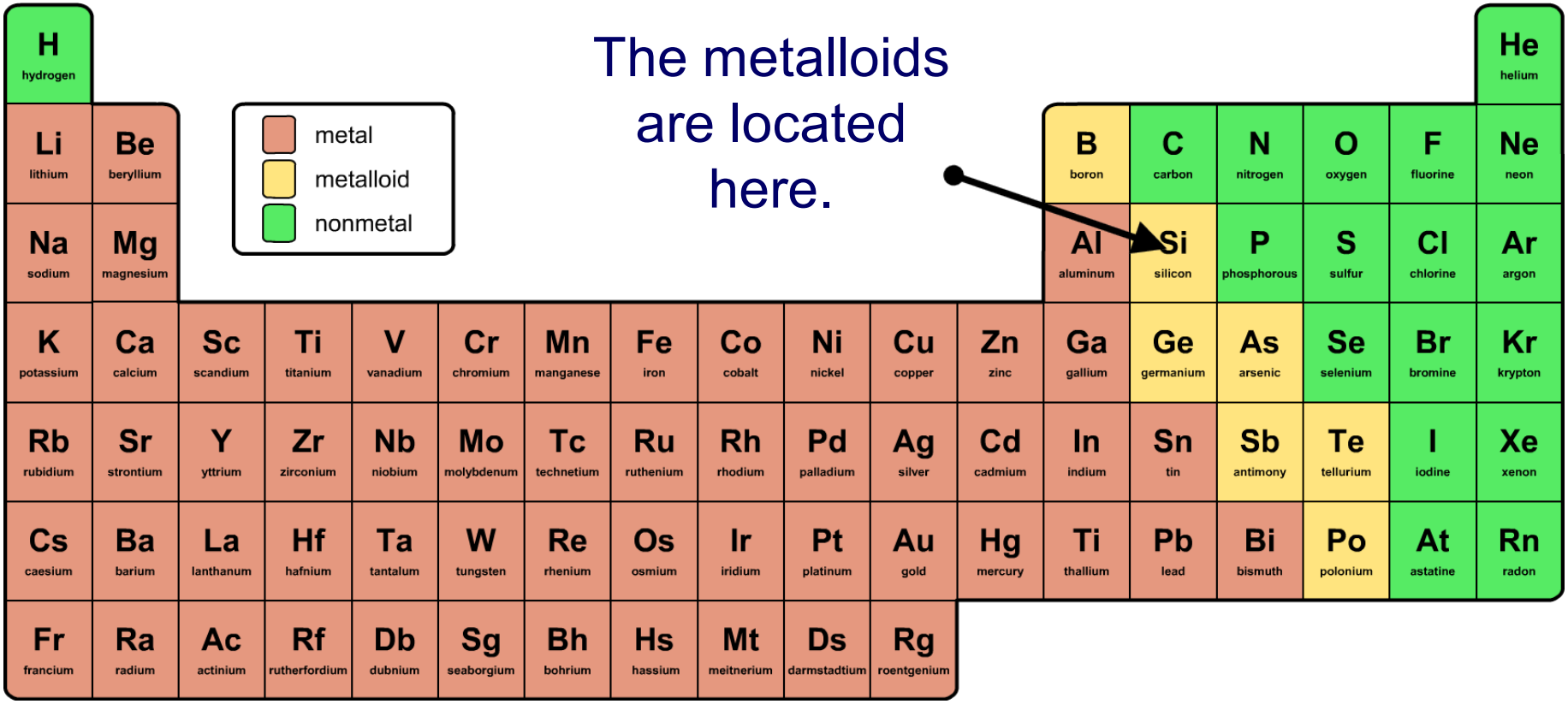
Metalloids



Metalloids

Where in the periodic table can you find the metalloids (sometimes called semi-metals)?



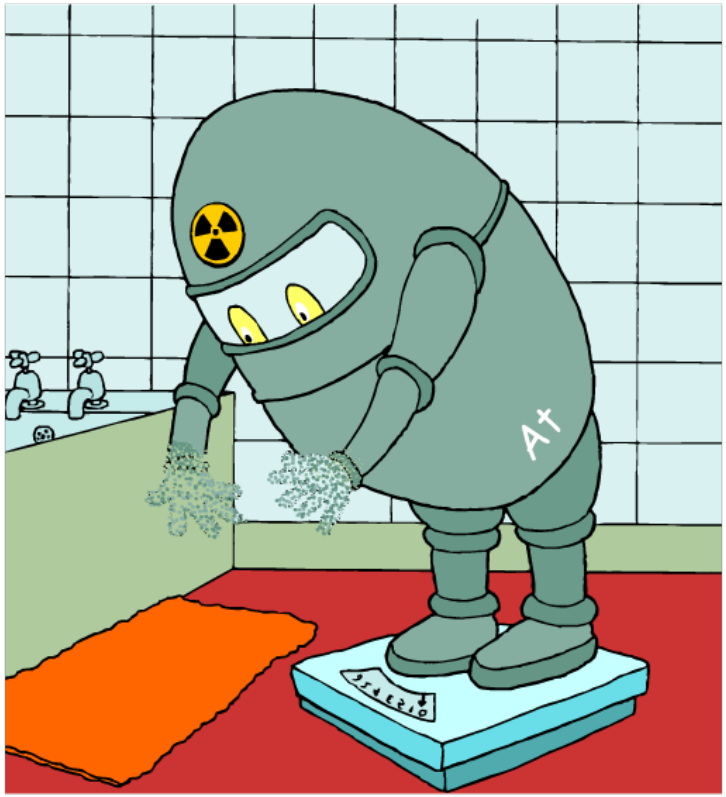
Properties of metalloids

Can you predict the properties of the metalloids?

As you might expect, metalloids have properties halfway between those of metals and nonmetals.

Metalloids are solids at room temperature, react in some ways like metals and in some ways like nonmetals, and, perhaps most importantly, act as semi-conductors.

The metalloids are boron, silicon, germanium, arsenic, antimony, tellurium and astatine.



Metal, nonmetal or metalloid?

Are these elements metals, nonmetals or metalloids?

metal	metalloid	nonmetal

francium (Fr)

?

C

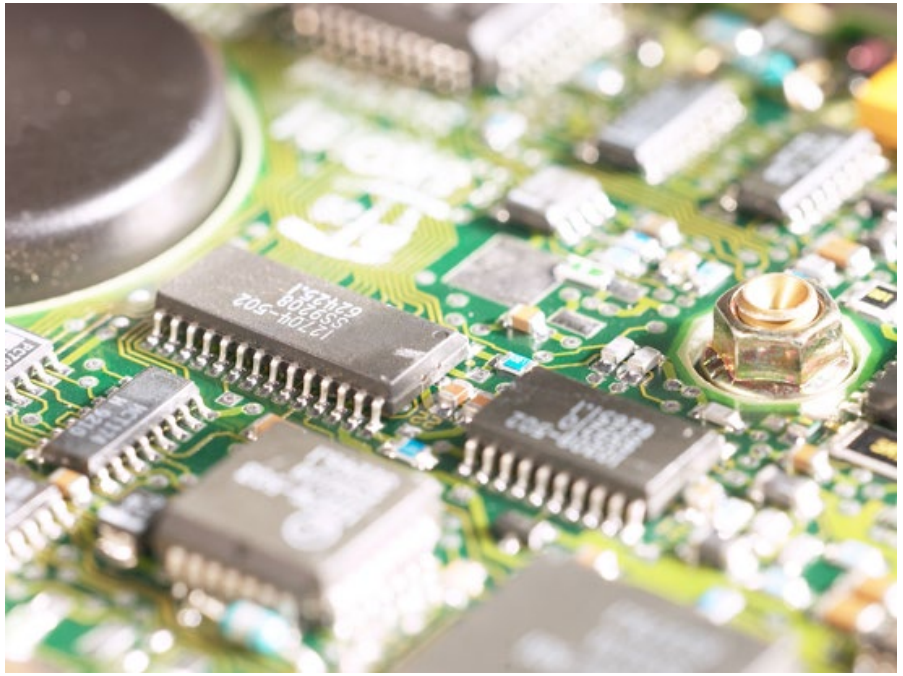
solve

Semi-conductors

Semi-conductors are neither conductors nor insulators.

Semi-conductors conduct a tiny amount of electricity, but their conductivity can be changed by doping, which means adding a small amount of other substances to the semi-conductor.

Doping allows scientists to control how much electricity is conducted, and that allows them to build silicon chips.

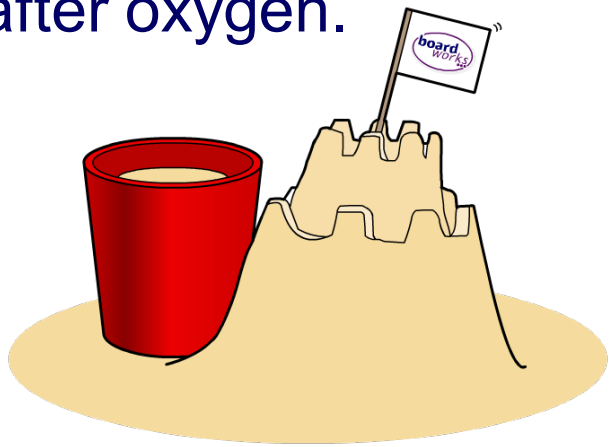


Silicon chips are used in many appliances, such as computers, cell phones, digital appliances, games consoles and solar panels.

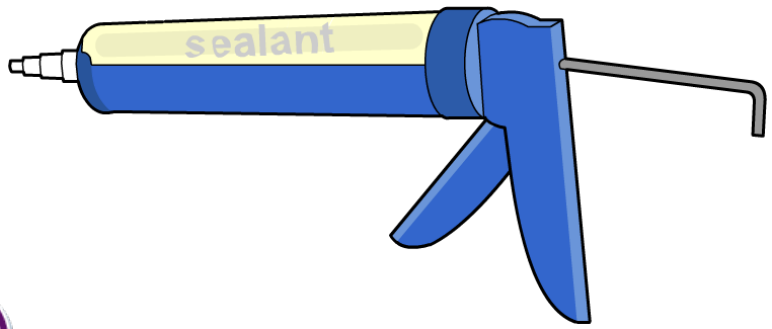
Silicon

Silicon makes up 26% of the Earth's crust by mass, and is the second most abundant element, after oxygen.

Silicon is found in sand as silicon dioxide, and in glass, cement and ceramics as silicon oxides.



As an element, silicon is thought to be essential for growth in plants, and for the formation of cell walls in microscopic algae.



Silicon compounds are used for waterproofing, sealants and in breast implants.