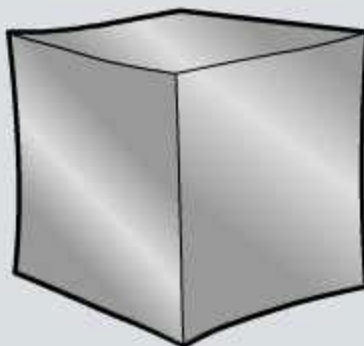


# Metals and Nonmetals



# Metals in the periodic table

The periodic table is a list of all the known elements, arranged according to similarities in their properties.

Where are metals and nonmetals located in the periodic table?

Metals are on the left and in the center. Nonmetals are mostly on the right.

H hydrogen																	He helium
Li lithium	Be beryllium											B boron	C carbon	N nitrogen	O oxygen	F fluorine	Ne neon
Na sodium	Mg magnesium											Al aluminum	Si silicon	P phosphorous	S sulfur	Cl chlorine	Ar argon
K potassium	Ca calcium	Sc scandium	Ti titanium	V vanadium	Cr chromium	Mn manganese	Fe iron	Co cobalt	Ni nickel	Cu copper	Zn zinc	Ga gallium	Ge germanium	As arsenic	Se selenium	Br bromine	Kr krypton
Rb rubidium	Sr strontium	Y yttrium	Zr zirconium	Nb niobium	Mo molybdenum	Tc technetium	Ru ruthenium	Rh rhodium	Pd palladium	Ag silver	Cd cadmium	In indium	Sn tin	Sb antimony	Te tellurium	I iodine	Xe xenon
Cs caesium	Ba barium	La lanthanum	Hf hafnium	Ta tantalum	W tungsten	Re rhenium	Os osmium	Ir iridium	Pt platinum	Au gold	Hg mercury	Tl thallium	Pb lead	Bi bismuth	Po polonium	At astatine	Rn radon
Fr francium	Ra radium	Ac actinium	Rf rutherfordium	Db dubnium	Sg seaborgium	Bh bohrium	Hs hassium	Mt meitnerium	Ds darmstadtium	Rg roentgenium							

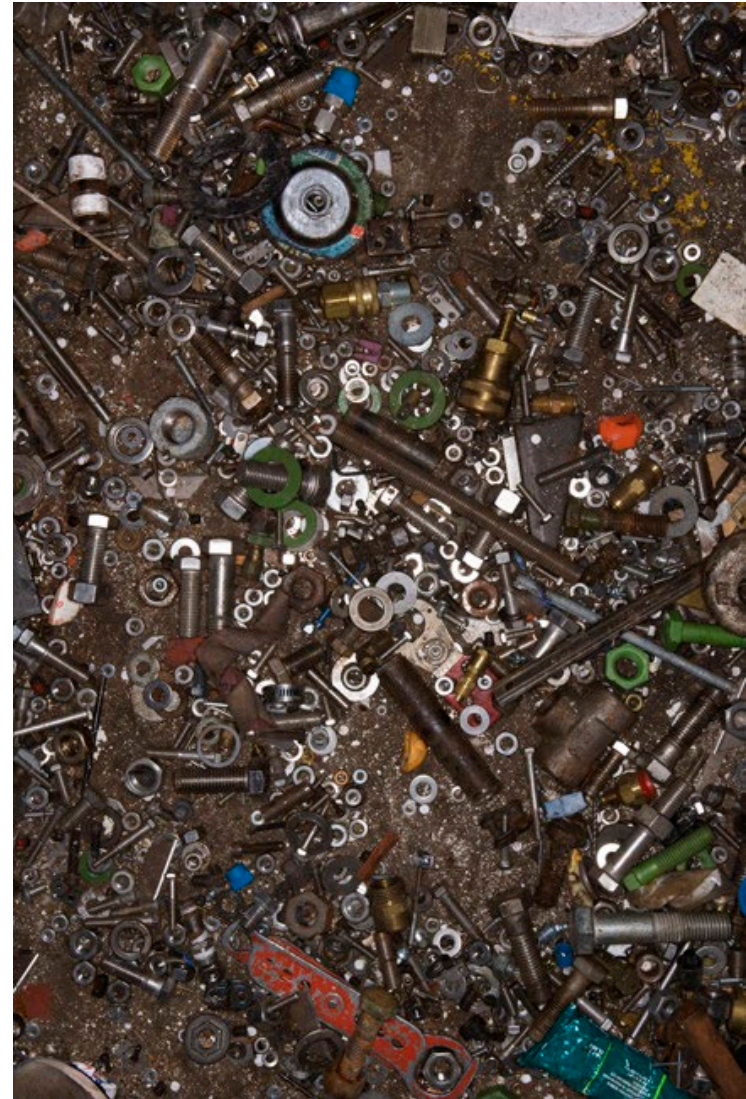


What does the word 'property' mean when scientists talk about metals?

A property is a characteristic of a substance.

The properties of a substance tell you how it looks, how it behaves and how it reacts in chemical reactions.

What do you think are some typical properties that metals have?



# Properties of metals – experiment



What are the properties of metals?

- solid
- strong
- malleable (easily shaped)
- conduct heat and electricity
- dense
- shiny
- sonorous (make a ringing sound)
- ductile (can be pulled into wires)
- high melting and boiling points.

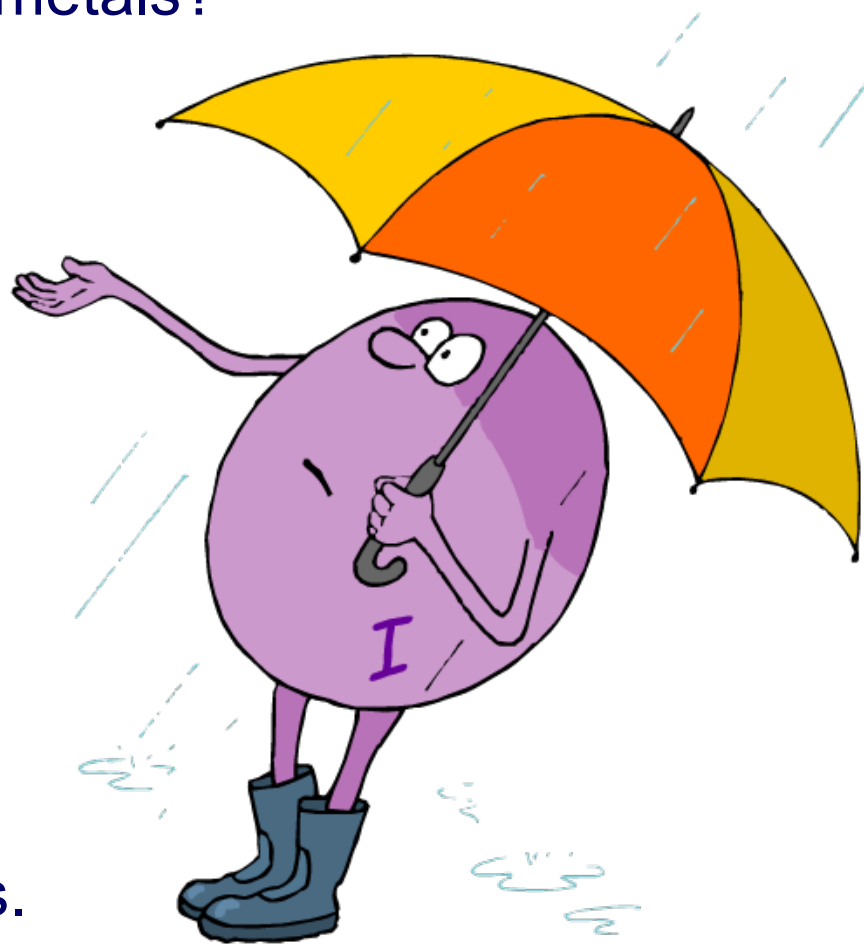


Do all metals have all these properties?



What are the properties of nonmetals?

- usually liquids or gases
- non-rigid structure
- poor conductors of heat and electricity
- low density
- dull, not shiny
- not ductile
- low melting and boiling points.



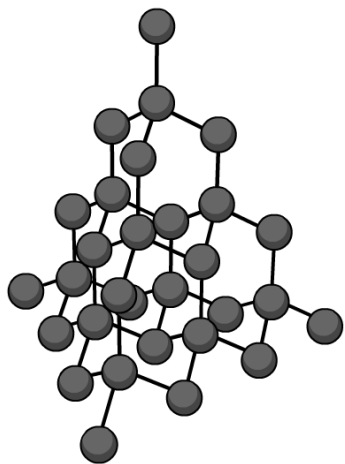
Do all nonmetals have all these properties?



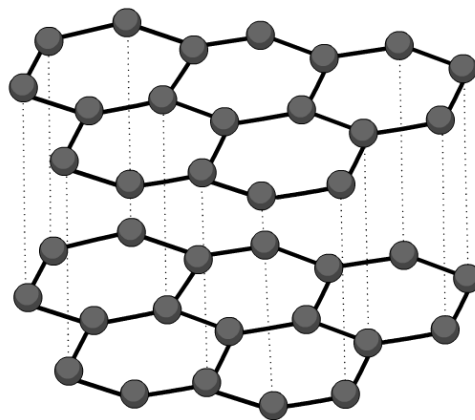
Carbon is a very common nonmetal.

Carbon is the fourth most common element in the universe, and nearly a fifth of the human body is made of carbon.

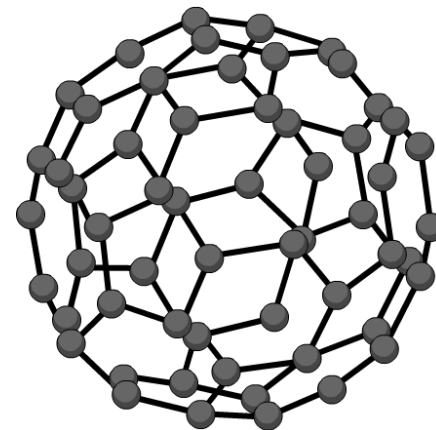
Carbon exists as a pure element in three forms:



Diamond, which is the hardest substance known.



Graphite, which you will find in your pencil.



Fullerenes, which are soccer ball-shaped molecules.



## What are the properties of metals and nonmetals?

property	metal	nonmetal
conduction of heat/ electricity	1	2
ability to bend	3	4
appearance	5	6
sound when hit	7	8
density	9	10
magnetism	11	12

poor conductor



solve





## Are these elements metals or nonmetals?

Using the patterns of the periodic table, identify each of the following elements as either metals or nonmetals.

Click "**start**" to begin.

**start**



# Metals and nonmetals: true or false?

