

Patterns of Behavior

					2 He
5 B	6 C	7 N	8 O	9 F	10 Ne
	14 Si	15 P	16 S	17 Cl	18 Ar
	32 Ge	33 As	34 Se	35 Br	36 Kr
		51 Sb	52 Te	53 I	54 Xe
				85 At	86 Rn



Where are these **different types of elements** grouped together in the periodic table?

- **metals** on the left and center
- **nonmetals** on the right (except hydrogen)
- **semi-metals** between metals and nonmetals

Semi-metals (or metalloids) have some properties similar to metals and other properties similar to nonmetals.

Can you name a semi-metal element?



Where are these **elements of different states** grouped together in the periodic table?

- **solids** on the left, in the center and on the right
- **liquids** in the middle and on the right
- **gases** on the far right (except hydrogen)

Only two elements are liquids at room temperature.
What are they?

- **bromine and mercury**



Metals to nonmetals, solids to gases

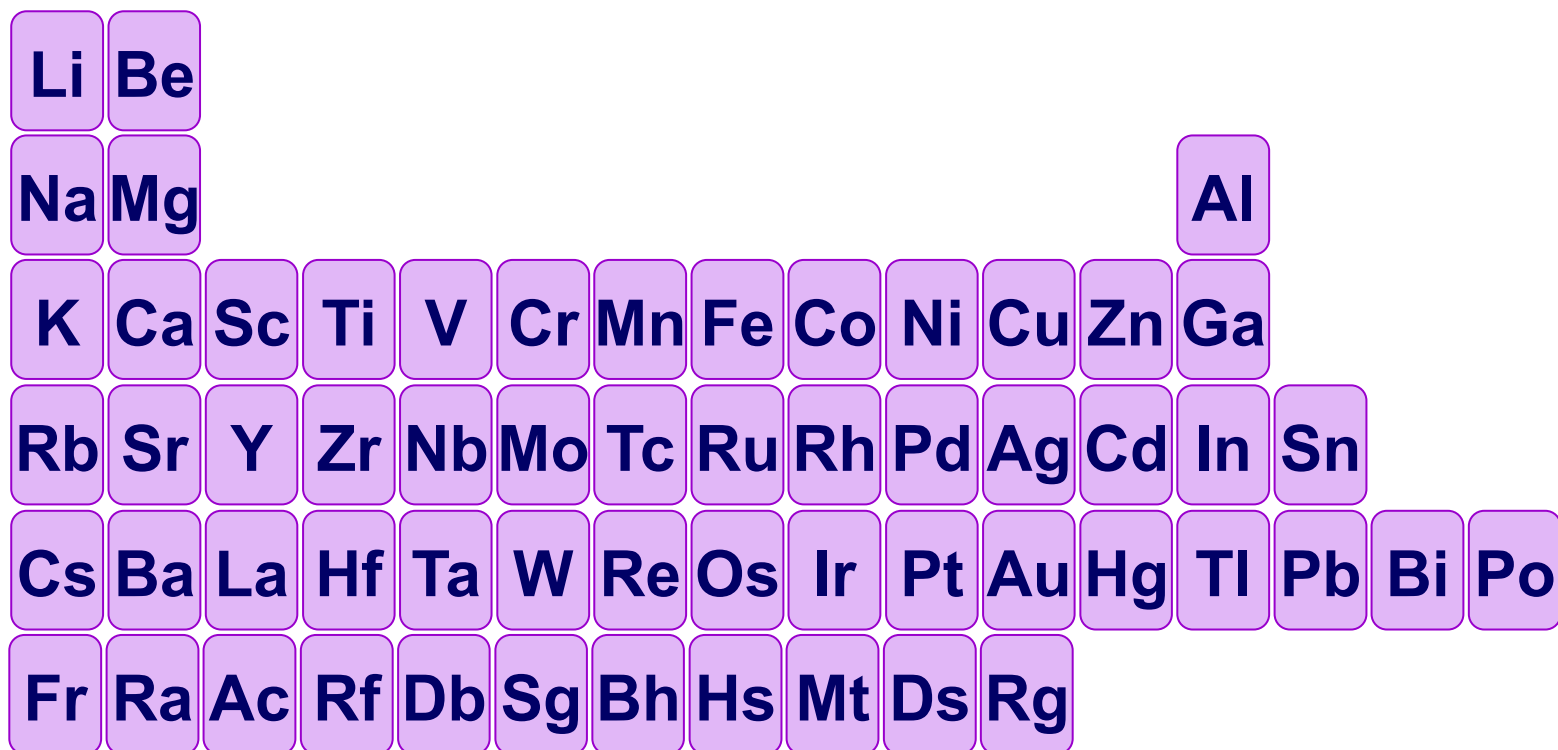


Patterns: reactivity of metals

What happens to the reactivity of metals **along a period**?

What happens to the reactivity of metals **down a group**?

Which is the **most reactive metal**?




increase in reactivity



increase in reactivity

Which metal is more reactive?



Which metal is the most reactive?

Li	Be																		
Na	Mg												Al						
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga							
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn						
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po				
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg									

potassium

lithium



Patterns: reactivity of nonmetals

Group 0 elements are the most unreactive of all elements. They are known as the **noble gases**.

For the remaining nonmetals and semi-metals, **reactivity increases** up a group and along a period from left to right.

Which is the most reactive nonmetal/semimetal?



increase in reactivity



increase in reactivity

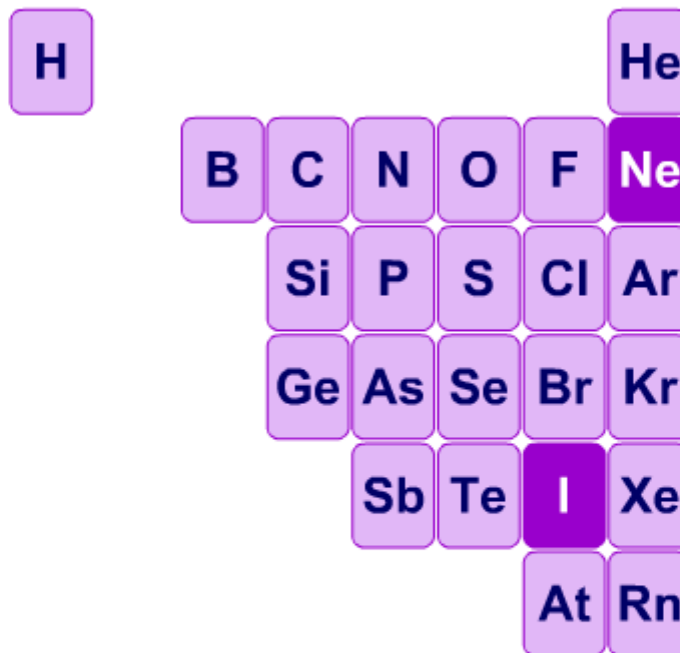
					He
B	C	N	O	F	Ne
	Si	P	S	Cl	Ar
	Ge	As	Se	Br	Kr
		Sb	Te	I	Xe
				At	Rn



unreactive

Which nonmetal is more reactive?

Which nonmetal/semimetal is the most reactive?



neon

iodine

