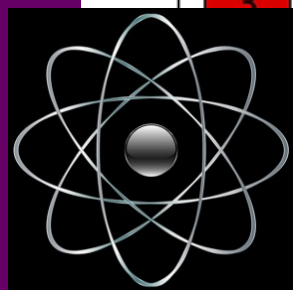
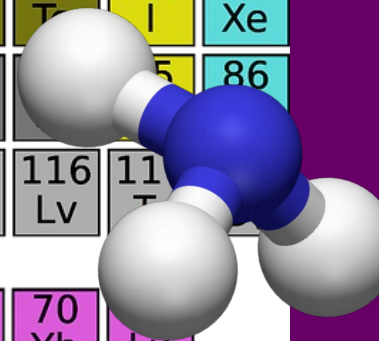


Middle School Chemistry

Atoms and the Periodic Table



Group→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
↓ Period	The Periodic Table of the Elements																	
1	1 H																	2 He
	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
		12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
		20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba		72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi			86 Rn
7	87 Fr	88 Ra		104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og
Lanthanides			57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	
Actinides			89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr	



TeachWithFergy

Preview File

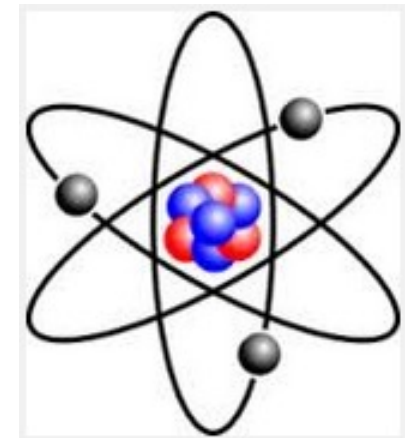
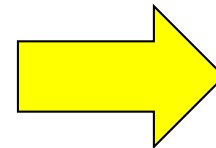
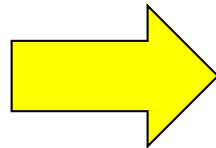
Please enjoy this preview of your Student Version of the lesson. I've created this PDF for ease of viewing and to decrease the file size but of course, your lesson will be in PowerPoint format.

- Some slides appear blank because they have been removed.
- Student versions have portions of the text removed which is given in the teacher version and appear as _____
- Other slides may have on them, this represents writing that has been removed.

How are atoms studied?

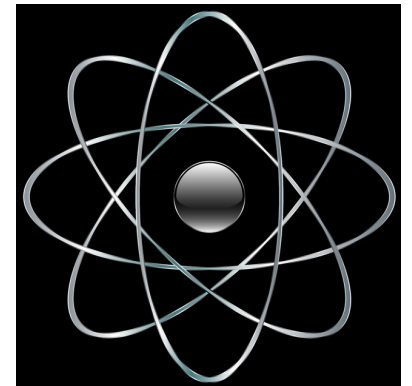
- _____
- Atoms are too small in size to study easily
- Size of Earth : soda can = soda can : atom

Simulation



Sizing up the Atom

- If you broke something down into smaller and smaller pieces, eventually, you'd get atoms



- _____

The Atom is Really, Really Small!

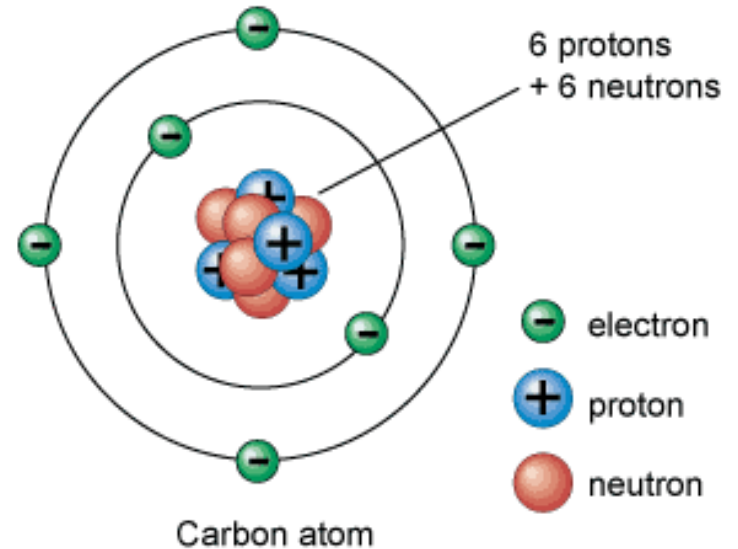
See how videos are embedded into your lesson. In **SLIDESHOW MODE**, click the video image on the right. The video will automatically open in your browser.



This slide has been removed

Current Atomic Model – What we think the atom looks like

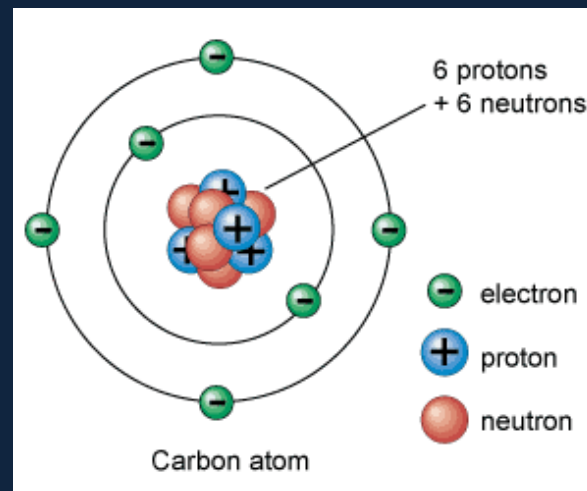
- _____
- Electrons move in orbits around the nucleus like planets around the Sun
- Electrons can



Atomic Structure & Notation

1. Atoms

- Protons
- Neutrons
- Electrons



2. Atomic Number

3. Mass Number

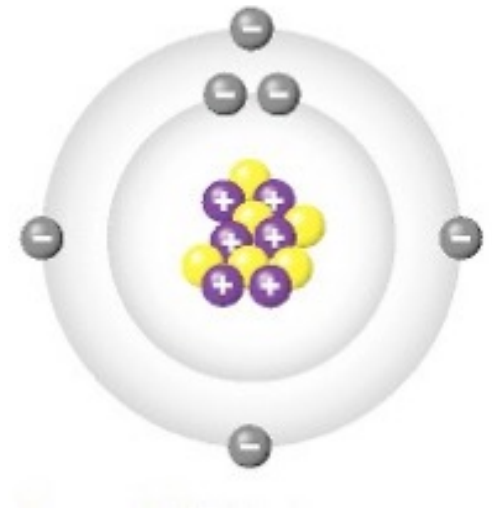
4. Atomic Symbols



Atoms

Atoms are the building blocks of all matter.

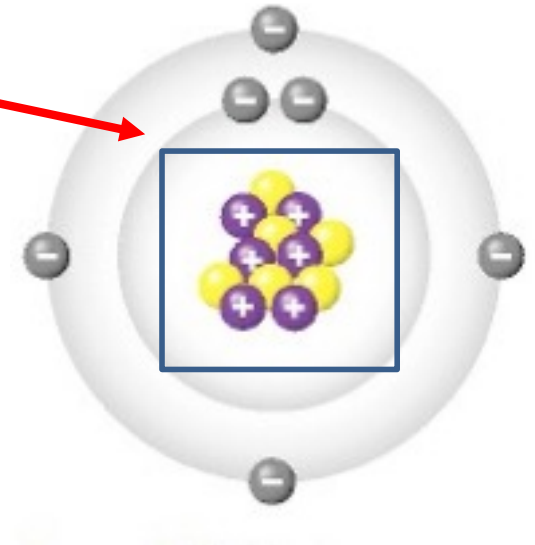
Name	Charge	Position	Mass
Protons	+	Nucleus	1
Electrons	-	Outside	0
Neutrons	neutral	Nucleus	1



What is the structure of an atom?

The atom is composed of an inner Nucleus and outer Orbits

- The Nucleus is where the Protons and Neutrons are
 - What lives in the nucleus, stays in the nucleus



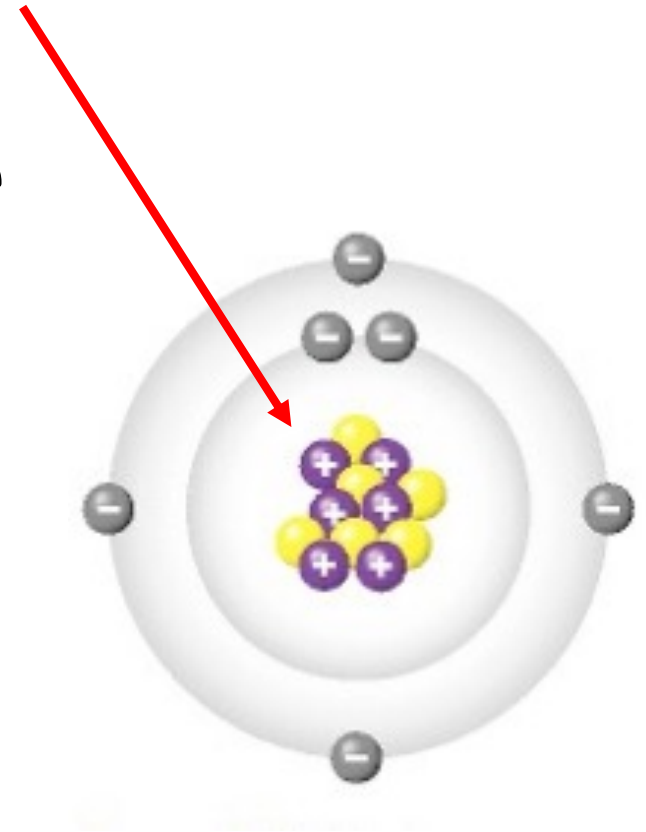
- _____

What is the structure of an atom?

Proton (p^+)

- Has a positive (+) charge
- Has a relative mass of 1
- Determines the atomic number

•



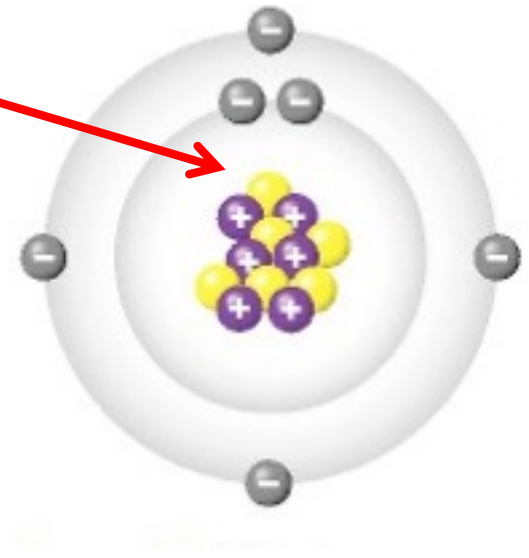
What is the structure of an atom?

Neutron (n^0)

- _____

- Has a relative mass of 1

- _____



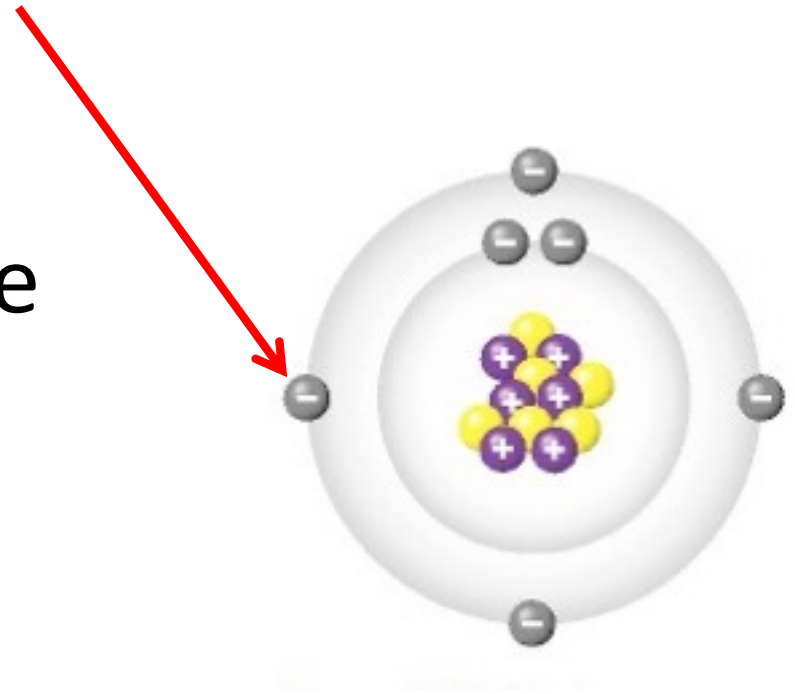
What is the structure of an atom?

Electron (e^-)

- Has a negative (-) charge
- Has a relative mass of 0 (zero)

- _____

- _____



This slide has been removed

This slide has been removed

Atomic Notation

Contains the symbol of the element,
the mass number and the atomic
number.

Superscript →

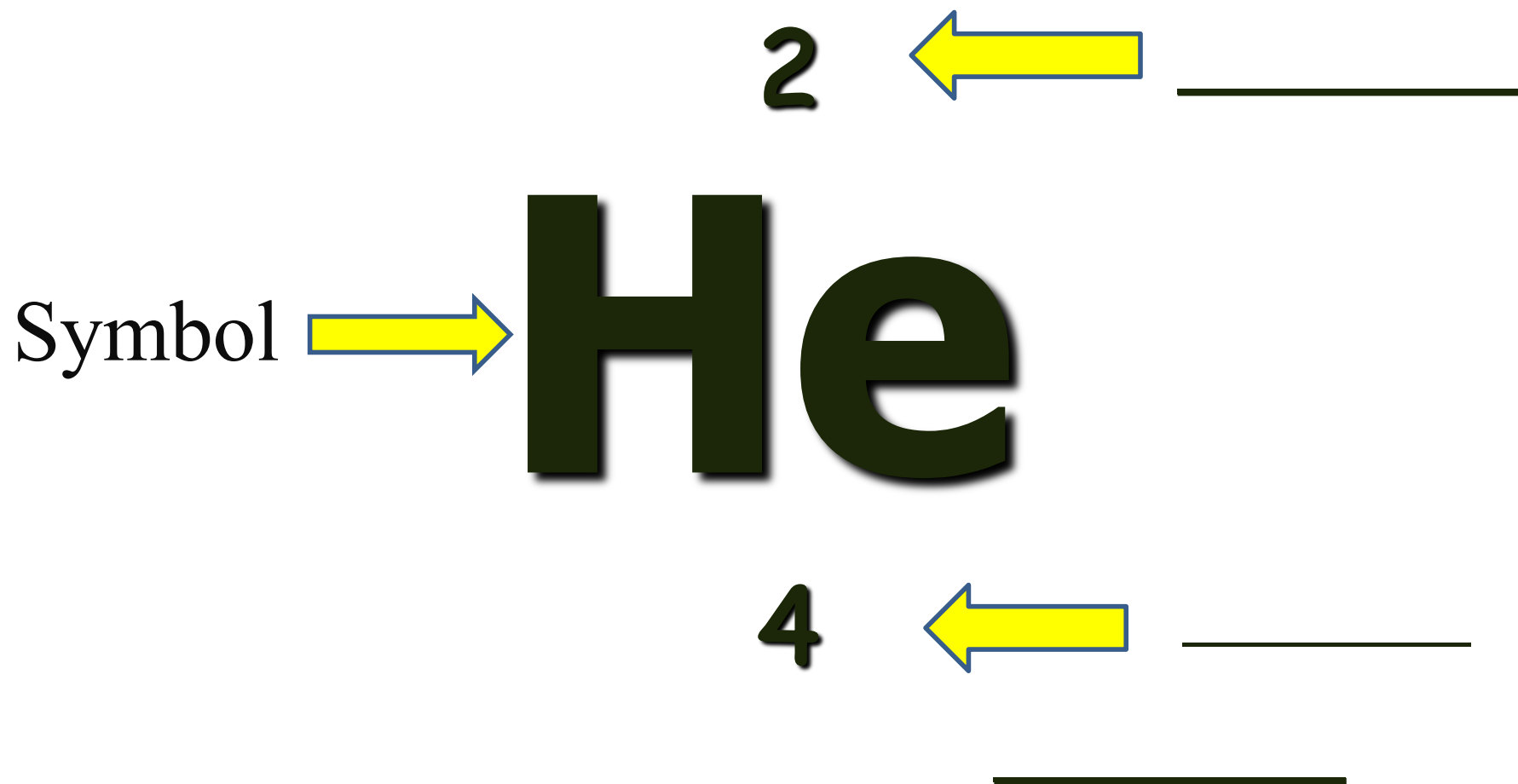
Symbol



X

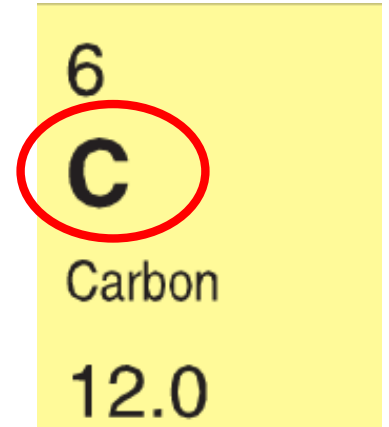
Subscript →

Atomic Notation Example

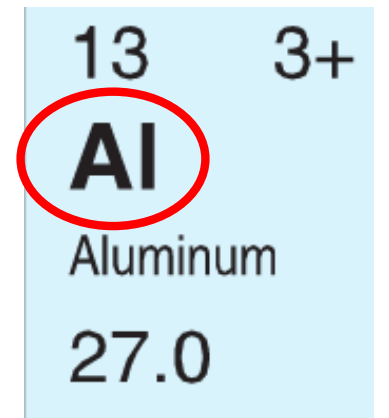


What is a chemical symbol?

- The chemical symbol tells us what atom it is
- It's a short form (C = Carbon)
 - sometimes it's the Latin short form (Au = Gold)

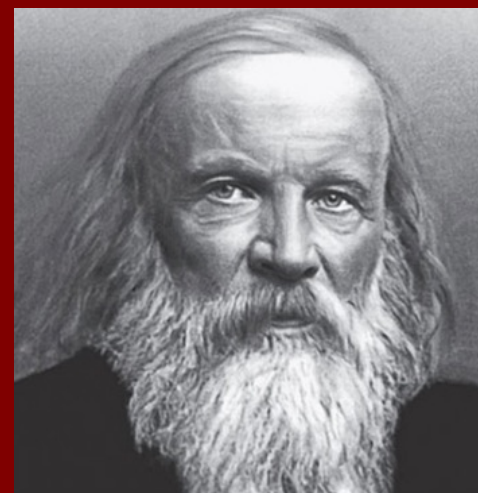
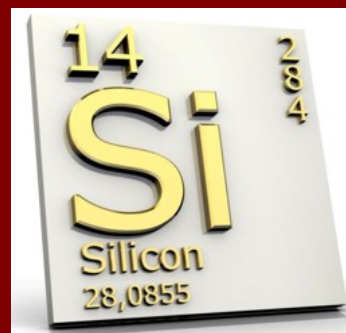


- Ex: Oxygen O, Nitrogen N, Sodium Na
- *Cobalt – Co *Carbon Monoxide – CO
(Co is an element, CO is a compound)



The Periodic Table

- 1) History –
Mendeleev
- 2) Element
squares
- 3) Atomic Number
- 4) Atomic Mass



Why is the Periodic Table Important?

- It's a useful tool for chemists
- _____

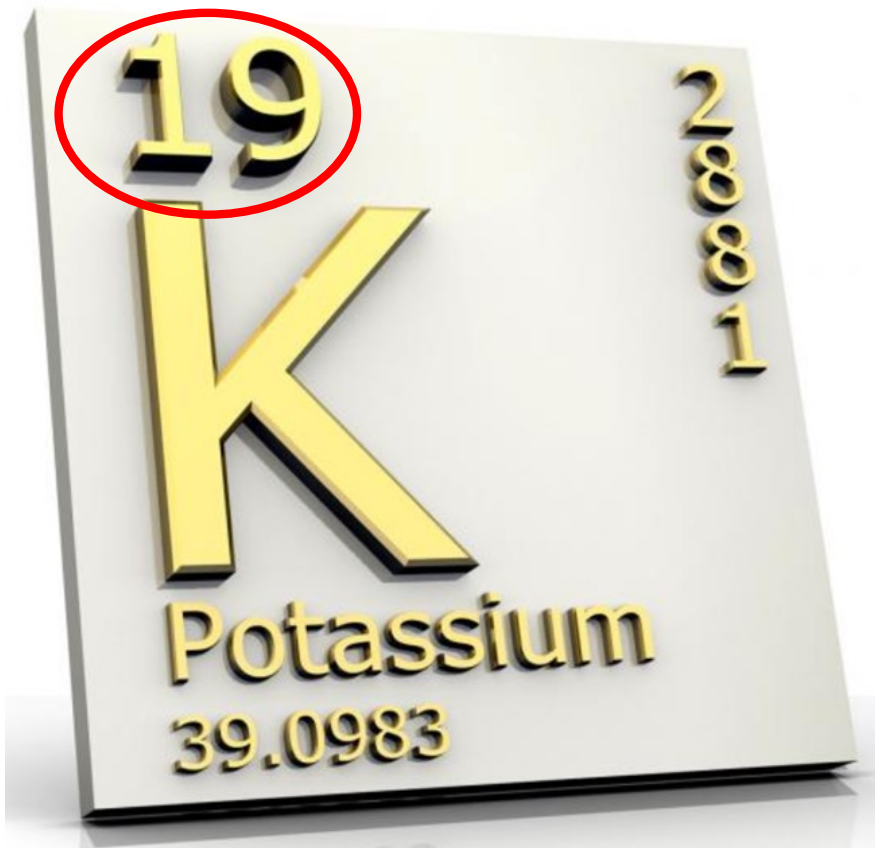


This slide has been removed

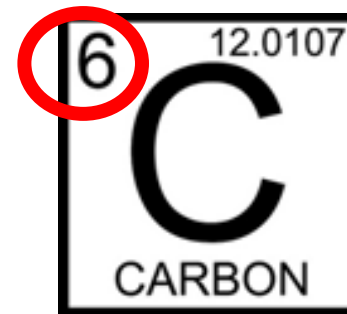
This slide has been removed

This slide has been removed

Atomic Numbers



Elements are organized on the table according to their atomic number, usually found near the top of the square.



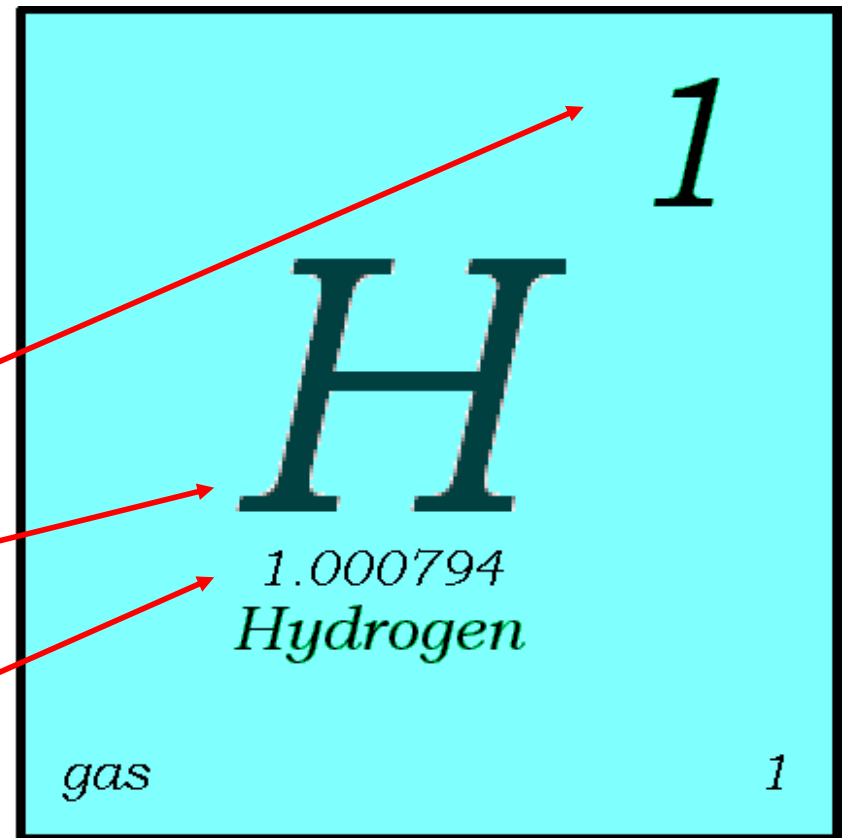
Group→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
↓Period	The Periodic Table of the Elements																	
1	1 H																	2 He
2	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
3	11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba		72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
7	87 Fr	88 Ra		104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og
Lanthanides			57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	
Actinides			89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr	

This slide has been removed

What does each square tell us?

Different periodic tables can include various bits of information, but usually include the

- atomic number
- symbol
- atomic mass



Atomic Mass

- Atomic Mass is the “weight” of the atom

- _____

