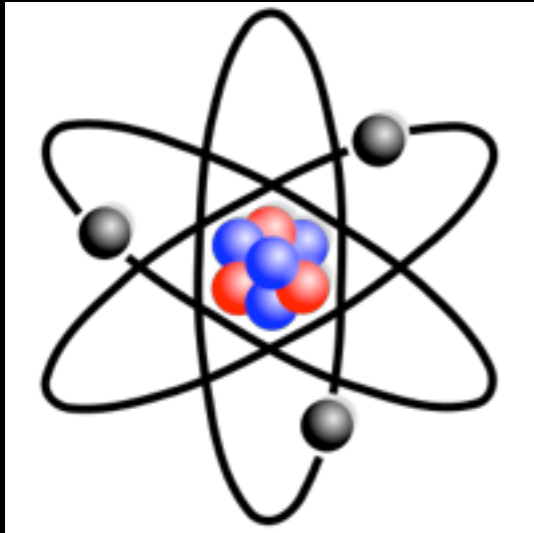


# Basic Chemistry

The study of matter and the changes it undergoes

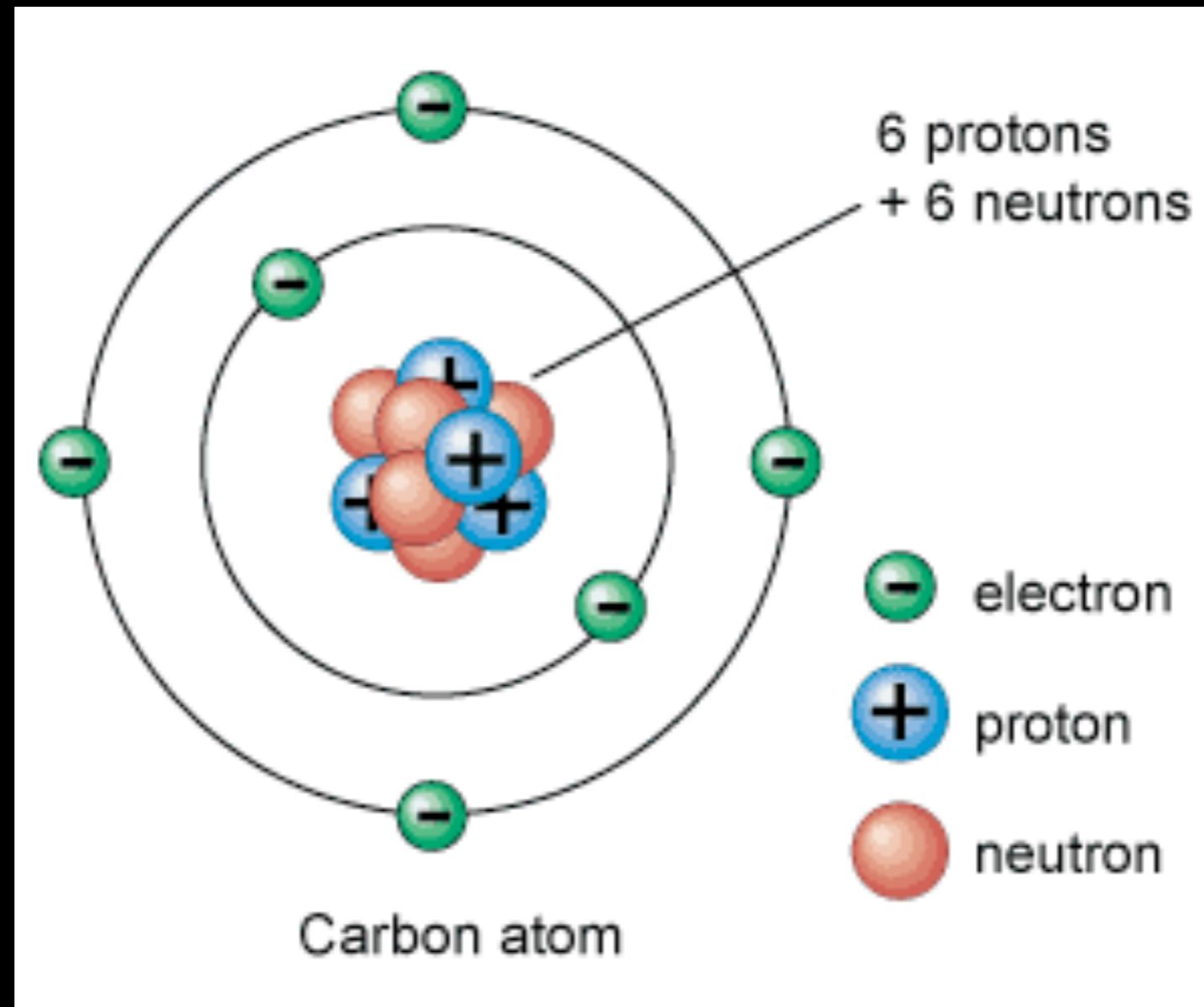
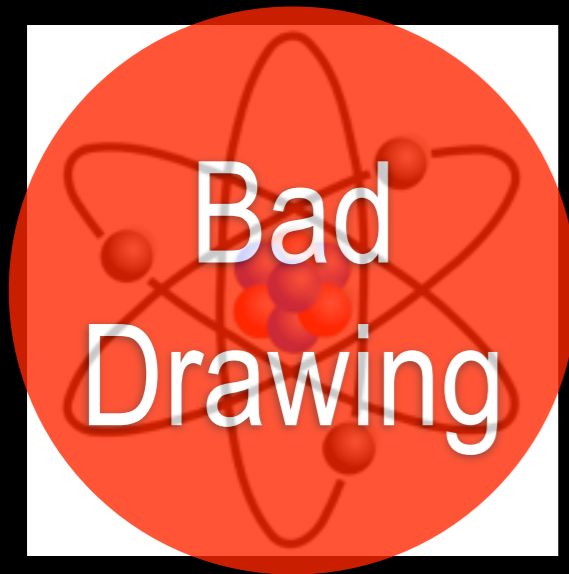
# Atom



# Atom



# Atom



# Element

# Element

- Pure substance made of one type of atom.

# Element

- Pure substance made of one type of atom.
- Elements are defined by the number of protons in their nucleus

# Element

**Periodic Table of Elements**

1	IA	1	IIA																	0	2				
1		H																		He					
2		3	4																	5	6	7	8	9	10
2		Li	Be																	B	C	N	O	F	Ne
3		11	12	III B	IV B	V B	VI B	VII B	VII		IB	IB	13	14	15	16	17	18							
3		Na	Mg										Al	Si	P	S	Cl	Ar							
4		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36						
4		K	Ca	Sc	Ti	Y	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr						
5		37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54						
5		Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe						
6		55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86						
6		Cs	Ba	*La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn						
7		87	88	89	104	105	106	107	108	109	110														
7		Fr	Ra	+Ac	Rf	Ha	106	107	108	109	110														

\* Lanthanide Series

58	59	60	61	62	63	64	65	66	67	68	69	70	71
Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu

+ Actinide Series

90	91	92	93	94	95	96	97	98	99	100	101	102	103
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

Legend - click to find out more...

H - gas

Li - solid

Br - liquid

Tc - synthetic



Non-Metals



Transition Metals



Rare Earth Metals



Halogens



Alkali Metals



Alkali Earth Metals



Other Metals



Inert Elements

# Molecule

# Molecule

- The smallest stable unit of a substance (or compound)

# Molecule

- The smallest stable unit of a substance (or compound)

Atom	Hydrogen	1 proton, 1 electron
Element	H	Most common element in the universe; combines with many other elements to make molecules
Molecule	H <sub>2</sub>	2 H atoms bonded together

# Molecules

# Molecules

- Complete the table:

# Molecules

- Complete the table:

Atom, element or molecule?	H	1 proton, 1 electron
Atom, element or molecule?	C	6 protons, 6 neutrons, 6 e's
Atom, element or molecule?	O	8 protons, 8 neutrons, 8 electrons
Molecule	H <sub>2</sub> O	How many H's? O's? What's it called?
Atom, element or molecule?	?	Carbon dioxide

# Periodic table

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- In order to understand WHY something happens, we must understand the components:

# Periodic table

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- Stuff + other stuff + reason = result

# Periodic table

- In order to understand WHY something happens, we must understand the components:
- Stuff + other stuff + reason = result
- The periodic table explains all the stuff

# Mendeleev's Table

- The first ever periodic table

Group	I	II	III	IV	V	VI	VII	VIII
<b>Period 1</b>	H=1							
<b>2</b>	Li=7	Be=9.4	B=11	C=12	N=14	O=16	F=19	
<b>3</b>	Na=23	Mg=24	Al=27.3	Si=28	P=31	S=32	Cl=35.5	
<b>4</b>	K=39	Ca=40	?=44	Ti=48	V=51	Cr=52	Mn=55	Fe=56, Co=59 Ni=59
<b>5</b>	Cu=63	Zn=65	?=68	?=72	As=75	Se=78	Br=80	
<b>6</b>	Rb=85	Sr=87	?Yt=88	Zr=90	Nb=94	Mo=96	?=100	Ru=104, Rh=104 Pd=106
<b>7</b>	Ag=108	Cd=112	In=113	Sn=118	Sb=122	Te=125	J=127	
<b>8</b>	Cs=133	Ba=137	?Di=138	?Ce=140				
<b>9</b>								
<b>10</b>			?Er=178	?La=180	Ta=182	W=184		Os=195, Ir=197 Pt=198
<b>11</b>	Au=199	Hg=200	Tl=204	Pb=207	Bi=208			
<b>12</b>				Th=231		U=240		

# Modern Table

**Periodic Table of Elements**

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<b>H - gas</b>	<b>Li - solid</b>	<b>Br - liquid</b>	<b>Tc - synthetic</b>
 Non-Metals	 Transition Metals	 Rare Earth Metals	 Halogens
 Alkali Metals	 Alkali Earth Metals	 Other Metals	 Inert Elements

# Modern Table

**Periodic Table of Elements**

1	2											3	4	5	6	7	8	9	10		
IA		IIA											IIIA	IVA	VA	VIA	VIIA	0			
1	H																			2	He
2	3	4											5	6	7	8	9	10			
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# “Interactive” table

# “Interactive” table

- <http://www.ptable.com/>