

Periodic

Trends

By: _____

Atomic Radius

1 1A							8 8A
	2 2A	3 3A	4 4A	5 5A	6 6A	7 7A	
3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18
19	20	31	32	33	34	35	36

1 1A							8 8A
	2 2A	3 3A	4 4A	5 5A	6 6A	7 7A	
1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	31	32	33	34
35	36						

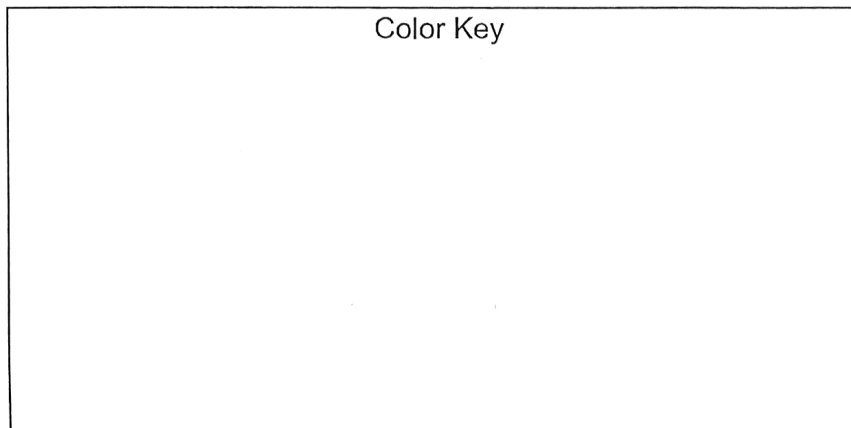
Electronegativity

	1 1A								8 8A
	1	2 2A	3 3A	4 4A	5 5A	6 6A	7 7A	8	2
	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	
	19	20	31	32	33	34	35	36	

Ionic Radius

	1 1A								8 8A
	1	2 2A	3 3A	4 4A	5 5A	6 6A	7 7A	8	2
	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	
	19	20	31	32	33	34	35	36	

The Periodic Table

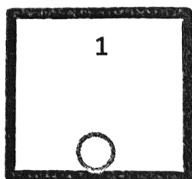


1 H Hydrogen 1.00794																	2 He Helium 4.003				
3 Li Lithium 6.941	4 Be Beryllium 9.012182															5 B Boron 10.811	6 C Carbon 12.0107	7 N Nitrogen 14.00674	8 O Oxygen 15.9994	9 F Fluorine 18.9984032	10 Ne Neon 20.1797
11 Na Sodium 22.989770	12 Mg Magnesium 24.3050															13 Al Aluminum 26.981538	14 Si Silicon 28.0855	15 P Phosphorus 30.973761	16 S Sulfur 32.066	17 Cl Chlorine 35.4527	18 Ar Argon 39.948
19 K Potassium 39.0983	20 Ca Calcium 40.078	21 Sc Scandium 44.955910	22 Ti Titanium 47.867	23 V Vanadium 50.9415	24 Cr Chromium 51.9961	25 Mn Manganese 54.938049	26 Fe Iron 55.845	27 Co Cobalt 58.933200	28 Ni Nickel 58.6934	29 Cu Copper 63.546	30 Zn Zinc 65.39	31 Ga Gallium 69.723	32 Ge Germanium 72.61	33 As Arsenic 74.92160	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.80				
37 Rb Rubidium 85.4678	38 Sr Strontium 87.62	39 Y Yttrium 88.90585	40 Zr Zirconium 91.224	41 Nb Niobium 92.90638	42 Mo Molybdenum 95.94	43 Tc Technetium (98)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.90550	46 Pd Palladium 106.42	47 Ag Silver 107.8682	48 Cd Cadmium 112.411	49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.760	52 Te Tellurium 127.60	53 I Iodine 126.90447	54 Xe Xenon 131.29				
55 Cs Cesium 132.90545	56 Ba Barium 137.327	57 La Lanthanum 138.9055	72 Hf Hafnium 178.49	73 Ta Tantalum 180.9479	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.217	78 Pt Platinum 195.078	79 Au Gold 196.96655	80 Hg Mercury 200.59	81 Tl Thallium 204.3833	82 Pb Lead 207.2	83 Bi Bismuth 208.98038	84 Po Polonium (209)	85 At Astatine (210)	86 Rn Radon (222)				
87 Fr Francium (223)	88 Ra Radium (226)	89 Ac Actinium (227)	104 Rf Rutherfordium (261)	105 Db Dubnium (262)	106 Sg Seaborgium (263)	107 Bh Bohrium (262)	108 Hs Hassium (265)	109 Mt Meitnerium (266)	110 (269)	111 (272)	112 (277)	113	114								

58 Ce Cerium 140.116	59 Pr Praseodymium 140.90765	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.92534	66 Dy Dysprosium 162.50	67 Ho Holmium 164.93032	68 Er Erbium 167.26	69 Tm Thulium 168.93421	70 Yb Ytterbium 173.04	71 Lu Lutetium 174.967
90 Th Thorium 232.0381	91 Pa Protactinium 231.03588	92 U Uranium 238.0289	93 Np Neptunium (237)	94 Pu Plutonium (244)	95 Am Americium (243)	96 Cm Curium (247)	97 Bk Berkelium (247)	98 Cf Californium (251)	99 Es Einsteinium (252)	100 Fm Fermium (257)	101 Md Mendelevium (258)	102 No Nobelium (259)	103 Lr Lawrencium (262)

Part 1: ATOMIC RADIUS

Draw a circle to depict the size of an atom of each element using the measurements below.



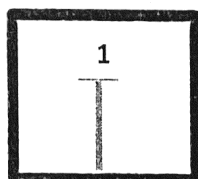
Example: H = .37cm

Scale: 1cm = 1/2 Å

		Atomic Radius
1	H	0.37
2	He	0.31
3	Li	1.52
4	Be	1.12
5	B	0.85
6	C	0.77
7	N	0.75
8	O	0.73
9	F	0.72
10	Ne	0.71
11	Na	1.86
12	Mg	1.60
13	Al	1.43
14	Si	1.18
15	P	1.10
16	S	1.03
17	Cl	1.00
18	Ar	0.98
19	K	2.27
20	Ca	1.97
<hr/>		
31	Ga	1.35
32	Ge	1.22
33	As	1.20
34	Se	1.19
35	Br	1.14
36	Kr	1.12

Part 2: IONIZATION ENERGY

Draw an "energy bar" to depict the energy needed to remove one electron.



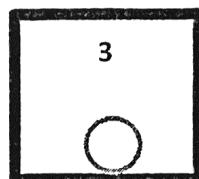
Example: H = 1.31 cm

Scale: 1cm = 1kJ/mol

		Ionization Energy
1	H	1.31
2	He	2.40
3	Li	0.52
4	Be	0.90
5	B	0.80
6	C	1.09
7	N	1.40
8	O	1.31
9	F	1.68
10	Ne	2.08
11	Na	0.50
12	Mg	0.74
13	Al	0.59
14	Si	0.79
15	P	1.06
16	S	1.00
17	Cl	1.26
18	Ar	1.52
19	K	0.42
20	Ca	0.59
<hr/>		
31	Ga	0.58
32	Ge	0.78
33	As	1.01
34	Se	0.94
35	Br	1.14
36	Kr	1.35

Part 3: IONIC RADIUS

Draw a circle to depict the size of an ion of each element.



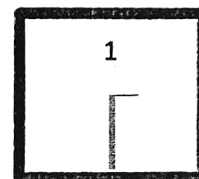
Example: Li = 0.76 cm

Scale: 1cm = 1/2 Å

		Ionic Radius
1	H	-
2	He	-
3	Li	0.76
4	Be	0.31
5	B	0.20
6	C	-
7	N	1.46
8	O	1.40
9	F	1.33
10	Ne	-
11	Na	1.02
12	Mg	0.72
13	Al	0.54
14	Si	0.41
15	P	2.12
16	S	1.84
17	Cl	1.81
18	Ar	-
19	K	1.38
20	Ca	1.00
<hr/>		
31	Ga	0.62
32	Ge	0.53
33	As	2.22
34	Se	1.98
35	Br	1.95
36	Kr	-

Part 4: ELECTRO-NEGATIVITY

Draw a bar to depict the ability of an element's atoms to attract electrons in a chemical bond.



Example: H = 1.10 cm

Scale: 1cm = 1 Pauling

		Electro-negativity
1	H	2.1
2	He	-
3	Li	1.0
4	Be	1.5
5	B	2.0
6	C	2.5
7	N	3.0
8	O	3.5
9	F	4.0
10	Ne	-
11	Na	0.9
12	Mg	1.2
13	Al	1.5
14	Si	1.8
15	P	2.1
16	S	2.5
17	Cl	3.0
18	Ar	-
19	K	0.8
20	Ca	1.0
<hr/>		
31	Ga	1.6
32	Ge	1.8
33	As	2.0
34	Se	2.4
35	Br	2.8
36	Kr	-

Periodic Table Coloring Activity

You have been given a black and white periodic table that needs some color according to the following directions.

You may use any colors you like unless specified. Like the diagrams in your book, make a color key so your periodic table may be accurately read. Some boxes may be shaded multiple colors – just make sure you can see them all! Have fun and make them pretty. You don't want to stare at an ugly periodic table ☺

1. State of Matter at Room Temperature (solid, liquid, or gas)

- There are two elements that are liquid at room temperature: Hg and Br. Using a blue marker outline the symbols.
- 11 elements exist as gases at room temperature. Outline their symbols using a red marker. H, He, N, O, F, Ne, Cl, Ar, Kr, Xe, Rn
- The remaining elements are solid at room temperature – leave those alone.

2. Metals vs. Nonmetals

- With a dark marker add the “stair step” pattern that starts under Boron and extends down to Po and At. This is the division line between metals and nonmetals.
- Choose a marker of any color and outline the area where nonmetals are found (don't forget about Hydrogen!)
- Choose a different color marker and outline the area in the periodic table where the metals are found.

3. Metalloids

- Choose any color of a color pencil or crayon and shade in the following elements: B, Si, Ge, As, Sb, Te, Po, and At (*for At only color half the box*). These elements are called metalloids and exhibit both metallic and nonmetallic properties.

4. Specific Families and Blocks

- Using color pencils or crayons color each of the following a different color
 - Alkali Metals
 - Alkaline Earth Metals
 - Transition Metals
 - Other metals or Inner Transition Metals
 - Halogens
 - Noble Gases
 - All the rest of the nonmetals (other nonmetals) not in a named family (don't forget about Hydrogen!)

• Lanthanide Series - Red Dot in lower right corner
• Actinide Series - Blue Dot in lower right corner

⊕ Write Group # (1-18)

⊕ Number each row # (1-7)

⊕ Under each column, write # of electrons ^{valence} for the elements of that group.
(Do NOT include group 3-12)

⊕ Label S, P, D, F Blocks