	Density (g/L)	Atomic Mass (amu)	I^{st} Ionization Energy (kJ)	Atomic Radii (pm)	Ionic Radii (pm)	Melt/Boil Point (^{o}C)	Electronegativity	
Hydrogen	0.09	1.0079	1312	37		-259 /-252	2.20	
Lithium	0.53	6.941	520	152		180 / 1347	0.98	
Sodium	0.97	22.990	496	186		98 / 883	0.93	
Potassium	0.86	39.098	419	232		64 / 774	0.82	
Rubidium	1.53	85.47	403	248		39 / 688	0.82	
Cesium	1.9	132.90	376	265		29 / 678	0.79	
Francium		(223)	---	270		27 / 677	0.7	
Beryllium	1.85	9.012	900	111		1278 / 2970	1.57	
Magnesium	1.74	24.305	738	160		639 / 1090	1.31	
Calcium	1.55	40.08	590	197		839 / 1484	1.00	
Strontium	2.6	87.62	550	215		769 / 1384	0.95	
Barium	3.5	137.33	503	217		725 / 1140	0.89	
Radium		(226)	509	220		700 / 1737	0.9	
Boron	2.4	10.811	801	86		2300 / 2550	2.04	
Aluminum	2.7	26.982	578	143		660 / 2467	1.61	
Gallium	5.91	69.723	579	135		30 / 2403	1.81	
Indium	7.3	114.82	558	167		156 / 2000	1.78	
Thallium	11.85	204.38	589	170		304 / 1457	2.04	
Carbon	2.26	12.011	1086	77		3500 / 4827	2.55	
Silicon	2.3	28.086	787	118		1410 / 2355	1.90	
Germanium	5.36	72.61	762	128		937 / 2830	2.01	
Tin	1.28	118.71	709	151		232 / 2270	1.96	
Lead	11.34	207.2	716	175		328 / 1740	2.33	
Nitrogen	1.25	14.007	1402	70		-210 / -196	3.04	
Phosphorus	1.82	30.974	1012	108		44.1 / 280	2.19	
Arsenic	5.7	74.922	947	125		81@28atm / sublimes @613	2.18	
Antimony	6.7	121.75	834	145		630 / 1750	2.05	
Bismuth	9.8	208.98	703	155		271 / 1560	2.02	
Oxygen	1.43	15.999	1314	73		-218 / -183	3.44	
Sulfur	2.07	32.066	1000	106		113 / 445	2.58	
Selenium	4.8	78.96	941	116		217 / 685	2.55	
Tellurium	6.2	127.60	869	142		450 / 990	2.1	
Polonium	9.4	(209)	812	169		254 / 962	2.0	
Fluorine	1.69	18.998	1681	72		-220 / -188	3.98	
Chlorine	3.2	35.453	1251	99		-101 / -35	3.16	
Bromine	3.11	79.904	1140	114		-7.2 / 59	2.96	
Iodine	4.93	126.90	1008	133		114 / 184 @35atm	2.66	
Astatine		(210)	---	140		302 / 337	2.2	
Helium	0.18	4.003	2372	32			---	
Neon	0.9	20.180	2081	71			---	
Argon	1.78	39.948	1521	97			---	
Krypton	3.74	83.80	1351	110			---	
Xenon	5.89	131.29	1170	130			---	
Radon	9.73	(222)	1038	141			---	

Physical Data for the main block elements (s & p-orbitals) of the periodic table.

TEACHER NOTES:

Physical Data for the main block elements (s & p-orbitals) of the periodic table.

	Density (g/L) **1cm=1g/mL**	Atomic Mass (amu) **1cm=18 amu**	I^{st} Ionization Energy (kJ) **1 cm = 190 kJ**	Atomic Radii (pm) **1cm = 22 pm**	Ionic Radii (pm)	Melt/Boil Point (^oC)	Electronegativity **1 cm = 0.32**	
Hydrogen	0.09	1.0079	1312	37		-259 /-252	2.20	
Lithium	0.53	6.941	520	152		180 / 1347	0.98	
Sodium	0.97	22.990	496	186		98 / 883	0.93	
Potassium	0.86	39.098	419	232		64 / 774	0.82	
Rubidium	1.53	85.47	403	248		39 / 688	0.82	
Cesium	1.9	132.90	376	265		29 / 678	0.79	
Francium		(223)	---	270		27 / 677	0.7	
Beryllium	1.85	9.012	900	111		1278 / 2970	1.57	
Magnesium	1.74	24.305	738	160		639 / 1090	1.31	
Calcium	1.55	40.08	590	197		839 / 1484	1.00	
Strontium	2.6	87.62	550	215		769 / 1384	0.95	
Barium	3.5	137.33	503	217		725 / 1140	0.89	
Radium		(226)	509	220		700 / 1737	0.9	
Boron	2.4	10.811	801	86		2300 / 2550	2.04	
Aluminum	2.7	26.982	578	143		660 / 2467	1.61	
Gallium	5.91	69.723	579	135		30 / 2403	1.81	
Indium	7.3	114.82	558	167		156 / 2000	1.78	
Thallium	11.85	204.38	589	170		304 / 1457	2.04	
Carbon	2.26	12.011	1086	77		3500 / 4827	2.55	
Silicon	2.3	28.086	787	118		1410 / 2355	1.90	
Germanium	5.36	72.61	762	128		937 / 2830	2.01	
Tin	1.28	118.71	709	151		232 / 2270	1.96	
Lead	11.34	207.2	716	175		328 / 1740	2.33	
Nitrogen	1.25	14.007	1402	70		-210 / -196	3.04	
Phosphorus	1.82	30.974	1012	108		44.1 / 280	2.19	
Arsenic	5.7	74.922	947	125		81@28atm / sublimes @613	2.18	
Antimony	6.7	121.75	834	145		630 / 1750	2.05	
Bismuth	9.8	208.98	703	155		271 / 1560	2.02	
Oxygen	1.43	15.999	1314	73		-218 / -183	3.44	
Sulfur	2.07	32.066	1000	106		113 / 445	2.58	
Selenium	4.8	78.96	941	116		217 / 685	2.55	
Tellurium	6.2	127.60	869	142		450 / 990	2.1	
Polonium	9.4	(209)	812	169		254 / 962	2.0	
Fluorine	1.69	18.998	1681	72		-220 / -188	3.98	
Chlorine	3.2	35.453	1251	99		-101 / -35	3.16	
Bromine	3.11	79.904	1140	114		-7.2 / 59	2.96	
Iodine	4.93	126.90	1008	133		114 / 184 @35atm	2.66	
Astatine		(210)	---	140		302 / 337	2.2	
Helium	0.18	4.003	2372	32			---	
Neon	0.9	20.180	2081	71			---	
Argon	1.78	39.948	1521	97			---	
Krypton	3.74	83.80	1351	110			---	
Xenon	5.89	131.29	1170	130			---	
Radon	9.73	(222)	1038	141			---	

TEACHER NOTES

A Class of 24 students will require ~200 straws.
This activity can easily be completed in one class period.

A typical straw is 19 cm long. Flexible straws have 13.5 cm useable length.
The 96 well-plate is 1 cm deep – therefore you have 12.5 cm of useable straw length as your largest value.

Use the following formula to calculate the conversion factor for straw length:

$$\frac{\text{Largest value}}{\text{X cm}} = \frac{12.5\text{ cm}}{1\text{ cm}}$$

****

The following are suggestions for scales for each trend:

Density	1 cm of straw = 1 g/mL
Atomic Mass	1 cm of straw = 18 amu
1st Ionization Energy	1 cm of straw = 190 kJ
Atomic Radii	1 cm of straw = 22 pm
Ionic Radii	1 cm of straw = 22 pm
Electronegativity	1 cm = 0.32
Melting Point	(may be too large of difference & negative values are difficult to show)
Boiling Point	(may be too large of difference & negative values are difficult to show)

****