

Name: _____

What's in that Mineral?

Minerals are made up of either one or more elements. Below is a list of minerals. Fill out the table below to answer questions about these elements. In the metals column list the elements that fall into the Metals group of the periodic table. Do the same for the Non-Metals column. In the "Use" column name at least one common industrial use for the mineral. Use "minerals.net" and "<http://ed.ted.com/periodic-videos>" for help.

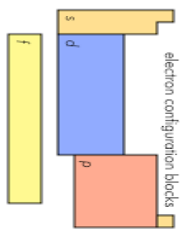
<i>Mineral</i>	<i>Chemical Formula</i>	<i>Metals</i>	<i>Non-Metals</i>
Olivine	(Mg,Fe) ₂ SiO ₄	Magnesium, Iron	Silicon, Oxygen
Quartz			
Azurite			
Barite			
Talc			
Diamond			
Corundum			
Calcite			
Fluorite			
Apatite			
Cuprite			
Topaz			

EducationalResource.org

period 1

group 1	1 H 1.00794 1.008 1.008	2 He 4.002602 4.002602 4.002602
2	3 Li 6.941 6.941 6.941	4 Be 9.012182 9.012182 9.012182
3	5 Na 22.98976928 22.98976928 22.98976928	6 Mg 24.3050 24.3050 24.3050
4	7 K 39.0983 39.0983 39.0983	8 Ca 40.078 40.078 40.078
5	9 Rb 85.4678 85.4678 85.4678	10 Sr 87.62 87.62 87.62
6	11 Cs 132.90545 132.90545 132.90545	12 Ba 137.327 137.327 137.327
7	13 Fr 223 223 223	14 Ra 226 226 226
8	15 Sc 44.955912 44.955912 44.955912	16 Ti 47.88 47.88 47.88
9	17 V 50.9415 50.9415 50.9415	18 Cr 51.99616 51.99616 51.99616
10	19 Mn 54.938044 54.938044 54.938044	20 Fe 55.845 55.845 55.845
11	21 Co 58.933195 58.933195 58.933195	22 Ni 58.6934 58.6934 58.6934
12	23 Cu 63.546 63.546 63.546	24 Zn 65.38 65.38 65.38
13	25 Ga 69.723 69.723 69.723	26 Ge 72.64 72.64 72.64
14	27 Al 26.9815386 26.9815386 26.9815386	28 Si 28.0855 28.0855 28.0855
15	29 P 30.973761998 30.973761998 30.973761998	30 S 32.065 32.065 32.065
16	31 Se 78.96 78.96 78.96	32 Br 79.904 79.904 79.904
17	33 As 74.92160 74.92160 74.92160	34 Kr 83.798 83.798 83.798
18	35 Sb 121.760 121.760 121.760	36 Xe 131.293 131.293 131.293
19	37 Te 127.60 127.60 127.60	38 I 126.90447 126.90447 126.90447
20	39 Bi 208.9804 208.9804 208.9804	40 Po 209 209 209
21	41 Tl 204.3833 204.3833 204.3833	42 Pb 207.2 207.2 207.2
22	43 Sn 118.710 118.710 118.710	44 Bi 208.9804 208.9804 208.9804
23	45 In 114.818 114.818 114.818	46 Po 209 209 209
24	47 Cd 112.411 112.411 112.411	48 At 210 210 210
25	49 Ag 107.8682 107.8682 107.8682	50 Rn 222 222 222
26	51 Pd 106.42 106.42 106.42	51 Fr 223 223 223
27	52 Rh 101.07 101.07 101.07	52 Ra 226 226 226
28	53 Ru 101.07 101.07 101.07	53 Ac 227 227 227
29	54 Rb 85.4678 85.4678 85.4678	54 Th 232.0377 232.0377 232.0377
30	55 Sr 87.62 87.62 87.62	55 Pa 231.03688 231.03688 231.03688
31	56 Y 88.90585 88.90585 88.90585	56 U 238.02891 238.02891 238.02891
32	57 Zr 91.224 91.224 91.224	57 Np 237.04817 237.04817 237.04817
33	58 Nb 92.90638 92.90638 92.90638	58 Pu 244 244 244
34	59 Mo 95.96 95.96 95.96	59 Am 243 243 243
35	60 Tc 98 98 98	60 Cm 247 247 247
36	61 Ru 101.07 101.07 101.07	61 Bk 247 247 247
37	62 Rh 102.9055 102.9055 102.9055	62 Cf 251 251 251
38	63 Pd 106.42 106.42 106.42	63 Es 252 252 252
39	64 Ag 107.8682 107.8682 107.8682	64 Fm 257 257 257
40	65 Cd 112.411 112.411 112.411	65 Md 258 258 258
41	66 In 114.818 114.818 114.818	66 No 259 259 259
42	67 Sn 118.710 118.710 118.710	67 Lr 262 262 262
43	68 Sb 121.760 121.760 121.760	68 Rf 261 261 261
44	69 Te 127.60 127.60 127.60	69 Db 262 262 262
45	70 Bi 208.9804 208.9804 208.9804	70 Sg 266 266 266
46	71 Tl 204.3833 204.3833 204.3833	71 Bh 264 264 264
47	72 Pb 207.2 207.2 207.2	72 Hs 265 265 265
48	73 Bi 208.9804 208.9804 208.9804	73 Mt 268 268 268
49	74 Po 209 209 209	74 Ds 271 271 271
50	75 At 210 210 210	75 Rg 272 272 272
51	76 Rn 222 222 222	76 Cn 285 285 285
52	77 Fr 223 223 223	77 Nh 286 286 286
53	78 Ra 226 226 226	78 Fl 289 289 289
54	79 Ac 227 227 227	79 Lv 292 292 292
55	80 Th 232.0377 232.0377 232.0377	80 Uu 294 294 294
56	81 Pa 231.03688 231.03688 231.03688	81 Uuq 299 299 299
57	82 U 238.02891 238.02891 238.02891	82 Uuq 299 299 299
58	83 Np 237.04817 237.04817 237.04817	83 Uuq 299 299 299
59	84 Pu 244 244 244	84 Uuq 299 299 299
60	85 Am 243 243 243	85 Uuq 299 299 299
61	86 Cm 247 247 247	86 Uuq 299 299 299
62	87 Bk 247 247 247	87 Uuq 299 299 299
63	88 Cf 251 251 251	88 Uuq 299 299 299
64	89 Es 252 252 252	89 Uuq 299 299 299
65	90 Fm 257 257 257	90 Uuq 299 299 299
66	91 Md 258 258 258	91 Uuq 299 299 299
67	92 No 259 259 259	92 Uuq 299 299 299
68	93 Lr 262 262 262	93 Uuq 299 299 299
69	94 Rf 261 261 261	94 Uuq 299 299 299
70	95 Db 262 262 262	95 Uuq 299 299 299
71	96 Sg 266 266 266	96 Uuq 299 299 299
72	97 Bh 264 264 264	97 Uuq 299 299 299
73	98 Hs 265 265 265	98 Uuq 299 299 299
74	99 Mt 268 268 268	99 Uuq 299 299 299
75	100 Ds 271 271 271	100 Uuq 299 299 299
76	101 Rg 272 272 272	101 Uuq 299 299 299
77	102 Cn 285 285 285	102 Uuq 299 299 299
78	103 Nh 286 286 286	103 Uuq 299 299 299
79	104 Fl 289 289 289	104 Uuq 299 299 299
80	105 Lv 292 292 292	105 Uuq 299 299 299
81	106 Uu 294 294 294	106 Uuq 299 299 299
82	107 Uuq 299 299 299	107 Uuq 299 299 299
83	108 Uuq 299 299 299	108 Uuq 299 299 299
84	109 Uuq 299 299 299	109 Uuq 299 299 299
85	110 Uuq 299 299 299	110 Uuq 299 299 299
86	111 Uuq 299 299 299	111 Uuq 299 299 299
87	112 Uuq 299 299 299	112 Uuq 299 299 299
88	113 Uuq 299 299 299	113 Uuq 299 299 299
89	114 Uuq 299 299 299	114 Uuq 299 299 299
90	115 Uuq 299 299 299	115 Uuq 299 299 299
91	116 Uuq 299 299 299	116 Uuq 299 299 299
92	117 Uuq 299 299 299	117 Uuq 299 299 299
93	118 Uuq 299 299 299	118 Uuq 299 299 299

atomic mass — 55.845
 or most stable mass number — 26
 1st ionization energy — 762.5
 In kJ/mol
 chemical symbol — **Fe**
 name — Iron
 electron configuration — [Ar] 3d⁶ 4s²
 oxidation states — +6, +5, +4, +3, +2, +1, -2
 most common one bold — +2
 alkali metals
 alkaline metals
 other metals
 transition metals
 lanthanoids
 actinoids
 metalloids
 nonmetals
 halogens
 noble gases
 unknown elements
 radioactive elements have masses in parenthesis



- notes
- as of yet, elements 113-118 have no official name designated by the IUPAC.
 - 1 U/moL = 96,485 eV
 - all elements are implied to have an oxidation state of zero.

Teacher Notes and instructions

- This Google search activity allows students to go to the internet to search for specific minerals and then to use the Periodic Table to discover what the mineral is made out of. This activity usually takes a full 50 minutes for the students to find all of the answers. I usually discuss the answers at the beginning of class on the following day so that they have as much time as needed to find the answers.
- During the discussion, I discuss how cool it is that mankind has been able to use the different elements to its benefit. There are many uses of these minerals that I did not list so be aware that students may have different answers. I discuss that humans have become adept at breaking down minerals into their different chemicals and extracting them. For example, cuprite and chalcocite are broken down and then the copper is extracted from it.
- Doing this assignment also allows Earth Science students to use the periodic table to identify minerals that are metals, metalloids or nonmetals.