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About Chemistry

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associated w/ toxicity

medicinal herbs

1A

1 H Hydrogen 1.00794	2A
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3 Li Lithium 6.941	4 Be Beryllium 9.012182
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11 Na Sodium 22.989769	12 Mg Magnesium 24.3050
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19 K Potassium 39.0983	20 Ca Calcium 40.078
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37 Rb Rubidium 85.4678	38 Sr Strontium 87.62
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55 Cs Cesium 132.9054519	56 Ba Barium 137.327
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87 Fr Francium [223]	88 Ra Radium [226]
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essential metals

associated w/ toxicity
medicinal roles

3A

4A

5A

6A

7A

5 B Boron 10.811	6 C Carbon 12.0107	7 N Nitrogen 14.0067	8 O Oxygen 15.9994	9 F Fluorine 18.9984032	10 Ne Neon 20.1797
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13 Al Aluminum 26.9815386	14 Si Silicon 28.0855	15 P Phosphorus 30.973762	16 S Sulfur 32.065	17 Cl Chlorine 35.453	18 Ar Argon 39.948
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31 Ga Gallium 69.723	32 Ge Germanium 72.64	33 As Arsenic 74.92160	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.798
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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 131.293
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81 Tl Thallium 204.3833	82 Pb Lead 207.2	83 Bi Bismuth 208.98040	84 Po Polonium [209]	85 At Astatine [210]	86 Rn Radon [222]
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113 Uut Ununtrium [284]	114 Uuq Ununquadium [289]	115 Uup Ununpentium [288]	116 Uuh Ununhexium [293]	117 Uus Ununseptium [294]	118 Uuo Ununoctium [294]
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8A

2 He Helium 4.002602

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Actinides

* This is not complete. This is only the top of

my head.

Teaching notes: Just a few... I'd love for people to add teaching notes to this as they go through the exercise

Students often cite sources such as ZicamTM or multivitamins, or personal knowledge from an MRI or CT scan. I try to encourage this as much as possible because the students are

1. Note that Iron has all three classifications. Many essentials are toxic when the concentration is too high. The concentration of these metals must be tightly regulated in an often small window.
2. Toxicity of a metal may depend on oxidation state as well. Cr(III) is essential but hexavalent chromium is highly toxic.
3. In spite of the toxicity of some metals we have found medicinal uses for them. For example, Pt is used in anticancer treatments, and gold is used in treatments for rheumatoid arthritis. This has been especially true in imaging where the decay properties of species like Tc have led to huge advances.