

# THE PERIODIC TABLE OF ELEMENT PRODUCTION SOURCES

KEY																	
ELEMENT NAME		ELEMENT SYMBOL		MAIN SOURCE OF ELEMENT		<ul style="list-style-type: none"> <li>Element extracted directly from ore or raw material</li> <li>Element recovered as byproduct from the extraction of another element</li> <li>Only produced by radioactive decay processes or synthetic means</li> </ul>											
<b>H</b> Natural gas																	<b>He</b> Natural gas
<b>Li</b> Spodumene & petalite	<b>Be</b> Beryl & bertrandite																
<b>Na</b> Halite	<b>Mg</b> Dolomite & magnesite																
<b>K</b> Sylvite	<b>Ca</b> Calcite, dolomite, & gypsum	<b>Sc</b> Byproduct of U refining	<b>Ti</b> Ilmenite & rutile	<b>V</b> V-bearing titanomagnetite	<b>Cr</b> Chromite	<b>Mn</b> Pyrolusite	<b>Fe</b> Hematite & magnetite	<b>Co</b> Byproduct of Ni/Cu processing	<b>Ni</b> Pentlandite & pyrrhotite	<b>Cu</b> Chalcopyrite & chalcocite	<b>Zn</b> Sphalerite	<b>Ga</b> Byproduct of Al/Zn/Cu processing	<b>Ge</b> Byproduct of Ni/Cu processing	<b>As</b> Byproduct of Cu processing	<b>Se</b> Byproduct of Cu processing	<b>Br</b> Brine	<b>Kr</b> Air
<b>Rb</b> Byproduct of Cs processing	<b>Sr</b> Celestite & strontianite	<b>Y</b> Monazite & xenotime	<b>Zr</b> Zircon	<b>Nb</b> Pyrochlore & columbite	<b>Mo</b> Molybdenite & wulfenite	<b>Tc</b> Synthetic	<b>Ru</b> Byproduct of Ni processing	<b>Rh</b> Byproduct of Ni/Cu processing	<b>Pd</b> Byproduct of Ni/Cu processing	<b>Ag</b> Argentite	<b>Cd</b> Byproduct of Zn processing	<b>In</b> Byproduct of Zn processing	<b>Sn</b> Cassiterite	<b>Sb</b> Stibnite	<b>Te</b> Byproduct of Cu processing	<b>I</b> Caliche & brine	<b>Xe</b> Air
<b>Cs</b> Pollucite	<b>Ba</b> Baryte	La-Lu	<b>Hf</b> Byproduct of Zr processing	<b>Ta</b> Byproduct of Sn processing	<b>W</b> Wolframite & scheelite	<b>Re</b> Byproduct of Mo processing	<b>Os</b> Byproduct of Ni/Cu processing	<b>Ir</b> Byproduct of Ni/Cu processing	<b>Pt</b> Native form & platinum	<b>Au</b> Native form & electrum	<b>Hg</b> Cinnabar	<b>Tl</b> Byproduct of Zn/Pb processing	<b>Pb</b> Galena	<b>Bi</b> Byproduct of Cu/W/Pb processing	<b>Po</b> Decay product	<b>At</b> Synthetic	<b>Rn</b> Decay product
<b>Fr</b> Synthetic	<b>Ra</b> Byproduct of U processing	Ac-Lr	<b>Rf</b> Synthetic	<b>Db</b> Synthetic	<b>Sg</b> Synthetic	<b>Bh</b> Synthetic	<b>Hs</b> Synthetic	<b>Mt</b> Synthetic	<b>Ds</b> Synthetic	<b>Rg</b> Synthetic	<b>Cn</b> Synthetic	<b>Nh</b> Synthetic	<b>Fl</b> Synthetic	<b>Mc</b> Synthetic	<b>Lv</b> Synthetic	<b>Ts</b> Synthetic	<b>Og</b> Synthetic
<b>La</b> Monazite & bastnäsite	<b>Ce</b> Monazite & bastnäsite	<b>Pr</b> Monazite & bastnäsite	<b>Nd</b> Monazite & bastnäsite	<b>Pm</b> Decay product	<b>Sm</b> Monazite & bastnäsite	<b>Eu</b> Monazite & bastnäsite	<b>Gd</b> Monazite & bastnäsite	<b>Tb</b> Monazite & bastnäsite	<b>Dy</b> Monazite & bastnäsite	<b>Ho</b> Monazite & bastnäsite	<b>Er</b> Monazite & bastnäsite	<b>Tm</b> Monazite & bastnäsite	<b>Yb</b> Euxenite & xenotime	<b>Lu</b> Monazite & bastnäsite			
<b>Ac</b> Decay product	<b>Th</b> Monazite & thorianite	<b>Pa</b> Decay product	<b>U</b> Uraninite	<b>Np</b> Synthetic	<b>Pu</b> Synthetic	<b>Am</b> Synthetic	<b>Cm</b> Synthetic	<b>Bk</b> Synthetic	<b>Cf</b> Synthetic	<b>Es</b> Synthetic	<b>Fm</b> Synthetic	<b>Md</b> Synthetic	<b>No</b> Synthetic	<b>Lr</b> Synthetic			

Source data: Minerals Education Coalition, <https://mineralseducationcoalition.org/mining-minerals-information/periodic-table-of-the-elements/>