

<p><b>Grade Level/Course:</b> Grade 8 / Physical Science</p>
<p><b>Lesson/Unit Plan Name:</b> Periodic Table Symbols</p>
<p><b>Rationale/Lesson Abstract:</b> This is a fun activity to be used as an introduction to the symbols on the Periodic Table. Students are given a picture, and then must use the symbols on the Periodic Table to put together a word to describe it. They are then shown actual formulas for compounds and must identify the elements that are present.</p>
<p><b>Timeframe:</b> 1 class period</p>
<p><b>Standard(s):</b></p> <p><b>Structure of Matter</b></p> <p>3. Each of the more than 100 elements of matter has distinct properties and a distinct atomic structure. All forms of matter are composed of one or more of the elements. As a basis for understanding this concept:</p> <p>b. <i>Students know</i> that compounds are formed by combining two or more different elements and that compounds have properties that are different from their constituent elements.</p> <p>f. <i>Students know</i> how to use the periodic table to identify elements in simple compounds.</p>

**Instructional Resources/Materials:**

- Students will need a Periodic Table. One version is provided below.
- Handout is provided below.

**Activity/Lesson:**

This is an introduction to the symbols on the Periodic Table. Students will become more familiar with the elements and their corresponding symbols.

Background information to present might include naming conventions. Element symbols usually fall into one of a few categories:

- The first letter of the element, e.g. 'H' for Hydrogen.
- The first two letters of the element, e.g. 'He' for Helium
- The first and third letters of the element, e.g. 'Mg' for Magnesium.
- Letters from the Latin word for the element, e.g. 'Au' for Gold (*aurum*).


Students should also be reminded of the importance of always capitalizing the first letter of the symbol, and leaving the second letter lower case. Each capital letter in a chemical formula will represent a new element, e.g.  $\text{CaCO}_3$  includes the elements Calcium (Ca), Carbon (C), and Oxygen (O). 'Co' represents Cobalt, and is distinguishable from Carbon and Oxygen due to the second letter in lower case.

**Assessment:**

Practice handout and Periodic Table below.

# Periodic Table Symbols


Use the symbols on the Periodic Table to describe each image. Use upper and lower case exactly as shown on the Periodic Table. There may be more than one correct answer.


Ex.  Elements:  
Polonium (Po)  
Lithium (Li)  
Cerium (Ce)  
*PoLiCe*

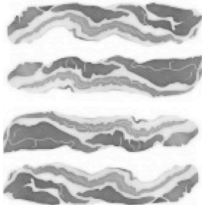
84
<b>Po</b>
Polonium
(209)

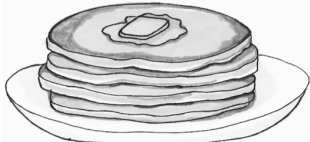
3
<b>Li</b>
Lithium
6.94


58
<b>Ce</b>
Cerium
140.12


①  Elements:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

④  Elements:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

②  Elements:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

⑤  Elements:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

③  Elements:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

⑥  Elements:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Which elements do you see in these formulas for actual compounds?

**Rust (Fe<sub>2</sub>O<sub>3</sub>)**  
 Elements:  
 \_\_\_\_\_  
 \_\_\_\_\_

**Salt (NaCl)**  
 Elements:  
 \_\_\_\_\_  
 \_\_\_\_\_

**Copper sulfate (CuSO<sub>4</sub>)**  
 Elements:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Baking soda (NaHCO<sub>3</sub>)**  
 Elements:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# Periodic Table of the Elements

1	1A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18																																																																																									
1	2A	3B	4B	5B	6B	7B	8B						1B	2B	3A	4A	5A	6A	7A	8A																																																																																								
H Hydrogen 1.01	He Helium 4.00	Li Lithium 6.94	Be Beryllium 9.01	B Boron 10.81	C Carbon 12.01	N Nitrogen 14.01	O Oxygen 16.00	F Fluorine 19.00	Ne Neon 20.18	Na Sodium 22.99	Mg Magnesium 24.31	Al Aluminum 26.98	Si Silicon 28.09	P Phosphorus 30.97	S Sulfur 32.07	Cl Chlorine 35.45	Ar Argon 39.95	K Potassium 39.10	Ca Calcium 40.08	Sc Scandium 44.96	Ti Titanium 47.87	V Vanadium 50.94	Cr Chromium 52.00	Mn Manganese 54.94	Fe Iron 55.85	Co Cobalt 58.93	Ni Nickel 58.69	Cu Copper 63.55	Zn Zinc 65.39	Ga Gallium 69.72	Ge Germanium 72.61	As Arsenic 74.92	Se Selenium 78.96	Br Bromine 79.90	Kr Krypton 83.80	Rb Rubidium 85.47	Sr Strontium 87.62	Y Yttrium 88.91	Zr Zirconium 91.22	Nb Niobium 92.91	Mo Molybdenum 95.94	Tc Technetium (98)	Ru Ruthenium 101.07	Rh Rhodium 102.91	Pd Palladium 106.42	Ag Silver 107.87	Cd Cadmium 112.41	In Indium 114.82	Sn Tin 118.71	Sb Antimony 121.76	Te Tellurium 127.60	I Iodine 126.90	Xe Xenon 131.29	Cs Cesium 132.91	Ba Barium 137.33	La Lanthanum 138.91	Hf Hafnium 178.49	Ta Tantalum 180.95	W Tungsten 183.84	Re Rhenium 186.21	Os Osmium 190.23	Ir Iridium 192.22	Pt Platinum 195.08	Au Gold 196.97	Hg Mercury 200.59	Tl Thallium 204.38	Pb Lead 207.2	Bi Bismuth 208.98	Po Polonium (209)	At Astatine (210)	Rn Radon (222)	Fr Francium (223)	Ra Radium (226)	Ac Actinium (227)	Rf Rutherfordium (261)	Db Dubnium (262)	Sg Seaborgium (266)	Bh Bohrium (264)	Hs Hassium (269)	Mt Meitnerium (268)	Ce Cerium 140.12	Pr Praseodymium 140.91	Nd Neodymium 144.24	Pm Promethium (145)	Sm Samarium 150.36	Eu Europium 151.96	Gd Gadolinium 157.25	Tb Terbium 158.93	Dy Dysprosium 162.50	Ho Holmium 164.93	Er Erbium 167.26	Tm Thulium 168.93	Yb Ytterbium 173.04	Lu Lutetium 174.97	Th Thorium 232.04	Pa Protactinium 231.04	U Uranium 238.03	Np Neptunium (237)	Pu Plutonium (244)	Am Americium (243)	Cm Curium (247)	Bk Berkelium (247)	Cf Californium (251)	Es Einsteinium (252)	Fm Fermium (257)	Md Mendelevium (258)	No Nobelium (259)	Lr Lawrencium (262)

**Key**

- 11 — Atomic number
- Na — Element symbol
- 22.99 — Element name

Average atomic mass\*

\* If this number is in parentheses, then it refers to the atomic mass of the most stable isotope.