

# Introducing the Periodic Table

Engage

## What To Do:

1. Study the element cards below.
2. Observe them closely.
3. Answer the questions below.

<b>1</b> <b>H</b> 1.008 Hydrogen	<b>2</b> <b>He</b> 4.0026 Helium	<b>3</b> <b>Li</b> 6.941 Lithium
<b>10</b> <b>Ne</b> 20.175 Neon	<b>11</b> <b>Na</b> 22.990 Sodium	<b>16</b> <b>S</b> 32.066 Sulfur

## Questions:

- a. What types of information does each card have?
- b. What patterns do you observe about the numbers?
- c. What patterns do you observe about the letters?
- d. What do you observe about the words on each card?

Explore

**Materials:** Copy of The Periodic Table

## Part 1

### What To Do:

1. Your teacher will give you a copy of the Periodic Table of Elements.
2. Use the key at the top of the sheet to fill in the information below.
3. Find each one on your periodic table.

_____	→ 6
_____	→ C
_____	→ Carbon
_____	→ 12.011

_____	→ 29
_____	→ Cu
_____	→ Copper
_____	→ 63.546

## Part 2

**Materials:** Personal copy of the Periodic Table, colored pencils

### What To Do:

1. Read through the directions/questions on the next page.
2. Answer the questions
3. Use the colored pencils to color your personal periodic table.

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1. Element symbols are written with the first letter a capital letter and any other letters as lower case letters. Write the symbols for 5 different elements.
  2. Find the numbers across the top. These vertical columns are called groups because the elements in them tend to have the same chemical and physical properties. How many groups are on the periodic table?
  3. Find the numbers down the left side. These horizontal rows are called periods because they fall in order like a calendar. How many periods are on the periodic table?
  4. Find the zigzag line that starts in the group 13. These seven elements (Boron, Silicon, Germanium, Arsenic, Antimony, and Tellurium) are the metalloids. They sometimes act like metals and at other times like nonmetals. Color them purple.
  5. On the right side of the zigzag line are the nonmetals. Color them yellow.
  6. Another group of elements are called rare earth elements. They can be found on the left side and bottom of the table. Color Scandium – 21, Yttrium – 39, Lanthanum -57 and from 58-71 at the bottom of the page blue.
  7. Most of the elements are known as metals. Metals are located on the left side of the periodic table. The only element on the left side of the periodic table that is **NOT** a metal is hydrogen. Color hydrogen yellow.
  8. Use a colored pencil to color the metals green. (Don't color them so dark that you can't read the information.)
  9. Use your colored pencils to make a key at the top of the page to show what the colors mean.

*Explain*

**What To Do: Do Not Glue until teacher says.**

1. Cut out each rectangle and glue them on the page only across the top.
2. Draw something representing each topic on the rectangle.
3. Under each flap write information from the previous activity and any notes your teacher wants you to copy.

## THE PERIODIC TABLE

### 4 KINDS OF ELEMENTS

### GROUPS

### PERIODS



*Elaborate*

**What To Do:** Use your periodic table to find the following information.

1. What element is found in group 1 and period 4? \_\_\_\_\_
2. What element is found in group 16 and period 5? \_\_\_\_\_
3. What element is found in group 17 and period 2? \_\_\_\_\_
4. In what group will you find copper? \_\_\_\_\_
5. In what group will you find krypton? \_\_\_\_\_
6. In what group will you find mercury? \_\_\_\_\_
7. What is the symbol for copper? \_\_\_\_\_
8. What is the symbol for gold? \_\_\_\_\_
9. What is the symbol for krypton? \_\_\_\_\_
10. What is the symbol for mercury? \_\_\_\_\_
11. What is the symbol for oxygen? \_\_\_\_\_
12. In what period will you find gold? \_\_\_\_\_
13. In what period will you find silver? \_\_\_\_\_
14. In what period will you find oxygen? \_\_\_\_\_
15. In what groups will you find metalloids?  
\_\_\_\_\_
16. What element has the symbol H? \_\_\_\_\_
17. What element has the symbol He? \_\_\_\_\_
18. What element has the symbol Ca? \_\_\_\_\_
19. What element has the symbol La? \_\_\_\_\_
20. What element has the symbol C? \_\_\_\_\_
21. What type of element is Helium? \_\_\_\_\_
22. What type of element is Boron? \_\_\_\_\_
23. What type of element is Calcium? \_\_\_\_\_
24. What type of element is Cesium? \_\_\_\_\_



*Evaluate*

Name \_\_\_\_\_ period \_\_\_\_\_

## EXIT TICKET

### Introduction to the Periodic Table

What's wrong with these element symbols?

1. CA .
2. mg .
3. aT

How should these element symbols be written?

4. NE
5. hg
6. sn

**Conclusion:** (capital, metals, lower case, symbol, nonmetals, metalloids, rare earth)

Elements can be classified as \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ elements. Each element has a unique \_\_\_\_\_. The first letter of a symbol is always a \_\_\_\_\_ and the second letter of a symbol is always a \_\_\_\_\_ letter.

# Periodic Table of the Elements

Atomic number	14
Symbol	<b>Si</b>
Atomic mass	28.086
Name	Silicon

Group	1	2											13	14	15	16	17	18
1	1 <b>H</b> 1.008 Hydrogen																	2 <b>He</b> 4.0026 Helium
2	3 <b>Li</b> 6.941 Lithium	4 <b>Be</b> 9.012 Beryllium											5 <b>B</b> 10.81 Boron	6 <b>C</b> 12.011 Carbon	7 <b>N</b> 14.007 Nitrogen	8 <b>O</b> 15.999 Oxygen	9 <b>F</b> 18.998 Fluorine	10 <b>Ne</b> 20.179 Neon
3	11 <b>Na</b> 22.990 Sodium	12 <b>Mg</b> 24.305 Magnesium											13 <b>Al</b> 26.982 Aluminum	14 <b>Si</b> 28.086 Silicon	15 <b>P</b> 30.974 Phosphorus	16 <b>S</b> 32.065 Sulfur	17 <b>Cl</b> 35.453 Chlorine	18 <b>Ar</b> 39.948 Argon
4	19 <b>K</b> 39.098 Potassium	20 <b>Ca</b> 40.08 Calcium	21 <b>Sc</b> 44.956 Scandium	22 <b>Ti</b> 47.88 Titanium	23 <b>V</b> 50.942 Vanadium	24 <b>Cr</b> 51.996 Chromium	25 <b>Mn</b> 54.938 Manganese	26 <b>Fe</b> 55.847 Iron	27 <b>Co</b> 58.933 Cobalt	28 <b>Ni</b> 58.69 Nickel	29 <b>Cu</b> 63.546 Copper	30 <b>Zn</b> 65.39 Zinc	31 <b>Ga</b> 69.72 Gallium	32 <b>Ge</b> 72.61 Germanium	33 <b>As</b> 74.922 Arsenic	34 <b>Se</b> 78.96 Selenium	35 <b>Br</b> 79.904 Bromine	36 <b>Kr</b> 83.80 Krypton
5	37 <b>Rb</b> 85.468 Rubidium	38 <b>Sr</b> 87.62 Strontium	39 <b>Y</b> 88.906 Yttrium	40 <b>Zr</b> 91.224 Zirconium	41 <b>Nb</b> 92.906 Niobium	42 <b>Mo</b> 95.94 Molybdenum	43 <b>Tc</b> (98) Technetium	44 <b>Ru</b> 101.07 Ruthenium	45 <b>Rh</b> 102.905 Rhodium	46 <b>Pd</b> 106.42 Palladium	47 <b>Ag</b> 107.868 Silver	48 <b>Cd</b> 112.41 Cadmium	49 <b>In</b> 114.82 Indium	50 <b>Sn</b> 118.71 Tin	51 <b>Sb</b> 121.763 Antimony	52 <b>Te</b> 127.60 Tellurium	53 <b>I</b> 126.904 Iodine	54 <b>Xe</b> 131.29 Xenon
6	55 <b>Cs</b> 132.905 Cesium	56 <b>Ba</b> 137.33 Barium	57 <b>La</b> 138.906 Lanthanum	72 <b>Hf</b> 178.49 Hafnium	73 <b>Ta</b> 180.948 Tantalum	74 <b>W</b> 183.84 Tungsten	75 <b>Re</b> 186.207 Rhenium	76 <b>Os</b> 190.23 Osmium	77 <b>Ir</b> 192.22 Iridium	78 <b>Pt</b> 195.08 Platinum	79 <b>Au</b> 196.967 Gold	80 <b>Hg</b> 200.59 Mercury	81 <b>Tl</b> 204.383 Thallium	82 <b>Pb</b> 207.2 Lead	83 <b>Bi</b> 208.980 Bismuth	84 <b>Po</b> (209) Polonium	85 <b>At</b> (210) Astatine	86 <b>Rn</b> (222) Radon
7	87 <b>Fr</b> (223) Francium	88 <b>Ra</b> 226.025 Radium	89 <b>Ac</b> 227.028 Actinium	104 <b>Rf</b> (261) Rutherfordium	105 <b>Db</b> (262) Dubnium	106 <b>Sg</b> (263) Seaborgium	107 <b>Bh</b> (262) Bohrium	108 <b>Hs</b> (265) Hassium	109 <b>Mt</b> (266) Meitnerium	110 <b></b> (269) Darmstadtium	Mass numbers in parentheses are those of the most stable or most common isotope.							

Lanthanide Series

Actinide Series

58 <b>Ce</b> 140.12 Cerium	59 <b>Pr</b> 140.908 Praseodymium	60 <b>Nd</b> 144.24 Neodymium	61 <b>Pm</b> (145) Promethium	62 <b>Sm</b> 150.36 Samarium	63 <b>Eu</b> 151.97 Europium	64 <b>Gd</b> 157.25 Gadolinium	65 <b>Tb</b> 158.925 Terbium	66 <b>Dy</b> 162.50 Dysprosium	67 <b>Ho</b> 164.930 Holmium	68 <b>Er</b> 167.26 Erbium	69 <b>Tm</b> 168.934 Thulium	70 <b>Yb</b> 173.04 Ytterbium	71 <b>Lu</b> 174.967 Lutetium
90 <b>Th</b> 232.038 Thorium	91 <b>Pa</b> 231.036 Protactinium	92 <b>U</b> 238.029 Uranium	93 <b>Np</b> 237.048 Neptunium	94 <b>Pu</b> (244) Plutonium	95 <b>Am</b> (243) Americium	96 <b>Cm</b> (247) Curium	97 <b>Bk</b> (247) Berkelium	98 <b>Cf</b> (251) Californium	99 <b>Es</b> (252) Einsteinium	100 <b>Fm</b> (257) Fermium	101 <b>Md</b> (258) Mendelevium	102 <b>No</b> (259) Nobelium	103 <b>Lr</b> (262) Lawrencium