

## Directed Reading for Overview Content Mastery The Periodic Table

PERIODIC TABLE OF THE ELEMENTS  $\bigcirc$ Gas Columns of elements are called groups. Elements in the same group have similar chemical properties. Metal Liquid Metalloid 18 Solid Nonmetal Flemen Hydrogen Helium Atomic number Synthetic State of Ģ ΗQ 0 2 13 matter 14 15 16 17 Symbol н 1.00 4.003 The color of an element's block tells you if the element is a metal, nonmetal, or metalloid. Atomic mass 1.008 The first three symbols tell you the state of matter of the element at room Lithium Carbon Oxyge Beryllium Boron Nitroc Neor 10 Ne 20.180 temperature. The fourth symbol 0 **Q** 0 i 🗍 Be B 🗆 :0 8 0 Ń 2 identifies elements that are not present in significant amounts on Earth. Useful amounts are made synthetically. 12.011 14.007 6.941 9.012 10.811 15.999 18,998 Argon 18 Ar 39.948 Sodium Aluminum Silicon Phosphorus Sulfur Chlorine <sup>12</sup> Mg 17 Q Na 13 AI 15 P s<sup>16</sup> S <sup>14</sup> Si 6 10 11 12 24.305 28.086 30.974 35.453 22.990 26.982 32.065 Nickel Calcium Titaniu Chromium Manganes Cobalt Coppe Zinc Galliun Potassium Scandium Vanadium Arse Krypt <sup>33</sup> As <sup>21</sup> Sc 22 Ti 23 V <sup>24</sup> Cr 25 Mn <sup>26</sup> 🗇 <sup>27</sup> 🗇 35 ≬ Br 36 Kr <sup>19</sup> K <sup>20</sup> Ca □ <sup>28</sup> Ni <sup>29</sup> Cu 30 Ga<sup>31</sup> <sup>32</sup> Ge <sup>34</sup> □ Se □ źn 🗇 39.098 40.078 44.956 47.867 50.942 51.996 54.938 55.845 58.933 58.693 63.546 69.723 72.64 78.96 79.904 83.798 65.409 Palladium Silve Cadmiur Rubidiur Tin rontium Yttriur Zirconiun Niobium Rhodium Antimony Telluriun 44 🗇 Ru 101.07 42 Mo 95.94 Ag <sup>37</sup> Rb <sup>38</sup> Sr 39 γ <sup>40</sup> Zr Nb 🗇 <sup>43</sup> ⊙ Tc <sup>45</sup> 🗍 Pd 🗇 <sup>48</sup> Cd <sup>49</sup> In 50 Sn 51 Sb 52 Te <sup>53</sup> 🗍 54 🛛 87.62 102.906 121.760 131.293 91.224 06.42 112.411 114.818 118.710 127.60 Cesiun Barium Lantha Hafni Tantalum Gold Mercury Thallium Lead Bismuth Astatin Rador Rheniun Osmiun Iridiur Platinum 86 Rn 55 G 57 La 72 Hf 73 🗍 Ta 74 W 75 Re 76 Os 77 🗇 81 TI <sup>82</sup> D 83 Bi <sup>84</sup> 🗇 85 At 56 Ba <sup>78</sup> 🗇 <sup>79</sup> 🗇 80 ٥ Hg 132.905 137.327 138.906 178.49 183.84 190.23 192.217 200.59 204.383 207.2 208.980 (210) (222) 186.207 195.078 196.967 Actinium 89 Ac Radium Bohrium 107 () Bh Ununbiun Francium Dubnium Seaborgium 106 Sg (266) \*\* 116 \*\* 118 104 108 Hs <sup>114</sup> Uuq <sup>87</sup> 🗇 88 Ra  $\odot$  $\odot$ 109 Mt 110 () Ds • 111 Uuu ⊙ 0 Uub Rf Db (226) (227) (261) (264) (277) (268) (281) (272) (289 (223) (262) (285) al names will be selected when the elements' discoveries are verified. daim was retracted because the experimental results could not be repeated. 4 are temporary. \*⊺ \*\* and 118 Rows of elements are called periods. Atomic number increases across a period. Cerium 58 Erbiun Europium Gadolini Terbiun Thulium Ytterbium Lutetium Dyspros Holmi 62 Sm 61 () Pm 59 Pr 60 Nd 63 Eu Ho 0 71 Lu 64 Gd <sup>65</sup> □ 68 Er 69 Tm <sup>70</sup> □ 1 Dy 162,500 Lanthanide series 140.116 140.908 144.24 (145) 150.36 158.92 164.930 167.259 168.934 173.04 174.967 The arrow shows where these 151.964 157.25 elements would fit into the 93 93 Np (237) Thoriur otactiniu Uranium Curium periodic table. They are moved Berkeliun aliforniur Fermiu 92 U 238.029 94 (244) 91 D Pa 231.036 90 Th to the bottom of the table to Actinide  $\odot$ 95 Am () <sup>96</sup> ⊙ Cm ⊙ 97 ⓒ Bk 98 Cf 99 () Es 101 () Md 102 () No 103 () Lr save space Fm series 232.038 (243) (247)

**Directions:** Use the illustration of the periodic table to complete the tasks below.

- 1. Circle the noble gases family of elements. It contains helium. What is the group number?
- **2.** Draw an "X" (in red) through the element with the lowest atomic number. Name the element. What is the atomic number?
- 3. Draw a box around the period that contains radioactive elements.

It includes uranium. What are these called?

- 4. Underline all of the elements in the oxygen family.
- 5. Draw a line through the symbols of all elements in Period 3. List them.



**Directions:** Label the following elements key using the terms listed below.



**Directions:** Use the data on the left to complete the two element keys below.

element name: <b>aluminum</b>	
element symbol: Al	
atomic number: 13	
atomic mass: 26.982	
element name: gold	
element symbol: Au	
atomic number: <b>79</b>	
atomic mass: 196.967	
	element name: aluminum element symbol: Al atomic number: 13 atomic mass: 26.982 element name: gold element symbol: Au atomic number: 79 atomic mass: 196.967

**Directions:** *In the blank on the left, write* **True** *if the statement is true. If the statement is false, change the word in italics to make it true.* 

 <b>7.</b> Groups 3–12 are metals and are called <i>representative</i>		
elements.		
 8. <i>Nonmetals</i> are good conductors of heat and electricity.		
 9. The elements in the periodic table are organized by their		
atomic number.		
 10. There are seven groups, or rows, in the periodic table.		

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**Directions:** *Draw a line between each group or family name on the left to the element it contains on the right. Refer to the periodic table and, if necessary, to your textbook.* 

1. lanthanide series	iodine
<b>2.</b> period 5	potassium
3. alkali metals family	cerium
4. carbon family	boron
<b>5.</b> period 2	lead
6. alkaline earth metals family	krypton
7. noble gases family	einsteinium
8. actinide series	calcium

**Directions:** *Circle the term in parentheses that correctly completes the sentence.* 

9. All of the elements in the actinide family are (liquids/radioactive).

10. Carbon, the first element in the carbon family, is a (metal/nonmetal).

11. The element with the least atomic mass is (hydrogen/helium).

12. Mercury is the only metal that is a (gas/liquid) at room temperature.

**13.** Nobel gases (rarely/often) combine with other elements.

14. Lanthanides are (inner transition/representative) elements.

Directed Reading for Key Terms Content Mastery The Periodic Table

Date

**Directions:** *Complete the following sentences using the terms listed below.* 

S	catalyst ynthetic	representative transition	period metal	group nonmetal	metalloid semiconductor		
1.	A row of	f elements whose pro	perties change	gradually is called	1		
	a		·				
2.	elements include metals, metalloids,						
	and non	metals.					
3.	A colum	n of elements in the	periodic table v	with similar prope	erties is		
	a		or fa	mily.			
4.	Α	A is usually shiny and conducts					
	electricit	ty well.					
5.	A	·	is us	sually a gas or bri	ttle solid that is a		
	poor cor	nductor of electricity.					
6.	A		has p	properties of meta	ls and nonmetals.		
7.	'. An element that conducts electricity better than a nonmetal but not as well as a						
	metal is	a					
8.	Gold and	d silver are		elen	nents.		
9.	<b>9.</b> A substance that can cause something to happen faster than it might have						
	otherwise, but is not permanently changed itself, is called						
	a		·				
10.			elemen	nts are made in la	boratories.		