

Use with textbook pages 168–180.

## The atom and the subatomic particles

1. Use the following vocabulary words to label the diagram.

Vocabulary	
common ion charge	symbol
other ion charge	atomic number
name	average atomic mass

(a) _____	<table border="0"> <tr> <td>22</td> <td>4+</td> </tr> <tr> <td><b>Ti</b></td> <td>3+</td> </tr> <tr> <td colspan="2">Titanium</td> </tr> <tr> <td>47.9</td> <td></td> </tr> </table>	22	4+	<b>Ti</b>	3+	Titanium		47.9		(e) _____
22		4+								
<b>Ti</b>		3+								
Titanium										
47.9										
(b) _____	(f) _____									
(c) _____										
(d) _____										

2. Examine the periodic table for the element below and complete the blanks.

35	—
<b>Br</b>	
Bromine	
79.9	

- (a) atomic number \_\_\_\_\_ (b) average atomic mass \_\_\_\_\_  
 (c) ion charge \_\_\_\_\_ (d) number of protons \_\_\_\_\_  
 (e) name of element \_\_\_\_\_ (f) number of neutrons \_\_\_\_\_

3. Complete the following table for the different atoms and ions. The first two rows have been completed to help you.

Element Name	Atomic Number	Ion Charge	Number of Protons	Number of Electrons	Number of Neutrons
potassium	19	1+	19	18	20
phosphorus	15	0	15	15	16
	3	0			
		2+	20		
nitrogen		3-			
	5	0			
argon				18	
	13			10	
chlorine		0			
			11	10	

Name \_\_\_\_\_

Date \_\_\_\_\_

Use with textbook pages 174-177.

## Bohr diagrams

1. Define the following terms:

- (a) Bohr diagram \_\_\_\_\_
- (b) stable octet \_\_\_\_\_
- (c) valence shell \_\_\_\_\_
- (d) valence electrons \_\_\_\_\_

2. Complete the following table.

Atom/ion	Atomic Number	Number of Protons	Number of Electrons	Number of Neutrons	Number of Electron Shells
neon atom					
fluorine atom					
fluorine ion					
sodium atom					
sodium ion					

3. Use the table above to draw the Bohr model diagram for each of the following atoms and ions.

neon atom	fluorine atom	fluorine ion	sodium atom	sodium ion

4. Draw the Bohr model diagram for each of the following compounds.

carbon dioxide (CO <sub>2</sub> )	ammonia (NH <sub>3</sub> )	calcium chloride (CaCl <sub>2</sub> )

ws have

Number of Neutrons
20
16