Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period:\_\_\_\_\_\_\_\_\_\_

**Ch. 4/5 Homework Packet**

**HW #1**

**Properties of Subatomic Particles (pages 108–109)**

**1.** What are three subatomic particles?

|  |  |  |
| --- | --- | --- |
| a. | b. | c. |

**2.** Circle the letter that identifies a subatomic particle  
with a positive charge.

|  |  |
| --- | --- |
| a. nucleus | b. proton |
| c. neutron | d. electron |

**Comparing Subatomic Particles (pages 109–110)**

**3**. Circle the letters of properties that vary among subatomic particles.

|  |  |
| --- | --- |
| a. color | b. mass |
| c. charge | d. location in the atom |

**4.** Circle the letter of the expression that accurately compares the  
masses of neutrons and protons.

a. mass of 1 neutron = mass of 1 proton

b. mass of 2000 neutrons = mass of 1 proton

c. mass of 1 electron = mass of 1 proton

d. mass of 1 neutron = mass of 1 electron

**Atomic Number and Mass Number (page 110)**

**5.** Is the following sentence true or false? Two atoms of the same  
element can have different numbers of protons.

**6.** What is an atomic number?

**7.** Circle the letters that identify quantities that are always equal  
to an element’s atomic number.

a. number of nuclei

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b. number of protons

c. number of neutrons

d. number of electrons

**8.** Complete the equation in the table below.

Number of neutrons = −

**Ions and Isotopes**

**HW #2**

**Isotopes (page 112)**

**1.** Every atom of a given element has the same number of  
 and .

**2.** Every atom of a given element does not have the same number of  
 .

**3.** What are isotopes?

**4.** All oxygen atoms have 8 protons. Circle the letter of the number of  
neutrons in an atom of oxygen-18.

|  |  |
| --- | --- |
| a. 8 | b. 9 |
| c. 10 | d. 18 |

**5.** Is the following sentence true or false? Isotopes of oxygen have  
different chemical properties.

**6.** Water that contains hydrogen-2 atoms instead of hydrogen-1  
atoms is called .

**Ions (pages 159–161)**

**7.** Some elements achieve stable electron configurations through the  
transfer of between atoms.

**8.** By losing one valence electron, a sodium atom achieves the same  
electron arrangement as an atom of .

**9.** Circle the letter that states the result of a sodium atom transferring  
an electron to a chlorine atom.

a. Each atom ends up with a more stable electron arrangement.

b. The sodium atom becomes more stable, but the chlorine atom  
becomes less stable.

c. The chlorine atom becomes more stable, but the sodium atom  
becomes less stable.

d. Each atom ends up with a less stable electron arrangement.

**10.** Is the following sentence true or false? An ion is an atom that has a  
net positive or negative electric charge.

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**11.** An ion with a negative charge is called a(n) .

**Periodic Table**

**HW #3 (2 pages)**

**Valence Electrons (page 139)**

**1.** An electron that is in the highest occupied energy level of an atom is a(n)  
 electron.

**2.** Elements within a group have the number of  
valence electrons.

**The Alkali Metals (page 140)**

**3.** The reactivity of alkali metals from the top of Group  
1A to the bottom. Circle the correct answer.

|  |  |  |
| --- | --- | --- |
| decreases | increases | stays the same |

**The Alkaline Earth Metals (page 141)**

*Find and match two properties to each element listed.*

|  |  |
| --- | --- |
| **Alkaline Earth Metal** | **Property** |
| **4.** magnesium | a. Helps build strong teeth and bones |
| **5.** calcium | b. Helps plants produce sugar |
|  | c. Is used to make lightweight bicycle frames |
|  | d. Is the main ingredient in limestone |

**The Boron Family (page 142)**

**6.** List the four metals in Group 3A.

|  |  |
| --- | --- |
| a. Aluminum | b. |
| c. | d. |

**The Carbon Family (page 142)**

**7.** List the two metalloids in Group 4A.

|  |  |
| --- | --- |
| a. Silicon | b. |

**8.** Except for water, most of the compounds in your body contain  
 .

**The Nitrogen Family (page 143)**

**9.** List the nonmetals in Group 5A.

|  |  |
| --- | --- |
| a. Nitrogen | b. |

**10.** Name two elements in the nitrogen family that are contained  
in fertilizer.

|  |  |
| --- | --- |
| a. Nitrogen | b. |

**The Oxygen Family (page 143)**

**11.** List the nonmetals in Group 6A.

|  |  |  |
| --- | --- | --- |
| a. Oxygen | b. | c. |

**12.** Name the most abundant element in Earth’s crust.

**The Halogens (page 144)**

**13.** List the four nonmetals in Group 7A.

|  |  |
| --- | --- |
| a. Fluorine | b. |
| c. | d. |

**14.** Halogens have similar properties but different  
 properties. Use the words in the box to fill in the blanks.

|  |  |
| --- | --- |
| chemical | electric |
| physical | reactive |

**The Noble Gases (page 145)**

**15.** Name three characteristics of noble gases.

|  |  |  |
| --- | --- | --- |
| a. Colorless | b. | c. |

Label the following diagram of the Periodic Table

**Word Bank:** All words are used one time

*Alkali Metal Alkali-Earth Metals Halogens Noble gases Transitions metals.*

31. 32.

33.

34.

35.

36. \_\_\_\_\_ valence electrons 37. \_\_\_\_\_ valence electrons

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38. \_\_\_\_ valence electrons 39. \_\_\_ valence electrons