

- The force holding atoms together in a molecule is a chemical \_\_\_\_\_.
- Atoms form bonds in an attempt to become stable by having \_\_\_\_\_ valence electrons.
- An ionic bond forms when electrons are \_\_\_\_\_.
- A covalent bond forms when electrons are \_\_\_\_\_.
- The strongest type of bond is a(n) \_\_\_\_\_ bond.
- The attraction a bonded atom has for electrons is called the \_\_\_\_\_.
- Electronegativity \_\_\_\_\_ as you move down a column and it \_\_\_\_\_ as you move left to right across a period.
- Ionic bonds form between a \_\_\_\_\_ and a \_\_\_\_\_.
- Metals \_\_\_\_\_ electrons and form \_\_\_\_\_ ions called \_\_\_\_\_.
- Nonmetals \_\_\_\_\_ electrons and form \_\_\_\_\_ ions called \_\_\_\_\_.
- Positive ions are \_\_\_\_\_ than their parent atom and negative ions are \_\_\_\_\_ than their parent atom.
- Ionic bonds form because opposite charges \_\_\_\_\_.
- Ionic compounds tend to be hard, crystalline \_\_\_\_\_, have \_\_\_\_\_ melting points, be soluble in \_\_\_\_\_ and \_\_\_\_\_ electricity in aqueous solutions.
- Identify the charge for elements in each of the following groups:  
\_\_\_\_\_ 1A      \_\_\_\_\_ 2A      \_\_\_\_\_ 3A      \_\_\_\_\_ 4A  
\_\_\_\_\_ 5A      \_\_\_\_\_ 6A      \_\_\_\_\_ 7A      \_\_\_\_\_ 8A
- \_\_\_\_\_ elements tend to form ions that may have more than one positive charge.
- When writing chemical formulas, the charges must add up to \_\_\_\_\_.
- The \_\_\_\_\_ ion is always written first in a correctly written formula.
- In the formula  $\text{CaCl}_2$ , the number "2" is called the \_\_\_\_\_ and indicates the number of atoms of chlorine present in the compound.
- Binary compounds consist of only \_\_\_\_\_ types of atoms.
- When naming binary compounds, the ending of the anion is changed to \_\_\_\_\_.
- Answer the following questions about sodium and oxygen.
  - How many electrons are in the outer level of an atom of sodium? \_\_\_\_\_
  - How many electrons are in the outer level of an atom of oxygen? \_\_\_\_\_
  - When these two atoms bond, which atom gains electrons? \_\_\_\_\_
  - What charge will the sodium ion have? \_\_\_\_\_
  - What charge will the oxygen ion have? \_\_\_\_\_
  - How many electrons will the sodium ion have? \_\_\_\_\_
  - How many electrons will the oxygen ion have? \_\_\_\_\_
  - How many sodium ions will be needed to form a stable compound with oxygen? \_\_\_\_\_
  - What is the formula for the compound that forms from sodium and oxygen? \_\_\_\_\_
  - What is the name of the compound that forms from these elements? \_\_\_\_\_
- How many atoms of each element are present in a molecule of  $\text{Al}_2(\text{SO}_4)_3$ ?
- What is the % composition of the compound in #21?
- Percent composition is an \_\_\_\_\_ property.

