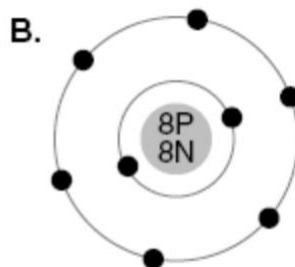
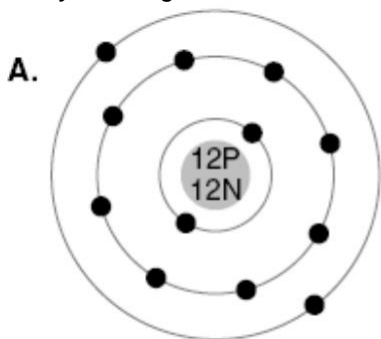


# Chemical Bonding

**Directions:** Study the diagram below. Write your answers to the questions in the spaces provided.



1. If atom A loses electrons to atom B,
  - a. how many electrons will atom A lose? \_\_\_\_\_
  - b. how many electrons will atom B gain? \_\_\_\_\_
  - c. what will be the charge of atom A? \_\_\_\_\_
  - d. what will be the charge of atom B? \_\_\_\_\_
  - e. what will be the total charge of the compound formed?  
\_\_\_\_\_
  - f. what type of bond will form?  
\_\_\_\_\_

2. Explain why an element's charge is related to the group on the periodic table to which it belongs.

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**Directions:** Complete the table comparing ionic compounds and covalent compounds.

Characteristic	Ionic compounds	Covalent compounds
How the compound is formed		
Smallest particle		
Usual state at room temperature		

**Directions:** Complete the sentence by writing the correct terms in the blanks.

3. An atom that has gained or lost electrons is called a(n) \_\_\_\_\_.
4. An atom is \_\_\_\_\_ when its outer energy level is filled with electrons.
5. A(n) \_\_\_\_\_ tells what elements make up a compound and the ratios of the atoms of those elements.
6. A molecule that has a positive end and a negative end is a(n) \_\_\_\_\_ molecule.
7. A bond that forms between atoms when they share electrons is \_\_\_\_\_ a(n) bond.
8. A positive or negative number that is assigned to an element to show its combining ability in a compound is a(n) \_\_\_\_\_.
9. An ion that has a positive charge is called a(n) \_\_\_\_\_.
10. When an atom gains an electron, it is called a(n) \_\_\_\_\_.
11. The force of attraction between the opposite charges of the ions in an ionic compound is a(n) \_\_\_\_\_.
12. Molecules that do not have oppositely charged ends are \_\_\_\_\_ molecules.
13. A(n) \_\_\_\_\_ is formed when atoms gain, lose, or share electrons.

**Directions:** All of the statements below are false as written. In the space provided, write a term or phrase that makes the statement true when it is substituted for the underlined words.

- \_\_\_\_\_ 14. The properties of a compound are the same as the properties of the elements that it contains.
- \_\_\_\_\_ 15. Superscript numbers in chemical formulas tell how many atoms of each element are found in a unit of compound.
- \_\_\_\_\_ 16. All the noble gases except helium have 18 electrons in their outer energy level.
- \_\_\_\_\_ 17. A(n) chemical formula is the force that holds atoms together in a compound.
- \_\_\_\_\_ 18. An ion is a(n) neutral particle that has either more or fewer electrons than protons.
- \_\_\_\_\_ 19. Charges are written as subscripts.
- \_\_\_\_\_ 20. A(n) covalent bond is the force of attraction between the opposite charges of the ions in an ionic compound.
- \_\_\_\_\_ 21. The charge on the final compound is always positive.
- \_\_\_\_\_ 22. Equal sharing of electrons in covalent bonds results in polar molecules.
- \_\_\_\_\_ 23. Only two identical atoms can share electrons unequally.
- \_\_\_\_\_ 24. An anion is a positively charged ion.
- \_\_\_\_\_ 25. When an atom loses an electron, it is called a anion.

**Directions:** In the blanks, write the terms from the list that complete the definition. Words can be used more than once.

<b>positive number(s)</b>	<b>element(s) force(s)</b>	<b>compound(s) atom(s)</b>	<b>energy level(s) ion(s)</b>	<b>electron(s)</b>	<b>charged negative</b>
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26. A chemical formula tells what \_\_\_\_\_ make up a \_\_\_\_\_ and the exact \_\_\_\_\_ of atoms of each element in a unit of compound.
27. An atom is chemically stable when its outer \_\_\_\_\_ is completely filled with \_\_\_\_\_.
28. A chemical bond is a \_\_\_\_\_ that holds \_\_\_\_\_ together in a compound.
29. An \_\_\_\_\_ that has lost or gained \_\_\_\_\_ is called an ion.
30. An ionic bond is the \_\_\_\_\_ of attraction between the opposite charges of the \_\_\_\_\_ in an ionic \_\_\_\_\_.
31. The attraction that forms between \_\_\_\_\_ when they share \_\_\_\_\_ is known as a covalent bond.
32. A polar molecule has a slightly \_\_\_\_\_ end and a slightly \_\_\_\_\_ end.
33. A nonpolar molecule does not have oppositely \_\_\_\_\_ ends.  
Only atoms that are exactly alike can share their \_\_\_\_\_ equally.

**Directions:** Match each term with its description. Write the letter of the correct term in the space provided.

**Column I**

- \_\_\_\_\_ 34. chemical bond
- \_\_\_\_\_ 35. chemically stable
- \_\_\_\_\_ 36. nonpolar molecule
- \_\_\_\_\_ 37. ion
- \_\_\_\_\_ 38. ionic bond
- \_\_\_\_\_ 39. polar molecule
- \_\_\_\_\_ 40. covalent bond
- \_\_\_\_\_ 41. chemical formula

**Column II**

- a. the force of attraction between the opposite charges of the ions in an ionic compound
- b. shorthand that tells what elements a compound contains and the exact number of atoms of each element in a unit of the compound
- c. molecule made of two identical atoms that share the electrons equally
- d. a charged particle that has either more or fewer electrons than proton
- e. describes an atom that has a full outermost energy level
- f. molecule that has a slightly positive end and a slightly negative end
- g. the attraction that forms between atoms when they share electrons
- h. the force that holds atoms together in a compound