
NTI Day 6 Assignment

Lesson 6 Review

Content Standard: Bonding

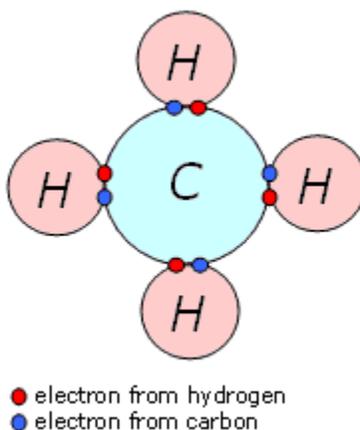
Class: Chemistry

Teacher: K. Kelly

1. Which of the following pairs of elements is most likely to form an ionic bond?

- A. carbon and chlorine
 - B. nitrogen and oxygen
 - C. phosphorous and bromine
 - D. sodium and sulfur
-

2. What type of bond is represented by the diagram below?



- A. covalent bond
 - B. metallic bond
 - C. hydrogen bond
 - D. ionic bond
-

3. An atom's outermost electron arrangement determines how it interacts with other atoms. Which of the following atomic structures would be most likely to form an ionic bond?

- A. fluorine, which has seven outer electrons
 - B. carbon, which has four outer electrons
 - C. neon, which has eight outer electrons
 - D. helium, which has two outer electrons
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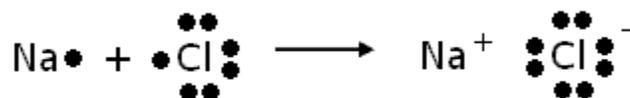
4. In the process of covalent bonding,

- A. protons are shared between two or more atoms.
 - B. protons are transferred between two or more atoms.
 - C. electrons are shared between two or more atoms.
 - D. electrons are transferred between two or more atoms.
-

5. A(n) _____ bond results from the transfer of electrons from one atom to another atom.

- A. ionic
 - B. metallic
 - C. covalent
 - D. hydrogen
-

6.



The _____ bond above shows sodium (Na) giving up an electron to chlorine (Cl).

- A. ionic
 - B. covalent
 - C. hydrogen
 - D. simple
-

7. Chlorine gas (Cl₂) forms when two chlorine atoms share an electron. What type of bonding is present in chlorine gas?

- A. ionic
 - B. metallic
 - C. hydrogen
 - D. covalent
-

8. In the periodic table pictured below, the chemical element nitrogen (N) is indicated by a white box. Sodium (Na), magnesium (Mg), neon (Ne), and oxygen (O) are indicated by purple boxes.

	1																18	
1	H																He	
2	Li	Be										B	C	N	O	F	Ne	
3	Na	Mg										Al	Si	P	S	Cl	Ar	
4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
6	Cs	Ba	*	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
7	Fr	Ra	**	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Nh	Fl	Mc	Lv	Ts	Og
				57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
				La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
				89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
				Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

Which of the following elements can form a covalent (molecular) bond with nitrogen?

- A. neon (Ne)
- B. oxygen (O)
- C. sodium (Na)
- D. magnesium (Mg)

9. Which statement describes an ionic bond?

- A. Electrons transition from an inner shell to a valence shell.
- B. Electrons are shared between atoms.
- C. Electrons are mobile within a metal.
- D. Electrons are transferred from one atom to another.

10. Why are the electrons in a bond between carbon and oxygen, C-O, closer to the oxygen atom than the carbon atom?

- A. Oxygen has a higher group number than carbon.
- B. Oxygen has a higher atomic number than carbon.
- C. Oxygen has a higher electronegativity than carbon.
- D. Oxygen has a higher mass than carbon.

11. Ionic crystals can form when metallic atoms bond with nonmetallic atoms. Which of the following is an example of an ionic crystal?

- A. Ar
 - B. KI
 - C. CO₂
 - D. SeOBr₂
-

12. Which of the following best explains the polarity of water (H₂O)?

- A. Since the oxygen atom has more electrons than the hydrogen atoms, it is negatively charged.
 - B. Electrons are more attracted to the oxygen atom, so there is a partial negative charge on the oxygen atom.
 - C. Protons are more attracted to the hydrogen atoms, so the hydrogen atoms become positively charged.
 - D. Since there are two positive hydrogen atoms and only one negative oxygen atom, the water molecule is positively charged.
-

13. Covalent bonds usually occur between atoms that have _____ and _____.

- A. low ionization energies; low electron affinities
 - B. high molecular weights; large atomic radii
 - C. low molecular weights; small atomic radii
 - D. high ionization energies; high electron affinities
-

14.

Element	Electronegativity	Bond Type	Electronegativity Difference
F	4.0	Non-Polar Covalent Bond	0 - 0.4
O	3.5		
N	3.0		
Cl	3.0	Polar Covalent Bond	0.5 - 1.9
I	2.5		
S	2.5		
C	2.5		
P	2.1		
H	2.1	Ionic Bond	≥ 2.0
Be	1.5		
Mg	1.2		
Li	1.0		
Na	0.9		

Which of these bonds should be classified as ionic?

- A. C-S
 - B. H-Cl
 - C. Be-S
 - D. Na-O
-

15. Why do atoms form bonds by donating, accepting or sharing electrons with other atoms?

- A. Bonding changes all atoms into ions.
 - B. Bonding gives an atom the same number of electrons as a noble gas.
 - C. Bonding gives an atom the same number of protons as a noble gas.
 - D. Bonding breaks an atom into stable parts.
-

16. What happens to an atom of sodium (Na) when it forms an ionic bond in which it has the same electron configuration as the noble gas neon?

- A. It gives up one electron.
 - B. It accepts one electron.
 - C. It accepts two electrons.
 - D. It gives up two electrons.
-

17. When two or more atoms combine into a chemical compound, the force of attraction holding the atoms together is known as a _____.

- A. magnetic pole
 - B. charge
 - C. bond
 - D. electric current
-

18. Sodium and chlorine react and an ionic bond forms. Which statement is true about the bonding that has occurred?

- A. The sodium and the chlorine atoms have both lost an electron.
 - B. The sodium atom has lost an electron and the chlorine atom has gained one.
 - C. The chlorine atom has lost an electron and the sodium atom has gained one.
 - D. The sodium and the chlorine atoms have both gained an electron.
-

19.

Element	Electronegativity	Bond Type	Electronegativity Difference
F	4.0	Non-Polar Covalent Bond	0 - 0.4
O	3.5		
N	3.0	Polar Covalent Bond	0.5 - 1.9
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I	2.5	Ionic Bond	≥ 2.0
S	2.5		
C	2.5		
P	2.1		
H	2.1		
Be	1.5		
Mg	1.2		
Li	1.0		
Na	0.9		

Which of these bonds should be classified as a polar covalent bond?

- A. P-H
 - B. O-H
 - C. Be-F
 - D. S-S
-

20. Ionic bonds tend to form between _____ and _____.

- A. nonmetals; nonmetals
- B. metals; metals
- C. transition metals; metals
- D. metals; nonmetals

