

Name: _____ Block: ____ Date: _____

Types of Bonds and Molecular Shapes Review

Choose the answer that best completes each statement.

- ____ 1. The basis of an ionic bond is the:
- sharing of an electron pair.
 - electrical attraction between oppositely charge ions.
 - repulsion created by charged ions.
 - the attraction between polar molecules.
- ____ 2. Atoms gain or lose electrons to obtain the structure of an:
- alkali metal
 - halogen
 - noble gas
 - alkaline earth metal
- ____ 3. Ions that are made up of more than one atom are called:
- polyatomic ions
 - monoatomic ions
 - cations
 - anions
- ____ 4. The structural formula of a molecule:
- denotes the ratio of ions in a compound.
 - can be determined by criss-crossing the charges of ions.
 - uses subscripts to denote the number of atoms of each element.
 - specifies which atoms are bonded to each other.
- ____ 5. Which of the following is created when two pairs of electrons are shared?
- a single bond
 - a double bond
 - an ionic bond
 - a triple bond
- ____ 6. When the difference in electronegativities for a bond is 2.3, the bond is considered to be:
- non-polar covalent
 - unstable
 - polar covalent
 - ionic
- ____ 7. Which of the following molecules provides an exception to the octet rule?
- H₂O
 - CH₄
 - Br₂
 - SF₄

Illustrate molecules to evaluate:

a.	b.	c.	d.
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- ____ 8. Which of the following molecules does not have a linear shape?
- O₂
 - H₂S
 - HI
 - CO₂

Illustrate the molecules to evaluate:

a.	b.	c.	d.
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- ____ 9. What is the predicted molecular shape for CCl₄?
- pyramidal
 - bent
 - trigonal planar
 - linear
- ____ 10. What is the bond angle in a trigonal planar molecule?
- 90°
 - 109.5°
 - 120°
 - 180°

Answer the following questions in the space provided.

11. Explain why water has a bent shape.

12. What determines the shape of a large molecule? – Polarity of its parts! Remember this for AP Bio. ☺

13. Draw the hybrid orbitals for sp , sp^2 , and sp^3 .

14. Why are polar molecules called dipoles?

15. O_2 , Cl_2 , H_2 , etc. are all referred to as: _____ How many are there? ____
List the missing ones: _____

16. Polyatomic ions generally have negative charges because:

17. Give a brief overview of VSEPR.

18. Determine the carbon to carbon bond structure for the following:



	Type of Bond(math)	Lewis Structure – Please use diff. colors	Molecular Shape Illustration	Molecular Shape - Name	Polar or Non-polar Molecule
CH_4					
H_2O					
BF_3					
NF_3					
PF_5					

