

1. How many electrons would each fluorine atom have to share when two fluorine atoms bond to form a molecule of fluorine gas -- both with a completely filled Ring 2?

4. The reason two identical atoms stay together when sharing electrons equally is that they \_\_\_\_\_.

The Periodic Table of the Elements

1 H 1.00794																	2 He 4.002602
3 Li 6.941	4 Be 9.012182											5 B 10.811	6 C 12.0107	7 N 14.00643	8 O 15.999	9 F 18.9984032	10 Ne 20.1797
11 Na 22.98976928	12 Mg 24.304											13 Al 26.9815386	14 Si 28.0855	15 P 30.973762	16 S 32.065	17 Cl 35.453	18 Ar 39.9623831
19 K 39.0983	20 Ca 40.078	21 Sc 44.955912	22 Ti 47.88	23 V 50.9415	24 Cr 51.9961	25 Mn 54.938044	26 Fe 55.845	27 Co 58.933195	28 Ni 58.6934	29 Cu 63.546	30 Zn 65.38	31 Ga 69.723	32 Ge 72.64	33 As 74.9216	34 Se 78.96	35 Br 79.904	36 Kr 83.80
37 Rb 85.4678	38 Sr 87.62	39 Y 88.90584	40 Zr 91.224	41 Nb 92.90638	42 Mo 95.94	43 Tc [98]	44 Ru 101.07	45 Rh 102.9055	46 Pd 106.42	47 Ag 107.8682	48 Cd 112.4118	49 In 114.818	50 Sn 118.710	51 Sb 121.757	52 Te 127.6	53 I 126.90547	54 Xe 131.29
55 Cs 132.90545196	56 Ba 137.327	57 La 138.90471	58 Ce 140.12	59 Pr 140.90766	60 Nd 144.242	61 Pm [145]	62 Sm 150.36	63 Eu 151.964	64 Gd 157.25	65 Tb 158.92534	66 Dy 162.5001	67 Ho 164.93033	68 Er 167.259	69 Tm 168.93032	70 Yb 173.05468	71 Lu 174.967	
87 Fr [223]	88 Ra [226]	89 Ac [227]	90 Th [232]	91 Pa [231]	92 U [238]	93 Np [237]	94 Pu [244]	95 Am [243]	96 Cm [247]	97 Bk [247]	98 Cf [251]	99 Es [252]	100 Fm [257]	101 Md [258]	102 No [259]	103 Lr [260]	

- (A) 1
- (B) 2
- (C) 3
- (D) 4

2. How many electrons would two oxygen atoms have to share to form a molecule of oxygen that fills up both of oxygen's Ring 2?

- (A) 1
- (B) 2
- (C) 8
- (D) 10

3. How many electrons would two nitrogen atoms have to share to form a molecule of nitrogen that fills up both of nitrogen's Ring 2?

- (A) 1
- (B) 2
- (C) 3
- (D) 5

- (A) form a single cloud of electrons around both atoms
- (B) they form a wall of electrons between them
- (C) each atom's electrons begin circling the other atom
- (D) the electrons share each other's repulsion

5. Which molecule has the strongest equal sharing covalent bond?

- (A) nitrogen
- (B) oxygen
- (C) fluorine

6. Covalent bonding causes two atoms to stick together because \_\_\_\_\_.

- (A) both nuclei are attracted to each other
- (B) both atoms become ionic
- (C) the shared electrons are attracted to each other
- (D) both nuclei are attracted to the shared electrons

7. Which statement is untrue? Small covalent molecules \_\_\_\_\_.

- (A) have no polarity
- (B) form gases at room temperature
- (C) always form when two identical atoms bond together
- (D) are generally asymmetric

8. Carbon and hydrogen form a covalent bond with each other because \_\_\_\_\_.

- (A) hydrogen with a single electron is willing to give carbon its single electron
- (B) their electronegativity difference is greater than 2.0
- (C) hydrogen's nucleus exerts a strong pull on its single electron
- (D) carbon's three other valence electrons repel the fourth valence electron toward the hydrogen atom

9. Which statement is untrue? Methane is a gas at room temperature, in part, because \_\_\_\_\_.

- (A) methane molecules repel each other
- (B) methane molecules are symmetric
- (C) methane molecules have four covalent bonds
- (D) methane molecules are small

10. Which statement is untrue? The more carbon atoms a long-chain hydrocarbon has, the more likely it is to \_\_\_\_\_.

- (A) stick to other identical molecules
- (B) have a lower boiling point
- (C) form a liquid at room temperature
- (D) form London dispersion forces

11. Which statement is untrue? London dispersion forces \_\_\_\_\_.

- (A) are brief and unpredictable
- (B) occur between nonpolar molecules
- (C) are due to shifts of electrons
- (D) cause electrons to disperse evenly around the nucleus

12. The best way to turn a gas into a liquid is to \_\_\_\_\_.

- (A) increase the pressure and temperature
- (B) lower the pressure and increase the temperature
- (C) increase the pressure and lower the temperature
- (D) lower the pressure and temperature

13. Which is the most effective way to reduce London dispersion forces between long-chain hydrocarbons?

- (A) lower the temperature
- (B) reduce the number of carbon atoms
- (C) remove any double bonds
- (D) increase the pressure

14. Saturated hydrocarbons \_\_\_\_\_.

- (A) have periodic double bonds which makes stacking of the hydrocarbons more difficult
- (B) have no double bonds which makes stacking of the hydrocarbons easier
- (C) have no double bonds which makes stacking of the hydrocarbons more difficult
- (D) have periodic double bonds which makes stacking of the hydrocarbons easier

15. Geckos and spiders are able to walk on walls and ceilings by the following adaptations, except:

- (A) increasing the pressure exerted by their feet on the walking surface
- (B) increasing the number of molecules in their feet that come in contact with the walking surface
- (C) relying on London dispersion forces
- (D) increasing the number of hairs on their feet

16. Iodine atoms form covalent bonds with each other, but unlike other small covalent molecules, iodine molecules form a solid at room temperature, because, in part, of their \_\_\_\_\_.

- (A) small electron cloud
- (B) low molecular weight
- (C) high kinetic energy
- (D) strong London dispersion forces