

(PS1-2.1) I can compare and contrast ionic, covalent and metallic bonds.

In Questions # 1-9, identify the following as **ionic, covalent, or metallic**

1. metal A copper zinc alloy is an example of this type of bond
2. ionic This type of bond takes or transfers electrons
3. covalent CO₂ is an example of this type of bond
4. covalent This bond is between 2 nonmetals
5. metal This type of bond has "pooled" electrons
6. ionic This bond is between a metal and a nonmetal
7. ionic NaCl is an example of this type of bond
8. metal This bond is between many metals
9. covalent This type of bond shares electrons

(PS1-2.2) I can determine if an ion is positive or negative due to electron transfer.

In Questions # 10 – 15, identify the following as:

the **octet rule, valence electrons, ion, cation, anion, or chemical formula**

10. chemical formula Ca₃N₂ → formula
11. cation Ca⁺²
12. valence e⁻ outer shell electrons in an atom that are involved in chemical bonds
13. octet rule atoms gain or lose e⁻ to achieve 8 e⁻ in the valence shell for stability
14. anion N⁻³
15. ion any charged particle

16. Using the Lewis Dot method, Identify the bond type between K and Br ionic

Create an equation to show bond formation between K and Br.

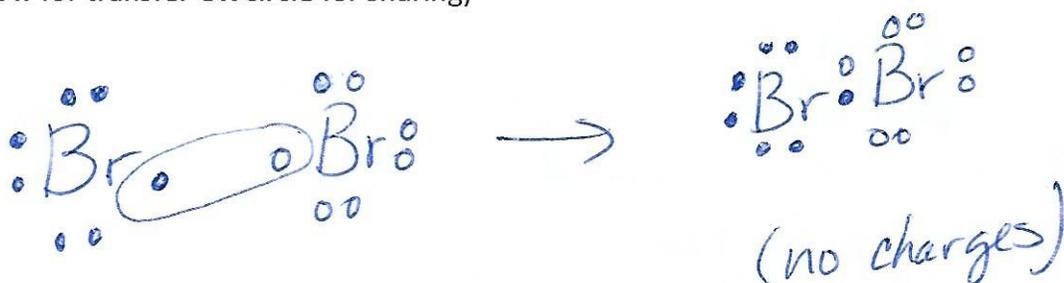
(arrow for transfer **OR** circle for sharing)



17. Using the Lewis Dot method, Identify the bond type between Br and Br covalent

Create an equation to show bond formation between Br and Br.

(arrow for transfer **OR** circle for sharing)



(PS1-7.1) I can use subscripts to identify the number of atoms in a compound

In Questions # 18 – 23, identify the following as:

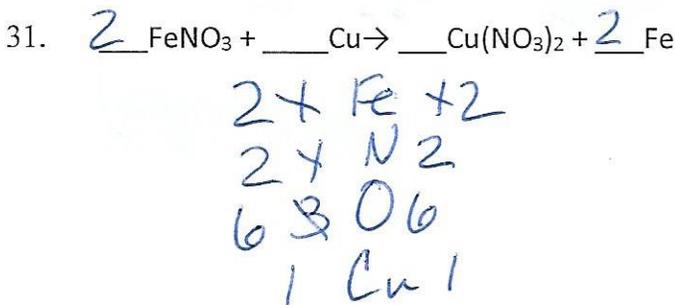
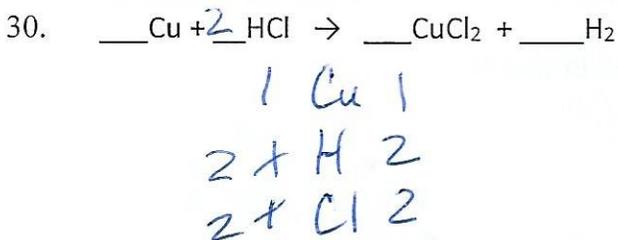
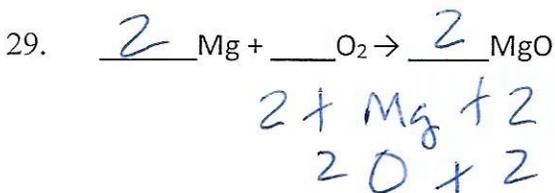
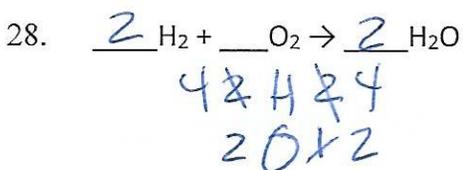
subscript, equation, reactant, product, or coefficient , Law of Conservation of Matter

18. subscript the numbers 3 and 2 in the formula: Ca_3N_2
19. equation $2\text{Na}_2 + \text{O}_2 \rightarrow 2\text{Na}_2\text{O}$
20. reactants the chemical compounds or elements present before the reaction starts
21. coefficients the large numbers before a chemical formula or element in a reaction
22. products the chemical compounds or elements present after the chemical reaction occurs
23. law of Conservation of Matter this is the reason that equations are balanced

Identify all elements (by symbol) in compound by writing out the element symbol and number of atoms of each element.

- | | | | |
|----------------------------------|-------------|------------|------------|
| 24. H_2O | <u>H-2</u> | <u>O-1</u> | |
| 25. $\text{Fe}_3(\text{PO}_4)_2$ | <u>Fe-3</u> | <u>P-2</u> | <u>O-8</u> |
| 26. K_2SO_3 | <u>K-2</u> | <u>S-1</u> | <u>O-3</u> |
| 27. $\text{Mg}(\text{NO}_3)_2$ | <u>Mg-1</u> | <u>N-2</u> | <u>O-6</u> |

(PS1-7.2) I can use coefficients to balance a chemical equation to support the conservation of matter.



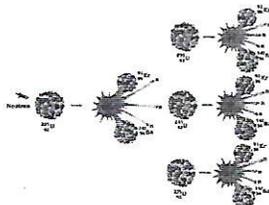
(PS1-8.1) I can compare and contrast the process of fission and fusion

In Questions # 32– 37, identify the following as: (some used more than once)

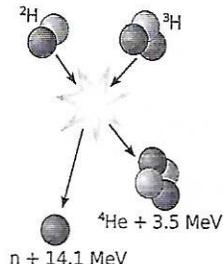
Radioactive decay, Isotope, Transmutation, Strong Nuclear Force, Fusion, Fission

32. isotope atoms of the same element with different numbers of neutrons
 33. fusion process in which the nuclei of two atoms combine to form a larger nucleus
 34. strong nucl. force force that holds protons and neutrons together
 35. transmutation the changing of one element to another through radioactive decay
 36. fission The splitting of an atomic nucleus into smaller parts.
 37. radioactive decay The release of nuclear particles and energy due to the decay of the unstable nuclei of atoms

38. fission



39. fusion



(PS1-8.2) I can predict the results of transmutation through alpha and beta decay

40. When **alpha** decay occurs, the **atomic number** will ↓ by 2 (be specific)
 41. When **alpha** decay occurs, the **mass number** will ↓ by 4 (be specific)
 42. When **beta** decay occurs, the **atomic number** will ↑ by 1 (be specific)
 43. When **beta** decay occurs, the **mass number** will not change (be specific)
 44. Give the new element and mass if an alpha decay occurs on C-14. Be-10
 45. Give the new element and mass if an ~~alpha~~ beta decay occurs on C-14. N-14

(PS1-8.3) I can model the changes in composition of the nucleus during fission, fusion, and radioactive decay.

46. On the back, draw a model to show the changes in the nucleus of two hydrogen atoms in fusion.
 47. On the back draw a model to show the changes in the nucleus of a chain reaction of fission.
 48. On the back draw a model to show the changes in the nucleus to show alpha decay of carbon, C-14.
 49. On the back draw a model to show the changes in the nucleus to show beta decay of carbon, C-14

