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| Ratios of Elements  CλeMis+ry: http://genest.weebly.com  Stop in for help every day at lunch and Tues &Thurs after school! |  | Name\_\_\_\_\_\_\_\_\_\_\_\_\_  Period\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 1. In the next several problems, if given a formula draw the molecules, if given a cartoon, write the formula. The arbitrary symbols above are just made up by me and are not to be memorized. |  |

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| Symbols: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  | Symbols: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  | Symbols: \_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| Symbols: 3H2O |  | Symbols: C3H4 |  | Symbols : 3 NH3 |

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| 1. It is often convenient to cartoon molecules as circles with a letter to show what element each atom is.   Write the full name, spelling counts, of the seven elements that exist as diatomic molecules when they are pure and by themselves:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |

1. *When bromine is by itself, with no other elements,* how many atoms of bromine will be in that molecule ? ( 1 / 2 / variable )
2. *When bromine is in a compound, with one or more other elements,* how many atoms of bromine will be in that molecule ? ( 1 / 2 / variable )
3. *When hydrogen is in a compound, with one or more other elements,* how many atoms of hydrogen will be in that molecule ? ( 1 / 2 / variable )
4. *When oxygen is by itself, with no other elements,* how many atoms of oxygen will be in that molecule ? ( 1 / 2 / variable )
5. Use any drawing style you wish to show the correct number of molecules before and after the reaction arrow.

Remember the rules: (a) same size boxes should have the same number of molecules. (b) atoms cannot appear or disappear

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| 4F2 |  | 4Br2 |  | 4FBr 4FBr | | |

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|  |  |  | **+** |  |  | |  |  |  |
| two boxes with 3 diatomic molecules of hydrogen each | | |  | one box with some diatomic oxygen molecules (how many if it’s the same size box?) |  | only water molecules. think about what formula and how many should be in each box | | | |

1. When water is heated over a fire, bubbles form. This is a (physical chemical) change.

We know this because the the bubbles are ( still the same substance / a new substance with new properties )

1. Draw a particle picture of boiling water. Draw a bunch of liquid H2O particles outside the bubble and some gas H2O particles inside the bubble.

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1. When water is heated over a fire, bubbles form. This is a (physical chemical) change.

We know this because the the bubbles are ( still the same substance / a new substance with new properties )

1. Draw a particle picture of water that is undergoing electrolysis. Draw a bunch of liquid H2O particles outside the bubbles. There should be pure oxygen and pure hydrogen somewhere in these bubbles. (Remember to draw *diatomic* molecules). **Challenge**: The three bubbles are all the same size. What pure element should you draw in the third bubble?

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