Build a Molecule Pre-Lab (Statistics)

1. We use symbols to represent atoms.

a. What is the chemical symbol for the atom Hydrogen?_____

b. What is the chemical symbol for atom Oxygen?_____

c. What is the chemical symbol for the atom Carbon?_____

		N	N %
1a	Correct	43	74.1%
	Incorrect	12	20.7%
	N/A	3	5.2%
1b	Correct	44	75.9%
	Incorrect	12	20.7%
	N/A	2	3.4%
1c	Correct	39	67.2%
	Incorrect	17	29.3%
	N/A	2	3.4%

About 3/4 of the students could write the correct chemical symbols from the element names.

2. We use chemical formulas to represent individual molecules and groups of molecules. Write the chemical formula below each molecule or groups of molecules

a. 

		N	N %
2a	Correct	33	57%
	Name, not Symbols	14	24%
	other	10	17%
	N/A	1	2%

b. 

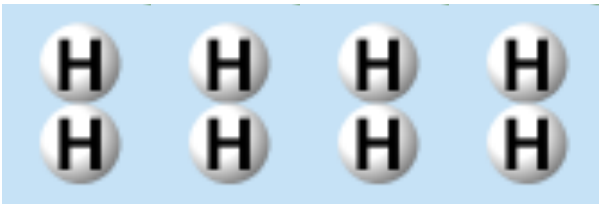
		N	N %
2b	Correct	37	64%
	Name, not Symbols	14	24%
	other	7	12%
	N/A	0	0%

c. 

		N	N %
2c	Correct	29	50%
	Name, not Symbols	0	0%
	other	24	41%
	N/A	5	9%

d. 

		N	N %
2d	Correct	31	53%
	Name, not Symbols	24	41%
	other	2	3%
	N/A	1	2%

e. 

		N	N %
2e	Correct	0	0%
	Name, not Symbols	15	26%
	H8, all or part	28	48%
	Other	10	17%
	N/A	5	9%

3. Try it!

a. Draw CO_2	
b. Draw $2H_2O$	
c. Draw $3N_2$	

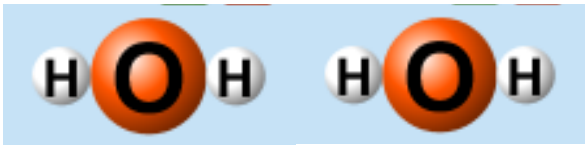
		Count	Column N %
Pre3a	2 O, 1 C	43	75%
	Other	7	12%
	N/A	7	12%
Pre3b	2 separate H2O	14	24%
	2 H, 2 O	17	29%
	Other	21	36%
	N/A	6	10%
Pre3c	3 separate N2	10	17%
	3 N Together	18	31%
	other	18	31%
	N/A	12	21%

Build a Molecule Post-Lab (Statistiscs)

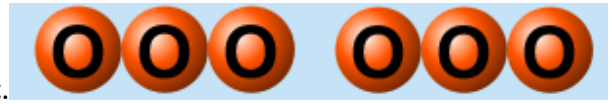
1. We use chemical formulas to represent individual molecules and groups of molecules. Write the chemical formula below each molecule or groups of molecules.

a. 

		N	N %
1a	Correct	50	88%
	Name, not Symbol	5	9%
	Other	1	2%
	N/A	1	2%

b. 

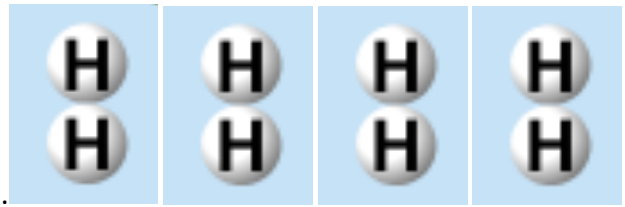
		N	N %
1b	Correct	38	67%
	Name, not Symbol	4	7%
	Molecular Formula, no coefficient	3	5%
	other	9	16%
	N/A	3	5%

c. 

		N	N %
1c	Correct	36	63%
	Name, not Symbol	4	7%
	Molecular Formula, no coefficient	5	9%
	O6 as all or part of answer	7	12%
	Other	5	9%
	N/A	0	0%

d. 

		N	N %
1d	Correct	40	70%
	Name, not Symbol	2	4%
	Molecular Formula, no coefficient	1	2%
	N6 as all or part	9	16%
	Other	4	7%
	N/A	1	2%

e. 

		N	N %
1e	Correct	36	63%
	Name, not Symbol	3	5%
	Molecular Formula, no coefficient	4	7%
	H8 as all or part	11	19%
	Other	3	5%
	N/A	0	0%

2. Try it!

a. Draw $2CO_2$	
b. Draw $3H_2O$	
c. Draw $4N_2$	
d. Draw $2NH_3$	

		N	N %
2a	2 separate CO2	43	74%
	1 CO2	3	5%
	2C, 2O together	3	5%
	Other	9	16%
2b	3 separate H2O	39	67%
	Separate H2O	8	14%
	3H, 2O together	7	12%
	Other	3	5%
	N/A	1	2%
2c	4 separate N2	45	78%
	Separate N2	5	9%
	4 N together	4	7%
	Other	3	5%
	N/A	1	2%
2d	2 separate NH3	39	67%
	Separate NH3	2	3%
	2 N, 3 H together	5	9%
	Other	10	17%
	N/A	2	3%

3. Molecule Names vs. Chemical Formulas

a. Give an example of a molecule name: _____
b. Give an example of a chemical formula: _____
c. What is the difference between a molecule name and a chemical formula? _____
_____

		N	N %
3a	Correct	46	81%
	Incorrect	11	19%
	N/A	0	0%
3b	Correct	49	86%
	Incorrect	8	14%
	N/A	0	0%
3c	Correct	19	33%
	Formula Correct	9	16%
	Name Correct	1	2%
	Other	28	49%
	N/A	0	0%