Breakout Edu Activity: Chemical Formulas/Equations

Scenario: Dr. Planta was investigating the Law of Conservation of Mass and how that relates to chemical equations when a fire broke out in the lab. Help discover what equation he was working on by using the clues.

Materials Needed:

- "We Broke Out" sign (1 per class)
- "We Almost Broke Out Sign" (1 per class)
- Photosynthesis equation poster (1 per class)
- Beaker of water labeled H_2O (1 per group)
- Container of sugar labeled glucose (1 per group)
- Periodic table (1 per group)
- Counting Atoms page (suggest 4 per group so they can all work at the same time)
- Photosynthesis meme (1 per group) starting point labeled at the top above C.
- Banana meme (1 per group)
- Alphabet/Number decoder (1 per group)
- Invisible ink pen (1 per teacher)
- Breakout Edu Kit (1 per group)
    - Main Box
    - Small zipper container
    - Black light flashlight
    - Hasp
    - 1 lock and key
    - 3 digit number lock
    - 4 digit number lock
    - 5 letter word lock
    - 5 space directional lock
    - Parking lot for locks
    - Hint Card

Teacher will need to use invisible ink on photosynthesis poster so students figure out this is the equation they need and also on each periodic table on elements C, H, O.

Locks

- Key: Students solve Counting Atoms page and use decoder to discover it says "Give this to the teacher." Teacher gives group the key. This will unlock small box containing the black light flashlight.
- 3 Digit Lock: 6-1-2 (the number of H and O atoms in 6 H_2O
- 4 Digit Lock: 6-1-2-6 (the subscripts in the formula for glucose $C_6H_{12}O_6$)
- Letter Lock: W-A-T-E-R (one of the components of photosynthesis)
- Directional Lock: down, left, up, right, down. The order of elements in glucose (C, H, O) on the periodic table.

Counting Atoms

Directions: Count and list the total atoms for each chemical formula.

1. Li_2SO_4
2. $3H_2O$
3. $5CuCl + 4Mg_2Cl$
4. CH_4
5. $5ZnSO_2$
6. Si_2Br_6
7. $3H_2O$
8. $3Al_2O_3 + 2H_2$
9. $4HNO_3$
10. $3C_2H_3$
11. $4CHO_3$
12. Mg_2Be_6
13. CO_4
14. $4Mg(OH)_2$
15. $CaCO_3$
16. H
17. NaOH
18. $NaC_2H_3O_2$
19. SCl_4
20. $3H_2O + 3CO_2$

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____ ____ ____ ____ ____ ____ ____.

A	B	C	D	E	F	G	H	I	J	K	L	M
1	2	3	4	5	6	7	8	9	10	11	12	13

N	O	P	Q	R	S	T	U	V	W	X	Y	Z
14	15	16	17	18	19	20	21	22	23	24	25	26

A	B	C	D	E	F	G	H	I	J	K	L	M
1	2	3	4	5	6	7	8	9	10	11	12	13

N	O	P	Q	R	S	T	U	V	W	X	Y	Z
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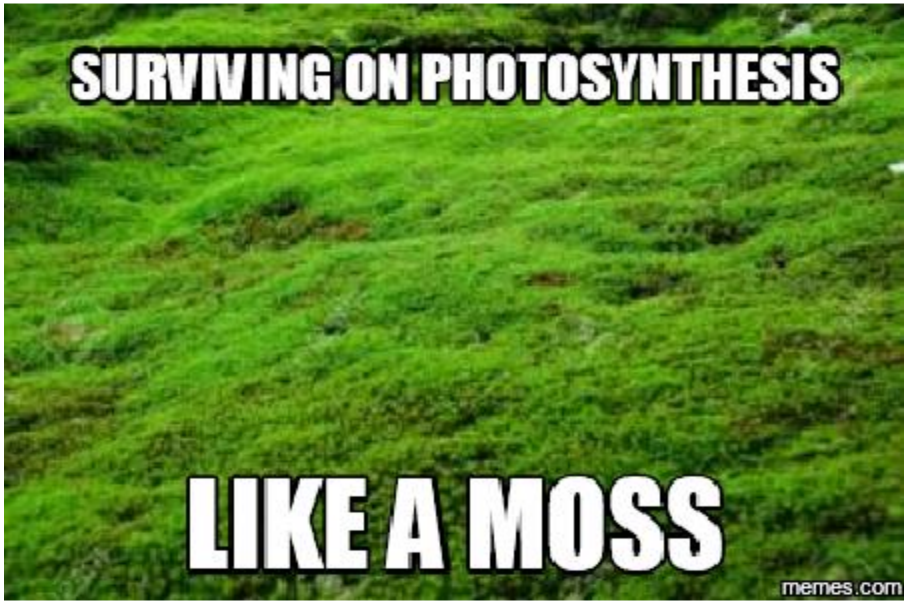
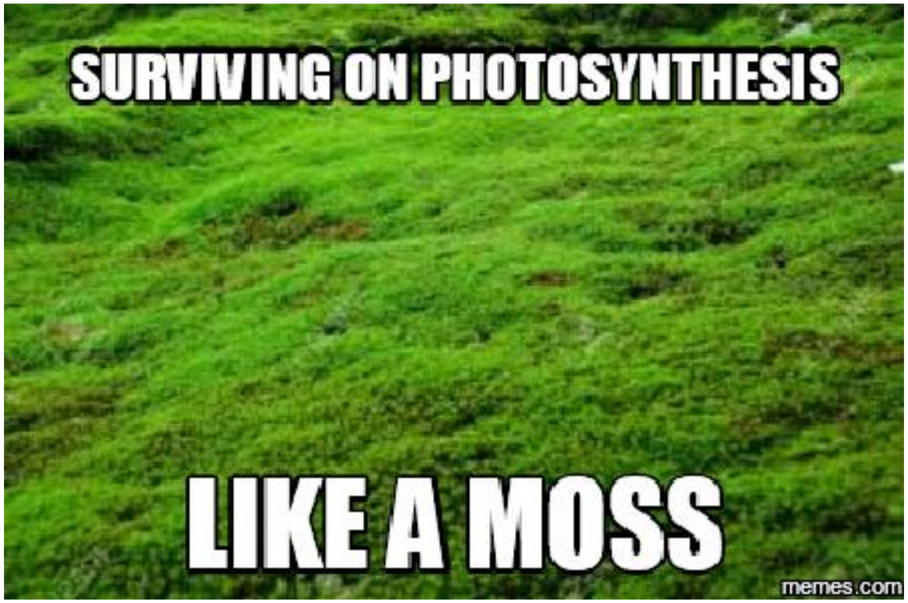

SURVIVING ON PHOTOSYNTHESIS
LIKE A MOSS
memes.com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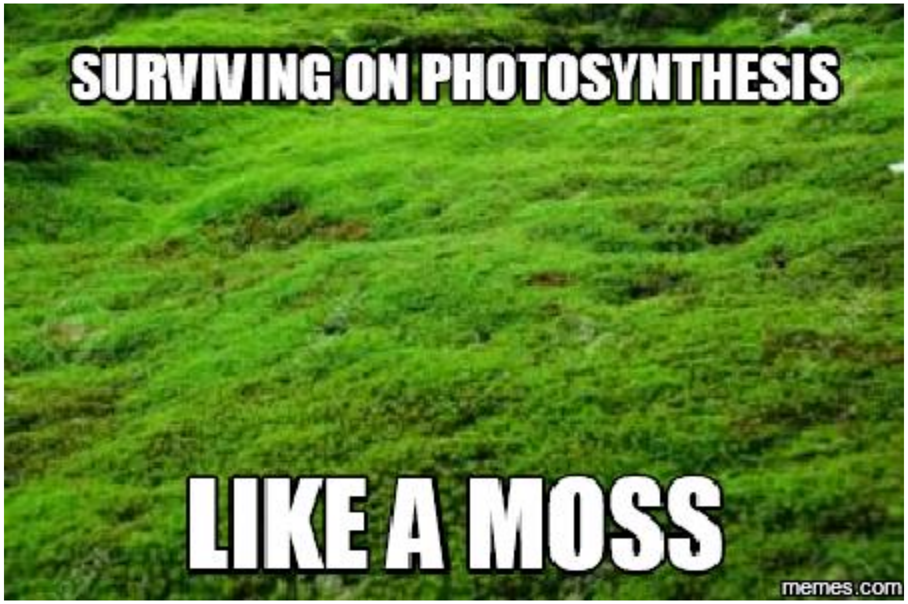
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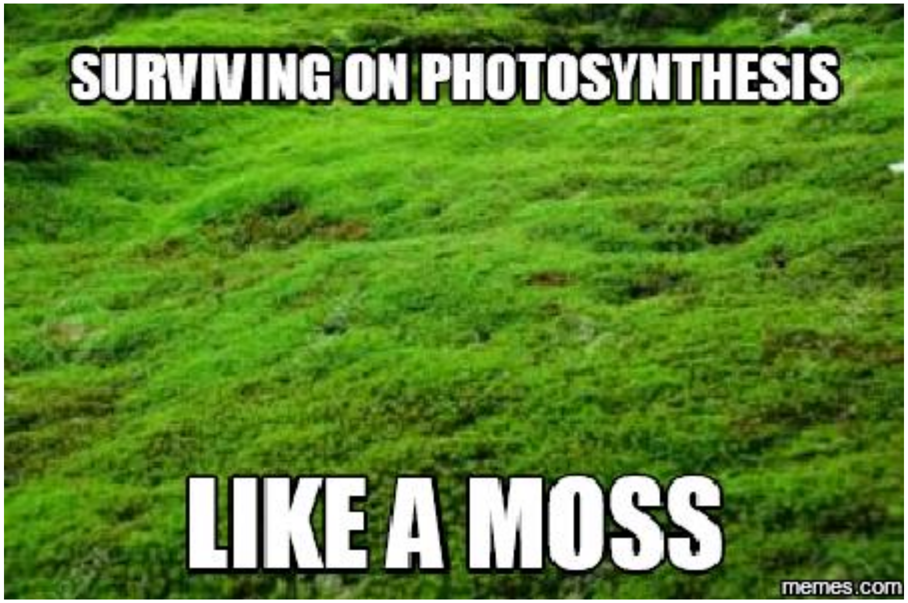
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What Is The Chemical Formula for Banana?

BaNa2

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