Biological Molecules Crash Course: Guided Notes

Video: <https://www.youtube.com/watch?v=H8WJ2KENlK0>

1. What are the four ingredients for life?

1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 3) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 4) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which three are we focusing on? (circle them above)
2. All organisms must either \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (meaning make) or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (meaning eat) these “ingredients” in order to live.
3. Most basic ingredient for life: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Carbohydrates are made up of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the simplest forms are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_saccharides (meaning one sugar molecule).
5. What is the fundamental sugar of life? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. All biologic energy is originally captured from the sun by plants as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. Sucrose is a \_\_\_\_\_\_\_\_\_\_\_saccharide, meaning it is \_\_\_\_\_\_\_\_\_\_\_ monosaccharides put together.
8. When lots, potentially thousands, of monosaccharide are put together, they are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_saccharides. Instead of being used for INSTANT energy use, are used as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules.
9. The most common organic compound on the planet, made of many glucose molecules together, is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Can humans digest it? Yes or No
10. Plants store glucose in the form of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which is stored as different forms such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. Flour is made from milling (grinding) the starchy seeds of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ plant.
12. Ground-up \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (which are the seeds of the wheat plant) is the main ingredient of wheat bread. The grain is made from many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules connected together, which is why grain (and the resulting bread) contains so much energy.
13. Humans store energy (leftover glucose) in the body as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. It gets stored in our \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but if we do not eat for \_\_\_\_\_\_\_\_\_\_\_\_\_\_ day, the storage will be depleted.
14. Humans’ main method of storing energy is though \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
15. Fats are part of a larger group of biological molecules called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
16. They are unable to dissolve in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, This is why oil and water do not mix.
17. Triglycerides (3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ acids combined with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) are found in things like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
18. In reference to the peanut butter jar… the liquid portion at the top is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fat, which we think of as \_\_\_\_\_\_\_\_\_\_\_\_\_. The non-liquid, pasty portion is made of more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fats, which do not have double bonds so they can pack more tightly and form a solid.
19. You should not eat \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fats because they are straight, non- kinked version of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fatty acids and are bad for your body.
20. Omega-\_\_\_\_\_\_\_\_\_ fatty acids are important because they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fatty acids, meaning we have to eat them to get them.
21. Phospholipids align to form a cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
22. The most complicated and powerful chemical compounds are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. Name three types: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. There are \_\_\_\_\_\_\_\_\_\_\_\_\_ amino acids, which are the ingredients for proteins.
3. Amino acids combine to create \_\_\_\_\_\_\_\_\_\_\_\_\_\_peptides (meaning “many” peptides), which fold to create proteins.
4. There are \_\_\_\_\_\_\_\_\_\_\_\_\_\_ amino acids that we cannot make, so we must \_\_\_\_\_\_\_\_\_\_\_\_\_\_ them. These are known as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ amino acids.

28. What are the six elements of life? (Not in video, you should remember CHNOPS!)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which of these elements are found in energy storage molecules? (circle them above)   
   (HINT: Go to back 12:05 in video)
2. What is the molecular formula for glucose? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
   (HINT: Go back to 4:30 in video)