SQ 4- Part 1: Covalent Bonds, Wilbur

"Lecture 3A: Covalent Bonds plus Wilbur& Solar Power" has information about watching the "movie".

Why this movie? Throughout this course we will be looking at the chemical structure of nutrients. The purpose of the movie is to introduce you to chemical structures, and explain what elements, electrons, and bonds are.

Following are questions to answer while watching the "movie".

1) How does the Covalent Bond "movie" define elements?
_____

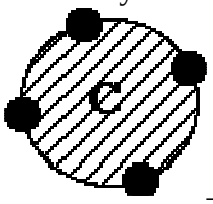
2) Which of the following are made of elements?
   a) A computer keyboard
   b) You
   c) A wooden chair
   d) The glass in a window

3) Which four elements make up the bulk of all living things? _____

4) Watch the "movie" CAREFULLY to help you answer this:
A **FULL** outer shell of this hydrogen atom has how many electrons?

_____

5) A **FULL** outer shell of this carbon atom has how many electrons?



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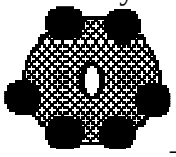
6) A FULL outer shell of this oxygen atom has how many electrons?

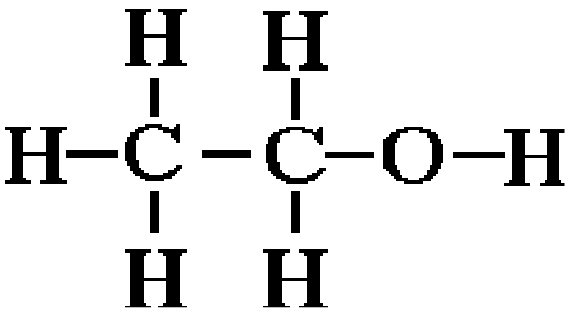


_____

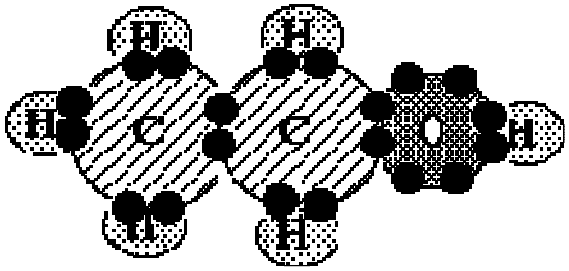
7) In the "movie", why are they *(the outer shell electrons)* so anxious? _____

8) Why did the electrons stop moving once ethyl alcohol was formed? _____

9) Explain where the energy is in the ethyl alcohol below. _____



10) In that same ethyl alcohol (shown below in a different way), how many electrons does one **carbon** atom have in its outer shell? _____
Remember that in covalent bonds, electrons are **shared** so that **each** element has a **full** outer shell.



11) In that same ethyl alcohol, how many electrons does one **oxygen** atom have in its outer shell? _____

12) In that same ethyl alcohol, how many electrons does one **hydrogen** atom have in its outer shell? _____

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Use Lecture 3B: "Wilbur & Solar Power "as well the Wilbur Drawing and your Notes about the Wilbur Drawing in the Lecture Outline for Chapter 4-1 to answer the following questions

13) Photosynthesis produces:
   a) glucose
   b) oxygen
   c) carbon dioxide
   d) water
   e) starch
   f) a significant amount of energy release

14) Enzymatic digestion of starch produces
   a) glucose
   b) oxygen
   c) carbon dioxide
   d) water
   e) starch
   f) a significant amount of energy release

15) Cellular respiration ***uses***
   a) glucose
   b) oxygen
   c) carbon dioxide
   d) water

16) Cellular respiration ***produces***
   a) glucose
   b) oxygen
   c) carbon dioxide
   d) water
   e) starch
   f) a significant amount of energy release

17) Besides an energy source for its own growth and reproduction, what does a plant make from glucose?
   a) fiber
   b) proteins
   c) fats
   d) minerals
   e) vitamins

18) Which provides a lot of energy for the ***plant*** to grow?
   a) glucose in leaves
   b) glucose coming from starch in the plant's seeds

19) Which provides a lot of energy for a ***sprout*** to grow?
   a) glucose in leaves
   b) glucose coming from starch in the plant's seeds

20) Select the **ONE** best statement
   a) Glucose breakdown in cells (cellular respiration) releases energy,
   b) Glucose breakdown creates energy,
   c) Glucose breakdown expends more energy than it releases or creates.

21) Select the **TRUE** statements:
   a) Oxygen is USED in Step #1 (Photosynthesis) of Wilbur.
   b) Oxygen is PRODUCED in Step #1 (Photosynthesis) of Wilbur.
   c) Oxygen is PRODUCED in Step #3 (Digestion & Absorption) of Wilbur.
   d) Oxygen is USED in Step #5 (Cellular Respiration) of Wilbur.
   e) Oxygen is PRODUCED in Step #5 (Cellular Respiration) of Wilbur.

22) Why is glucose so important to the human body?

23) Take a look at the FORUM for Week **2** (last week). Do you find one posting done by you?

MYSTERY QUESTION. For this one, have your Ch. 4-1 lecture outline in front of you. You will be asked 1 or more questions about something from one of the blanks in this LECTURE OUTLINE.