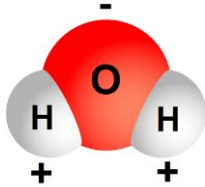


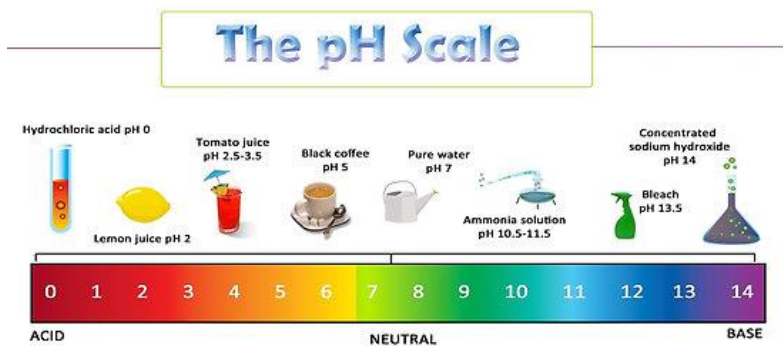
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Chemistry of Life Test Review – WITH THE ANSWERS!

1. How are hydrogen and oxygen most commonly found in living things? **In Water!! Think about your body... It is made up of approximately 70% water, and water is made of hydrogen and oxygen!**
2. Draw a water molecule. Include the charges that each of the ends has.



3. What is the bond between 2 molecules of water that holds them together called? **Hydrogen Bond**
4. Define Homeostasis: **Maintaining Balance (Water helps your body maintain balance because it is hard to change its' temperature. It also helps get rid of waste and things we don't need. We sweat when we're hot and need to cool down – that's water. We urinate to get rid of waste).**
5. Draw and label a pH scale. Give an example of something that is acidic, alkaline, and neutral and put it on your scale.



6. List 4 properties of water we talked about in class:
Adhesive (Sticks to other stuff)
Cohesive (Sticks to itself)
High Specific Heat (It's hard to change it's temperature!)
Expands when it freezes
Polar (One end is positive, the other end is negative)
Solvent (Dissolves stuff)
7. Why does water help humans regulate their body temperature? **Because water has a high specific heat and when we get too hot we sweat and the evaporation of the water cools us off.**
8. Water being attracted to glass is an example of: **Adhesion (water's attraction to other stuff!)**
9. Water being attracted to other water is an example of: **Cohesion (Water likes to stick together!)**
10. Why does water form a meniscus when it is in a tube? **Because the water is adhering to the side of the tube - Adhesion**

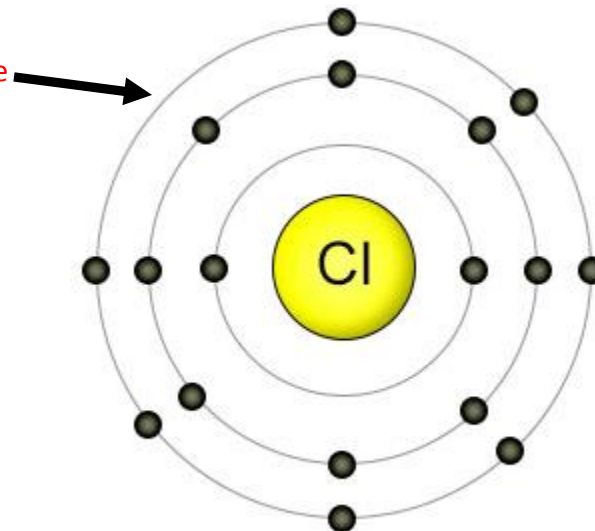
11. Define Polarity: **When one end is negative and one end is positive.**
12. Why is water polar? **Because the electrons are unevenly shared between the oxygen atom and the hydrogen atoms, resulting in the hydrogen atoms being positively charged and the oxygen atom being negatively charged.**
13. What are the six essential elements of life? (They make up 96% of your body!)
Carbon, Hydrogen, Nitrogen, Oxygen, Phosphorous, Sulfur (CHNOPS)
14. Define Element: **A single type of atom.**
15. Define Molecule: **Multiple atoms bonded together**
16. Define Macromolecule: **A large chain of different types of atoms bonded together.**
17. Define Organic Molecule: **Molecule that is related to life. (It is alive or came from something living)**
18. What element makes a molecule an “organic” molecule and is associated with life? **It has carbon in it.**
19. Label the following in the diagram below:

atomic mass (the number 35.453)
atomic number (the number 17)
number of protons (the number 17)
number of electrons (the number 17)
atomic symbol (Cl)

17
Cl
Chlorine
35.453

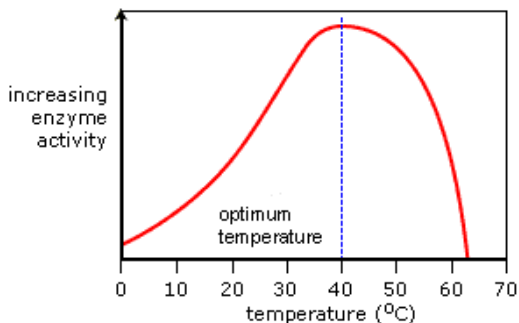
20. How many electrons does the first electron ring hold? The second ring? The third ring?
First: Holds 2
Second: Holds 8
Third: Holds 8
21. Does chlorine want to give away or gain electrons to be happy? How many? **It wants to gain one electron to get a full outer ring.**

It wants one more electron right here



22. What are the 4 major Macromolecules? (Organic molecules)
Carbohydrates, Lipids, Proteins, Nucleic Acids

23. Define Monomer: **A single building block of a macromolecule (Carbohydrates: monosaccharide. Lipids: Fatty Acids. Proteins: Amino Acids. Nucleic Acids: Nucleotide.)**
24. Define Polymer: **A chain of monomers**
25. What type of bond is used to bond amino acids together to make a protein chain? **Peptide bond.** _____
26. Our digestive system has enzymes that break down carbohydrates into what monomer?
Monosaccharides
27. What types of foods are high in lipids? **Greasy, oily, deep fried and fatty foods.** _____
28. What is the monomer of Nucleic Acids? **Nucleotide** _____
29. What is an example of a nucleic acid? **DNA** _____
30. What is the function of a protein? **To make muscle, tissue and enzymes.**
31. If you are going to have a dance party later and need a lot of energy, what should you eat?
Carbohydrates! _____
32. What type of macromolecule are enzymes? **Proteins** _____
33. Enzymes generally end in what 3 letters? **ase** _____
34. What is the purpose of enzymes? **To speed up chemical reactions. They are a catalyst.** _____
35. What is a catalyst? **Something that speeds up a chemical reaction. It decreases the energy needed to react.** _____
36. List two ways you can tell if a word is related to carbohydrates: **ose at the end of the word and saccharide**
37. What is the monomer of lipids? **Fatty Acids** _____
38. Draw a graph that shows enzyme action if an enzyme has an optimum temperature of 37°C



39. What can denature an enzyme? What happens if an enzyme is denatured?
Extremes in pH and temperature. Denatured enzymes change shape and can no longer function.

Use the following scenario to answer the next 5 questions:

In a controlled experiment growing plants: You planted seeds and allowed them to germinate (start to grow) in different temperatures. You noticed that they germinated the best at 25* C, but they also grew OK at temperatures down to 10*C and up to 35* C.

40. What is the *independent* variable in this experiment? **The Temperature**
41. Why was only one independent variable tested in this experiment? **Because only one variable should be tested at a time in order to determine the actual cause of your results.**
42. What is the *dependent* variable in this experiment? **The germination rate.**
43. What is an example of a controlled variable in this experiment? **Any other condition the seeds were in besides the temperature – for example, the amount of water each seed had, the amount of sunlight, the material and depth it was planted in, etc. This is the stuff that is the same regardless of which seed you are testing!**