1. Why is a water molecule **polar**?

   ☐ It contains two hydrogen atoms

   ☐ Oxygen pulls the shared electrons more strongly than hydrogen

   ☐ It is a very small molecule

   ☐ It is a liquid at room temperature

2. Four elements make up about **96%** of a living body. Which are they?

   ☐ Gold, silver, copper, zinc

   ☐ Carbon, hydrogen, oxygen, nitrogen

   ☐ Helium, neon, argon, xenon

   ☐ Iron, calcium, sodium, potassium

3. A **polymer** is best described as…

   ☐ a cluster of water molecules held by hydrogen bonds

   ☐ a long chain built from repeating monomer units

   ☐ a single small molecule that cannot join others

   ☐ one atom of carbon bonded to four hydrogens

4. A **monosaccharide** is…

   ☐ a type of protein

   ☐ a fat

   ☐ a single sugar unit, like glucose

   ☐ a chain of hundreds of sugars

5. A **triglyceride** is made of one glycerol joined to…

   ☐ three sugars

   ☐ three nucleotides

   ☐ three fatty acids

   ☐ three amino acids

6. The twisted-ladder shape of DNA is called a double _____.

   _____

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_____

8. A single hydrogen bond is stronger than the bond holding an O and H together inside a water molecule.

   ☐ True ☐ False

9. How many covalent bonds can one carbon atom form?

   _____

10. A **condensation reaction** uses up a molecule of water each time it joins two monomers.

    ☐ True ☐ False

1. **Oxygen pulls the shared electrons more strongly than hydrogen**

   Oxygen has a higher **electronegativity**, so the electrons sit closer to it – giving oxygen a partial negative and the hydrogens a partial positive charge.

2. **Carbon, hydrogen, oxygen, nitrogen**

   Carbon, hydrogen, oxygen and nitrogen (CHON) make up about 96% of living matter.

3. **a long chain built from repeating monomer units**

   A **polymer** is a large molecule made by linking many small **monomer** subunits into a chain.

4. **a single sugar unit, like glucose**

   A **monosaccharide** ("one sugar") is a single sugar unit – glucose and fructose are examples.

5. **three fatty acids**

   A triglyceride is a glycerol backbone with **three fatty acid** tails attached.

6. **helix**

   DNA is a **double helix** – two strands wound around each other like a spiral staircase.

7. **peptide**

   A **peptide bond** links amino acids into a chain called a polypeptide.

8. **False**

   A single hydrogen bond is **weak**. Water is powerful because it has an enormous *number* of them.

9. **4**

   Carbon has **four** outer electrons, so it forms four bonds – letting it build long chains, branches and rings.

10. **False**

    False. Condensation joins monomers and releases one water molecule per bond formed. Hydrolysis is the reaction that uses water to split a polymer.

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