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| Biomolecules | | | | |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is often called the building block of life. | | Carbon is the most important atom found in \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  It can join to \_\_\_\_\_\_\_\_\_\_\_\_\_other atoms at the same time.  It can also form \_\_\_\_\_\_\_\_\_\_\_\_and\_\_\_\_\_\_\_\_\_\_, meaning it can make many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_molecules.  These carbon-based molecules are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_molecules. They are found in \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | |
| Due to its special bonding properties, carbon can form large molecules called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  Macro= large  Mono- one, singular  Poly- many, multiples | Macromolecules are made up of smaller subunits called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  When monomers link together, they form\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  A polymer is a macromolecule made up of many monomers.  You can think of monomers and polymers like links in a chain or a watch band. If the chain below was a molecule, circle the polymer and box 2 monomers. | | | |
| Four Major Macromolecules | | | | |
| 1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | 3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **CARBOHYDRATES** | | | | |
| Carbohydrates are the main source  of \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_. They are our \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_of fuel. | They are made of monomers called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, simple sugars, like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | Carbohydrate molecules made of only one sugar molecule are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.    Example:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, used for \_\_\_\_\_\_\_\_\_  Ribose and Deoxyribose, used to \_\_\_\_\_\_\_\_\_\_\_\_\_our \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_. | |
| The suffix –ose usually indicates a type of sugar.  Example: glucose, fructose, ribose  Image result for bread coloring  Carbohydrates found in our diet   * + \_\_\_\_\_\_\_\_\_\_\_\_\_   + Image result for baked potato coloring\_\_\_\_\_\_\_\_\_\_\_\_\_   + Whole grains   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (potatoes, corn..) | | | Monosaccharides can be joined together to make\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, carbohydrates made of \_\_\_\_\_\_\_\_\_\_\_\_sugar molecules.  Examples of important polysaccharides:   1. \_\_\_\_\_\_\_\_\_\_\_\_\_- how \_\_\_\_\_\_\_\_\_store glucose 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_- keeps plant \_\_\_\_\_\_\_\_\_\_\_strong 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- how \_\_\_\_\_\_\_\_\_\_\_\_   cells store glucose | |
| **PROTEINS** | | | | |
| Proteins are built from \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_monomers (subunits)  Amino acids link together  like beads on a necklace  to form\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  This is why proteins are sometimes called  polypeptides  The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(order of) amino acids in the protein chain determines what \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_will be made.  The \_\_\_\_\_\_\_\_\_\_\_of the amino acids is determined by \_\_\_\_\_\_\_\_\_\_\_in the\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | There are \_\_\_\_\_\_\_\_different amino acids used by cells to make proteins. The amino acids are put together using peptide bonds.        Your \_\_\_\_\_\_\_\_\_\_\_\_can make \_\_\_\_\_\_\_\_\_of  these amino acids; the others come from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_that you eat.  If we think of proteins like these necklaces, how could you change them to make them different?    Hint: It has the same effect on proteins with amino acids | | |
| Proteins have many different jobs like…  Make up\_\_\_\_\_\_\_\_\_\_\_\_\_\_, ligaments, tendons, hair and skin  Act as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to speed up chemical reactions  Also act as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_like insulin; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  controls blood sugar levels.  Proteins in \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_help \_\_\_\_\_\_\_\_\_\_\_\_\_molecules in & out of cells | | | | Image result for dairy coloringFood sources for protein include\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_products like milk and cheese.  Image result for cheese coloring |

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| **LIPIDS** | |
| Image result for lipids coloringLipids are composed of monomers called \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_.  A typical lipid has \_\_\_\_\_ fatty acids tails bonded to a molecule  called a\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | |
| Lipids are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; this  means they do \_\_\_\_\_\_\_have opposite charges.  Water is\_\_\_\_\_\_\_\_\_\_\_\_\_; it does have opposite  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, like a magnet.  A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is a lipid that joins with proteins to make \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(cell membranes wrap around the outside of the cell kind of like skin)    A phospholipid is still non-polar, but it is also has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_section and a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_section.    Label:  Hydrophilic section  Hydrophobic section  Glycerol  Fatty acids  Image result for polar bear coloringLipids can be used to store energy \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  Lipids help maintain  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (balance), act as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (testosterone and estrogen), and can provide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(fruit, ears and bees!)  Lipids are found in \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_.  They store huge amounts of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_in organisms. | **Related imageRelated imageRelated imageRelated imageSide note: Water**  Water is made of \_\_\_\_  Hydrogens atoms  and \_\_\_\_Oxygen atom;  these are held  together by \_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_bonds.  Water molecules bond  to other water  molecules because the  \_\_\_\_\_\_\_\_\_\_\_\_\_\_charged  part of one is attracted to  the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_part of another,  like magnets; these are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_bonds and are \_\_\_\_\_\_\_\_strong.  In the image below, circle all of the covalent bonds and box all of the ionic bonds.    Hydro- means water  -philic means loves, likes  -phobic means hates, afraid of  Image result for apple coloringWhy would fruits needs lipids for waterproofing?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **NUCLEIC ACIDS** | |
| Nucleic acids are made from monomers called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | Each nucleotide has \_\_\_\_\_\_ parts   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_base 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| There are \_\_\_\_\_\_\_\_\_\_\_ types of nucleic acids. | 1. \_\_\_\_\_\_\_\_\_\_\_- stores \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_information 2. \_\_\_\_\_\_\_\_\_\_\_- carries \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_from DNA to the cell so proteins can be made 3. \_\_\_\_\_\_\_\_\_\_\_- used by cells to \_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| The structure of ATP:  Be careful! It looks a lot like a regular nucleotide, but ATP has 3 phosphates attached, not just one. |  |