

COPY AS TITLE: What are the four organic compounds that make up living things?

Copy all of the following AS SHOWN -- SKIP LINES -- and fill in the missing information using pages 76-78 in the textbook. "DO" should be separated from the notes with a horizontal line above and below your responses to the "DO" questions.

CARBOHYDRATES

-
- An energy-rich organic compound made of _____
-
- Two examples are: _____ and _____
 - Starch – _____ molecules combine forming larger starch molecules
-
- We get carbohydrates in our bodies mainly through the eating of organisms from the _____ kingdom.
-
- Role of carbohydrates in the body:
 1. Important components of cells:
 - Cellulose found in the cell _____
 - Found in cell _____
 2. Immediate source of energy for cells (carbs are broken down in mitochondria to release E stored in the molecule)
-

Do: 1. Write a sentence that summarizes the role of carbohydrates in cells.

2. List your 3 favorite foods that are mostly made of carbohydrates (foods from plants).

LIPIDS

-
- An energy-rich organic compound made of _____
-
- Examples are fats, oils and _____.
-
- Function in cells and the body:
 - Contain more energy than _____
 - Cells store E in _____
 - Cell _____ are mostly made of lipids
 - Lipids are essential to proper function of the brain and nervous system
-
- Food sources of healthy fats needed by the body: olive oil, avocados, nuts and seeds, milk, butter and meat from grass-fed animals, eggs
-

Do: 1. Write a sentence that summarizes the role of lipids in cells.

2. List your 3 favorite foods that are a good source of healthy lipids (fats)

PROTEINS

-
- A large organic molecule made of _____

- Proteins are made up of smaller molecules called _____
 - 20 common types of _____
 - Cells combine them in different ways to form _____
 - Type and order of _____ determines the type of protein produced

• 3 examples of food high in protein: _____

• Function of proteins:

- Make up much of structures of a cell such as cell membrane, cytoskeleton and organelles
- Enzymes – type of protein that _____
- Hormones - Hormones are chemical substances that act like messenger molecules in the body.
 - Ex. insulin is made by the pancreas and helps your body use glucose for energy
 - Ex. melatonin helps you sleep
 - Ex. growth hormones tell cells to divide so you grow

• Common parts made mostly of proteins: muscle cells, organs, hair, nails, feathers, scales, turtle shells

Do: 1. Write a sentence that summarizes the role of proteins in cells.

2. List your 3 favorite foods that are a good source of protein.

NUCLEIC ACIDS

Very long organic molecules made of _____

- Two kinds:
 1. DNA – the genetic material _____
 - Directs all of the cell's _____
 2. RNA – a single string of DNA that plays an important role in _____

ANSWER ON THIS PAPER:

In order to function, grow and develop you need the building blocks of these 4 organic molecules.

1. How do you get these organic molecules into your body? _____

2. Match the building block with the organic molecule (use “reasoning” to figure it out!):

- | | | | | | | | | | |
|---|---|-----|--------|-----|---------------|-----|----------|-----|---------------|
| <ul style="list-style-type: none"> A. Simple sugar (glucose) B. Amino acid C. Nucleotide D. Fatty acids | <table border="0"> <tr><td style="border-left: 1px solid black; padding-left: 5px;">___</td><td>lipids</td></tr> <tr><td style="border-left: 1px solid black; padding-left: 5px;">___</td><td>carbohydrates</td></tr> <tr><td style="border-left: 1px solid black; padding-left: 5px;">___</td><td>proteins</td></tr> <tr><td style="border-left: 1px solid black; padding-left: 5px;">___</td><td>nucleic acids</td></tr> </table> | ___ | lipids | ___ | carbohydrates | ___ | proteins | ___ | nucleic acids |
| ___ | lipids | | | | | | | | |
| ___ | carbohydrates | | | | | | | | |
| ___ | proteins | | | | | | | | |
| ___ | nucleic acids | | | | | | | | |

3. What element is found in nucleic acids but not protein molecules? _____

4. What type of organic molecules do animals in hibernation use as an energy source? _____

5. If your body needs energy immediately, what type of organic molecule will your body use by breaking it down in the mitochondria? _____

6. List a food that has a lot of proteins and healthy fats in it. _____

7. The 1000's of proteins made by cells are made of different combinations of what type of molecule and how many common ones are there? _____

8. What type of organic compound is an enzyme? _____ What does melatonin do?