MACROMOLECULE WEBQUEST

LIPIDS

https://www.cpalms.org/Public/PreviewResourceStudentTutorial/Preview/114267

1. Lipids are organic molecules that are ______________ in water.
2. What are the three types of lipids?
3. Draw and label the triglyceride in the picture.
4. What do neutral fats, such as triglycerides, do for your body?
5. Describe saturated fatty acids.
6. In what structures are phospholipids found?
7. Describe the uses of cholesterol in our bodies?
8. What are the two main parts of a lipid?
9. Explain what makes a fat saturated or unsaturated.
10. Describe the structure and the role of steroids.
11. What is the role of wax to an organism?
12. Compare the energy values of a carbohydrate molecule versus a fat molecule.

PROTEINS

https://www.cpalms.org/Public/PreviewResourceStudentTutorial/Preview/114276

13. Proteins comprise what percentage of our body cell mass?
14. What are proteins built from?
15. How many amino acids do we have in our bodies? ______
16. The primary structure of an amino acid is based upon what?
17. Describe the two forms of secondary structure.

CARBOHYDRATES

https://www.cpalms.org/Public/PreviewResourceStudentTutorial/Preview/114266

18. What elements are found in carbohydrates? ______________
19. What is the ratio of Carbon to Hydrogen to Oxygen? _________
20. Carbohydrates comprise what percentage of our body cell mass? ________
21. What is the smallest carbohydrate called?
22. List 4 monosaccharides.
23. Draw the straight chain and ring structure of the monosaccharides.
24. Describe what isomers are and how they apply to carbohydrates.
25. How are disaccharides formed?
26. List 3 disaccharides and the monosaccharides that form them.
27. Describe the three main polysaccharides and their functions.
28. Sugars are mainly providing living things with ________.
29. Name the types of Nucleic Acids.
30. What is the monomer unit of a Nucleic Acid?
31. What are the three parts to a nucleotide?
32. What is the full name of DNA?
33. Why is DNA important?

34. What are enzymes?
35. Without enzymes, would most chemical reaction still occur?
36. Without enzymes, what would happen to the rate of chemical reactions?
37. Enzymes are (choose one)
   a. Lipids    c. Proteins
   b. Carbohydrates  d. Nucleic acids
38. Enzymes act as catalysts – what does that mean?
39. Describe this picture of enzyme function in your own words

40. What factors can regulate enzyme activity?
Carbohydrates - Benedict’s Test
1. What type of carbohydrate does Benedict’s reagent test for?
2. What color will the Benedict’s reagent turn in the presence of sugar? Draw a picture showing before and after.

<table>
<thead>
<tr>
<th>Color Of Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benedict’s reagent+ water+ heat (control)</td>
</tr>
<tr>
<td>Benedict’s reagent+ glucose + heat</td>
</tr>
</tbody>
</table>

Carbohydrates - Iodine Test
3. (Note: It does not say so in the lab, but iodine tests for the presence of starch and turns a dark purple/brown when starch is present) Draw picture showing before and after.

<table>
<thead>
<tr>
<th>Color Of Solution</th>
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</thead>
<tbody>
<tr>
<td>Iodine+ water (control)</td>
</tr>
<tr>
<td>Iodine + starch solution</td>
</tr>
</tbody>
</table>

Fats/Lipids
4. What color will Sudan IV change fats? Draw picture showing before and after.

<table>
<thead>
<tr>
<th>Color Of Solution</th>
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</thead>
<tbody>
<tr>
<td>Sudan IV + water (control)</td>
</tr>
<tr>
<td>Sudan IV + vegetable oil</td>
</tr>
</tbody>
</table>

Proteins
5. What color will Biuret reagent turn in the presence of proteins? Draw a picture showing before and after.

<table>
<thead>
<tr>
<th>Color Of Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biuret reagent+ water (control)</td>
</tr>
<tr>
<td>Biuret reagent + protein solution</td>
</tr>
</tbody>
</table>

Food Testing
6. Based on the test results for each food check off which macromolecules are present in each food.

<table>
<thead>
<tr>
<th>Food</th>
<th>Monosaccharide Present</th>
<th>Starch Present</th>
<th>Lipid Present</th>
<th>Protein Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potato</td>
<td></td>
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<td></td>
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<tr>
<td>Orange Juice</td>
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<tr>
<td>Almonds</td>
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<tr>
<td>Eggs</td>
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<tr>
<td>Salmon</td>
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<td></td>
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</tr>
<tr>
<td>Milk</td>
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