

Old Study Guide Sample

Things to Know (terminology, etc.)	Things to Understand (Concepts)	Things to Do (Skills)
Terms: Dehydration synthesis, hydrolysis	How different monomers can form a polymer	Classify different reactions as being either dehydration synthesis reactions or hydrolysis reactions
<ul style="list-style-type: none"> The four major classes of biological macromolecules The names and structures of their monomers/polymers Examples of each type of macromolecule 		Be able to recognize and classify monomers/polymers as belonging to one of the four classes
Amino acid backbone structure (be prepared to draw this!)	Why having a different R-group affects the properties of that amino acid	<ul style="list-style-type: none"> Be able to locate the R-group on an amino acid Be able to classify an R-group as hydrophilic or hydrophobic
Protein shape determines function	<ul style="list-style-type: none"> How the different levels of structure (primary → quaternary) produce a unique shape for each protein What happens during denaturation 	
Lipids are hydrophobic molecules	How lipids will interact with other molecules	Classify a molecule as being a lipid or not based on its chemical properties
Terminology: Saturated and unsaturated fatty acids	How saturation affects the shape and properties (e.g. melting point) of the molecule	Predict the properties of different fatty acids/triglycerides if given their structural formula
Phospholipid structure	<ul style="list-style-type: none"> Phospholipids have both polar and non-polar regions, and this gives them special properties How and why phospholipids assemble into a bilayer 	

Assignment: Creating a Concept Map

10 Points

Purpose

A main goal of this class is to help you learn the language of Biology and build the foundational knowledge you'll need to understand more applied topics (topics like human physiology, DNA technology, and many, many more). This means that you're presented with large amounts of information and terminology. To help you remember and better understand this information, it is important to recognize and build connections between terms and ideas, rather than view them as isolated facts to be memorized. This will help strengthen your understanding of how biological systems work.

One way to help visualize the connections between terms and ideas is to make use of a concept map. These can take many forms, but the main idea is always to show how smaller details fit together to form a bigger picture by drawing out the links. These are a useful study tool in biology and other subjects.

Task

- Choose a topic you want to diagram in your concept map. Examples of topics could include types of bonds, ways of moving things across cell membranes, osmosis, etc.
- From your notes or readings, gather any key terms or ideas that fall within under that topic.
- Draw lines to connect terms and topics. If the connection requires an explanation, include that next to the line connecting the terms/topics.

Criteria for Success

A good concept map begins with a topic that is sufficiently broad to include its own set of terms and ideas but is sufficiently narrow to be manageable. It is detailed enough to include all the major terms and ideas associated with the topic. The connections drawn should have explanations that make sense and are factually correct.

Grading

To earn full credit on this assignment, your concept map should meet the criteria below:

- Include the relevant terms and concepts associated with your topic
- Include explanations for links between terms
- All information in the concept map should be factually correct

A sample concept map for the topic of chemical bonds is included below.

Sample Concept Map

