

Review guide for Final Exam: Biology.

.....one page of HAND WRITTEN allowed.. and worth up to five points of EC if submitted with test.

The student can expect to see a combination of multiple choice, short answer and labeling questions.

How Prokaryotes differ from Eukaryotes. Be able to recognize and properly name, pictures of the following single-celled organisms. Euglena, Radiolarians, Cocolithophores, Rotifers, Amoeba, Tardigrades, Stentors, Diatoms.

To be able to identify the name and the function of all of the organelles described on the worksheet: Parts of an animal cell.

Be able to describe the makeup of the atmosphere both during Earth's first billion years and today. What was the 'tipping point' that took place on Earth which finally allowed the world's oceans to form? Where did the ingredients from Earth's early atmosphere come from? Given a time line of Earth, be able to show when free oxygen first appeared in Earth's biosphere.. and when free oxygen first appeared in the atmosphere. Be able to describe how and when, the appearance of Oxygen in the oceans began to change the chemistry of the oceans and the atmosphere. What new kinds of compounds could form?

Roughly when the Earth was completely covered in Ice and what the likely causes were. Also, once the ice began to melt, how the chemistry of the oceans changed to allow evolution of animals to advance. What are 'drop stones' and how do they contribute to the theory of the Snowball Earth? How can volcanic eruptions trigger global cooling?

Osmosis: What conditions cause water to flow in any particular direction across a semipermeable membrane. Given a diagram showing concentrations of solutes, be able to predict which way water would flow and how the cell size might change.

Photosynthesis: Be able to describe how the 'light cycle' and the 'dark cycle' differ from each other. What do the acronyms ATP, ADP and NADPH stand for? What are the basic functions of these chemicals?

How do mitochondria and Chloroplasts fundamentally differ from other cell organelles? When a 'reduction' reaction takes place, what is happening? Give an example from class. When an 'oxidation' reaction takes place, what is happening? Give an example from class.

From previous tests..

Be able to describe the defining characteristics of the following phyla: Porifera, Cnidaria, Chordata, Arthropoda, Mollusca, Annelidea, Ecnodermata and to recognize an example of each.

What evidence is there that humans can trace their ancestry to fish? Given an example of a modern vertebrate, be able to identify the bones in the forelimb. (front leg/arm).

What fraction of earth's extra heat is absorbed by the ocean? What fraction of the extra Carbon Dioxide humans are releasing is being absorbed by the oceans? Where do the ingredients for oyster shells come from? What does the chemistry look like that produces it? What must the pH be in the oceans in order for animals be able to form shells?

What has been the historic range of CO₂ in Earth's atmosphere over the last one million years? What is Earth's current concentration of atmospheric CO₂?

Given a sample chemical formula, be able to determine the percent mass of an individual element.

Given a sample of student data from the burning chips lab (initial and starting temperature of a sample of water, for instance).. be able to determine how many joules of energy were absorbed.