

Review guide: Test 1, Spring semester, Biology with B. Clark.

Lab: Enzymes. What is a catalyst? How does an enzyme act like a catalyst? Why is a catalytic chemical reaction different from normal chemical reactions? What was the name of the Enzyme in the lab activity? What chemical reaction did the Enzyme accelerate? How does Hydrogen Peroxide differ from water? Why would living tissues produce an enzyme like this? Why did using the same piece of Liver in a new sample of H₂O₂ produce the same reaction but the using the Same sample of H₂O₂ with a new sample of Liver did not? Do all living tissues produce Catalase? Why or why not? What do the terms Exothermic and Endothermic refer to? What is DNA polymerase? What does it do? What is Helicase? What does it do? What is RNA Polymerase? What does it do?

Article: Oldest Human Ancestor.. What was the biological evidence that the scientists examined in this article? Roughly how many years ago did they migrate out of Africa? What part of Africa did they likely come from? How does their migration out of Africa compare to people who would move into Asia and Australia? When did Neanderthals 'split off' from the rest of what would become 'modern day' humans? When did Neanderthals die out? What does the evidence suggest about earlier waves of humans that left Africa?

The Miller-Urey experiment: What was it? What did the scientists do? What did they discover? What were the primary gasses in Earth's atmosphere in the first billion years?

What are Amino Acids? How are they related to Proteins? How do they join up? What is a peptide bond? Given a structural diagram of an Amino Acid, can you identify the Amin group? The Carboxylic Acid Group and the Radical? Can you create a drawing that shows how Amino Acids connect to each other to form Proteins?

DNA and RNA. Given a drawing of a DNA Molecule, can you identify the Phosphate group? The Sugar? The Nitrogenous Base? Given a structural diagram of an organic compound in which the viewer is 'understood' to know where the Carbon atoms are, can you determine the basic molecular formula? Given one side of a DNA molecule, can you construct the adjacent, complimentary side? Given a DNA sequence, can you construct the correct, complimentary RNA sequence? Can you determine whether a strand of RNA is mRNA, tRNA or rRNA based on how it is being used?

What is a ribosome? What function do they do? Where are they located? Given a sample of mRNA, can you match up the codon-anticodon pairs to predict what the protein sequence would be? (given a table of Amino acids based on codon sequence). What is Transcription? Where does it happen? What are the cell structures involved in Transcription? What is Translation? What are the cell structures involved in Translation?

Viruses. How does a virus differ from a bacteria? What kinds of material are located inside the body of the Virus? What is the exterior made from? What is a bacteriophage? What is Retrovirus? Why are they called that? What is the name of the enzyme that is contained within retroviruses? What are the major shapes that Viruses look like? What does it mean to say a cell Lyses?

From the article: Creature hiding in California Lake.. how did the creatures in the lake resemble a stage in human development? What stage of animal evolution did this life form seem to resemble? What was it about their behavior which was unlike other bacteria? What other modern life forms are they most closely related to? What is a symbiotic relationship? What is a microbiome? What is an extracellular matrix? What role did it play?

What factors led to the scientists in the OSIRIS Rex mission choosing Benu to land on? What challenges did they not expect? What kinds of compounds did they find once they had the material back in the lab? What kind of planet did the meteor likely come from? Why were the scientists interested in examining material from this asteroid instead of just looking at ancient rocks on Earth? How fast was the capsule that returned to Earth traveling when it entered Earth's atmosphere? What was the rate of deceleration (measured in 'G's)? What is the maximum deceleration that a human being can withstand?

Bio-chemistry: What are Alkanes? Given a diagram of one of the first four Alkanes, would you be able to name it? How does an alcohol differ from an Alkane? Given a structural diagram of an organic compound, could you write out the chemical formula? Given a structural diagram of a nucleotide, a sugar, a nitrogenous base, or