Trimble High School

Grade: 10 Subject: Biology Revised: May 7, 2019

1st Nine Weeks	2nd Nine Weeks	3rd Nine Weeks	4th Nine Weeks
Science Inquiry and Application • Identify questions and concepts that guide scientific investigations; • Design and conduct scientific investigations; • Use technology and mathematics to improve investigations and communications; • Formulate and revise explanations and models using logic and evidence (critical thinking); • Recognize and analyze explanations and models; and • Communicate and support a scientific argument. These standards are covered from the beginning of school until the first week of September. This unit is assessed with a test but practices are used throughout the year with periodic quizzes throughout. **CELLS** **B.C.1: Cell structure and function • Structure, function and interrelatedness of cell organelles • Eukaryotic cells and prokaryotic cells** **B.C.2: Cellular processes • Characteristics of life regulated by cellular processes • Photosynthesis, chemosynthesis, cellular respiration, biosynthesis of macromolecules** These standards are covered from the beginning of September until the end of the nine weeks. Cells and photosynthesis are tested separately. Formative assessments are given throughout	The cell respiration unit is covered from the beginning of the second nine weeks and is approximately a two week unit (end of October or first part of November). Lab demonstrations include the "gummy bear sacrifice." At the end of the unit, a chapter test is given to test knowledge of the unit. At the beginning of the year, we covered the difference between prokaryotes and eukaryotes. We go back to covering prokaryotes in-depth for approximately three weeks (until the end of November). Students research a bacterial or viral disease, learn the structures of each, and are assessed by a presentation and a quiz over the prokaryote chapter. At the end of the semester, we cover cell division (from after thanksgiving break until Christmas break). We do mini-labs to cover cell division and formative assessments since it's a dense chapter.	In continuing with the cell unit, the first two weeks of the quarter, the students learn to contrast meiosis with mitosis. In the meiosis unit, we discuss the main differences between mitosis and meiosis, including ploidy, rounds of division and the cell that undergoes each type of division. **DNA/Genetics** **B.H.1: Cellular genetics B.H.2: Structure and function of DNA in cells B.H.3: Genetic mechanisms and inheritance B.H.4: Mutations B.H.5: Modern genetics** The next four weeks covers the topics of DNA and protein synthesis. During this unit, students will learn the anatomy of a DNA strand and how it replicates during interphase. Students build DNA models, accurately showing the shape, the base pairs, and the backbone of a DNA molecule. After the basics of DNA are covered, transcription and translation are covered and where each process occurs. For assessments, students conduct a lab where they extract their own DNA and there is a summative assessment covering DNA and protein synthesis. Students also create an organism given a DNA code that they need transcribe into RNA to find the amino acid chain, giving the organism its trait. It's a good alternate assessment that	**Evolution** **B.E.1: Mechanisms • Natural selection • Mutation • Genetic drift • Gene flow (immigration, emigration) • Sexual selection B.E.2: Speciation • Biological classification expanded to molecular evidence • Variation of organisms within species due to population genetics and gene frequency** **Ecology** **B.DI.1: Biodiversity • Genetic diversity • Species diversity B.DI.2: Ecosystems • Equilibrium and disequilibrium • Carrying capacity B.DI.3: Loss of Diversity • Climate change • Anthropocene effects • Extinction • Invasive species** The fourth nine weeks is a lot of jumping around due to EOC exams as well as SLO tests. The fourth nine weeks starts with two weeks until spring break. Then, spring break is a week and two weeks after that is the EOC exam for Biology. The two weeks leading up to the exam, I try to squeeze in

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each unit to determine what students know and what should be reviewed. Cell biology covers about three weeks of the nine weeks and the photosynthesis chapter takes about three weeks as well (until the end of the nine weeks).		tests to make sure students understand protein synthesis. The rest of the quarter is spent learning punnett squares and what their purpose is. Students learn how to set up monohybrid and dihybrid punnett squares. They learn the principles of dominance and recessive, genotypes and phenotypes, homo and heterozygous genotypes, incomplete, and codominance. Students will get practice with several variations of these punnett squares. This unit also includes learning how to read pedigree charts. The unit is wrapped up with a summative assessment test.	some basic evolution and ecology concepts. Students will learn evolutionary vocab such as temporal isolation (among three other types of isolation), artificial and natural selection, genetic drift, sexual selection. Students will also learn to set up and interpret cladograms. In ecology, students will learn basic vocab such as exponential and logistic growth, carrying capacity, symbiotic relationships, food chains and food webs, and the effects of climate change. For the next two weeks, we do crash course reviews in all topics that we have covered this year, starting from basics of science all the way up to and including ecology. Once EOC exam is done, I go back and try to expand on the basics of evolution and ecology. Then, we cover all topics again in preparation for the SLO test. The last week of school is spent preparing for frog dissection.

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