

Biology K Lesson Plans Unit 7 19-20

UNIT OBJECTIVES: TEKS

Teachers: Amanda Jenkins, Kristi Coleman, Kim Morgan, Kristin Boggs, Mary Scorsone, DeAnna Appling, Sean Brooks and Jonathon Cummings

Living things require a constant input of matter and energy to survive and have evolved different adaptations to get the matter and energy they need. Autotrophs get energy and matter from nonliving sources and heterotrophs get their matter and energy from other living things.

This need for matter and energy drives the interactions between organisms that establish ecosystems. Organisms interact with each other through predatory (including parasitic), mutualistic, commensalistic, and competitive relationships that most often occur due to the need for matter and energy. Energy is transferred between organisms in food webs in the form of matter. As matter is transferred in this way, it also gets cycled between various living and nonliving components of the biosphere. The carbon and nitrogen cycles are two important examples of biogeochemical cycles because of those elements' importance for building the various biomolecules.

At the cellular level, the ways matter is processed for energy are common to all cells. All photoautotrophs use the same basic matter (CO_2 and H_2O) along with sunlight to produce glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) and oxygen (O_2) somewhere inside their cells. The cells of both autotrophs and heterotrophs convert glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) and oxygen (O_2) into energy usable by cells (ATP) and carbon dioxide (CO_2) and water (H_2O) through processes such as cellular respiration.

The result of all of these interactions is that energy is transferred between different levels of biological organization through the transfer and rearrangement of matter by living things.

TEKS
9A compare the functions of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids;
(10) The student knows that biological systems are composed of multiple levels
10.C analyze the levels of organization in biological systems and relate the levels to each other and to the whole system
(12) The student knows that interdependence and interactions occur within an environmental system
12A interpret relationships, including predation, parasitism, commensalism, mutualism, and competition, among organisms
12B compare variations and adaptations of organisms in different ecosystems
12C analyze the flow of matter and energy through trophic levels using various models, including food chains, food webs, and ecological pyramids
12D describe the flow of matter through the carbon and nitrogen cycles and explain the consequences of disrupting these cycles
11A summarize the role of microorganisms in both maintaining and disrupting the health of both organisms and ecosystems
(9) The student knows the significance of various molecules involved in metabolic processes and energy conversions that occur in living organisms
9B compare the reactants and products of photosynthesis and cellular respiration in terms of energy, energy conversions, and matter

Unit Calendar: January

Monday	Tuesday	Wednesday	Thursday	Friday
6 Intro to Ecology Worksheet	7 Unit 7 Notes – What Is Ecology- Pyramids	8 Unit 7 notes – Cycles of Matter/Succession Begin Biome Project	9 Biome Project	10 Energy Transfer Game
13 Unit 7 notes- Population Growth- Future Concerns	14 Quiz # 1- Ecology (What Is Ecology- Succession) Biome Project	15 Finish Biome Project	16 Quiz # 2- Ecology (Population Growth- Future Concerns) Symbiosis Practice W.S.	17 Succession WS Hike Through the Rainforest W.S
20 NO SCHOOL	21 Kaibab W.S. Begin review	22 Review	23 Unit 7 Part 1 Test	24