

Unit 3: Bioenergetics and Plant Form and Function

Content Area: **Template**

Course(s):

Time Period:

Length:

Status: **Published**

State Mandated Topics Addressed in this Unit

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N/A	N/A

Bioenergetics and Plant Form and Function (~5 Weeks)

Learning Objectives

- Biodiversity of Plants, especially vascular plants.
- Cellular Respiration
- Chemoheterotrophic nutrition: fermentation and aerobic respiration
- Explain how various ecosystems impact photosynthesis.
- How do photoautotrophic organisms obtain nutrition?
- Metabolism and Utilization of Biochemical Macromolecules
- Overview of glycolysis, Krebs cycle, electron transport chain, and chemiosmosis Alternative methods for metabolism
- Photosynthesis
- Plant Form: Tissues, Roots, Stems, Leaves
- Plant Nutrition, Plant Defense Responses, Sensory Systems (hormones, light responses)
- Plant Structure and Function
- Transpiration
- Transport in Plants: Xylem, Phloem, Absorption, Water Potential

Essential Skills

- 2A.2
- 2C.2
- 2D.3
- 2D.4
- 2E.1

- 2E.2
- 2E.3
- 4A.4
- Big Idea 1
- Big Idea 2
- Big Idea 3
- Big Idea 4
- Science Practice 1
- Science Practice 2
- Science Practice 3
- Science Practice 4
- Science Practice 5
- Science Practice 6
- Science Practice 7

Standards

Instructional Tasks/Activities

Please note: Some activities, labs, and/or projects are subject to change, activity with numbers in parentheses indicates AP Biology required lab.

- AP Free Response Questions
- Case Study: A Rigorous Investigation, The relationship between cellular respiration, muscle contraction, and rigor mortis.
- Cellular Respiration Advanced Inquiry Lab
- Cellular Respiration Lab (6)
- Guided Inquiry Transpiration Lab
- Photosynthesis Advanced Inquiry Lab (5)
- Plant Dissection (Monocot and Dicot) and Anatomy Lab
- Plant Structure and Disease: Students work in small collaborative groups to determine the plant tissues and structures that are impacted in ailing plants. They play the role of plant pathologists.
- Transpiration Advanced Inquiry Lab (11)
- Unit Test: Photosynthesis, Cellular Respiration, and Plants
- Virtual Lab: How do Proteins Help Chlorophyll Carry Out Photosynthesis
- Water Movement in Plants Activity

Assessment Procedure

- Classroom Total Participation Technique
- Classwork
- DBQ
- Essay
- Exit Ticket/Entrance Ticket/Do Now
- Journal / Student Reflection
- Kahoot
- Other named in lesson
- Peer Review
- Performance
- Problem Correction
- Project
- Quiz
- Rubric
- Teacher Collected Data
- Test
- Worksheet

Recommended Technology Activities

- Appropriate Content Specific Online Resource
- Chromebook
- Copy/Paste Content Specific Link Here
- Copy/Paste Content Specific Link Here
- Copy/Paste Content Specific Link Here
- Gimkit
- GoGuardian
- Google Classroom
- Google Docs
- Google Forms
- Google Slides
- Kahoot
- MagicSchool AI
- Other- Specified in Lesson
- Quiziz
- Screencastify

Accommodations & Modifications & Differentiation

Accommodations and Modifications should be used to meet individual needs. Their IEP and 504 plans should be used in addition to the following suggestions.

Gifted and Talented

- Compare & Contrast
- Conferencing
- Debates
- Jigsaw
- Peer Partner Learning
- Problem Solving
- Structured Controversy
- Think, Pair, Share
- Tutorial Groups

Instruction/Materials

- alter format of materials (type/highlight, etc.)
- color code materials
- eliminate answers
- extended time
- extended time
- large print
- modified quiz
- modified test
- Modify Assignments as Needed
- Modify/Repeat/Model directions
- necessary assignments only
- Other (specify in plans)
- other- named in lesson
- provide assistance and cues for transitions
- provide daily assignment list
- read class materials orally
- reduce work load
- shorten assignments
- study guide/outline
- utilize multi-sensory modes to reinforce instruction

Environment

- alter physical room environment
- assign peer tutors/work buddies/note takers
- assign preferential seating
- individualized instruction/small group
- modify student schedule (Describe)
- other- please specify in plans
- provide desktop list/formula

Honors Modifications

Resources

- Resource 1
- Resource 2
- Resource 3
- Resource 4
- Resource 5