# Unit #4 Cell Structure and Function

Content Area: **Science**
Course(s):
Time Period:
Length: **14 days**
Status: **Published**

## State Mandated Topics Addressed in this Unit

| State Mandated Topics Addressed in this Unit | |
|---|---|
| N/A | N/A |

## Cell Structure and Function

## Learning Objectives

- Objective 1 - Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy
- Objective 2 - Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.
- Objective 3 - Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.

## Essential Skills

- Essential Skill 1 - Apply scientific principles and theories to build and refine standards for data collection, posing controls, and presenting evidence
- Essential Skill 2 - Reflect on and revise observations as new evidence emerges
- Essential Skill 3 - Apply data representations and new models to revise predictions and explanations
- Essential Skill 4 - Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences
- Essential Skill 5 - Represent ideas using literal representations, such as graphs, tables, journals, concept maps, and diagrams
- Essential Skill 6 - Predict a cell's response in a given set of environmental conditions.
- Essential Skill 7 - Distinguish between the processes of cellular growth (cell division) and development (differentiation).

## Standards

| | |
|---|---|
| SCI.HS-LS1-6 | Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules. |
| SCI.HS-LS1-5 | Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. |
| SCI.HS-LS1-7 | Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy. |

## Instructional Tasks/Activities

- Cell analogy activity
- Cell City Poster: students draw a city, school, etc. representing all organelles as parts of that structure. Label part of cell, part of city/school. Explain how their functions are related.
- Cellular Models: students identify cellular organelles using 3D models in groups
- Designing a cell
- Foldables – organization of material (prokaryotes vs. eukaryotes, types of microscopes, plant vs. animal organelles, function of organelles, passive vs. active transport)
- Group discussion
- Inquiry Based: Cell analogy activity and labeling the cell's parts and functions
- Labelling a cell
- Microscope Lab
- Microscope Lab: students examine plant and animal cells to identify organelles
- PowerPoint presentation of material
- Review game
- Think, pair, share (read assigned section of text individually, discuss with a partner, present material in pairs to class – use PowerPoint as a reference)
- Use of magnetic classroom cell to identify parts and function as class and individually
- Using 3d cells to identify parts

## 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
- Appropriate Content Specific Online Resource
- 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 Slides
- 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