

# Unit #6 Cell Growth, Division and Reproduction

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

## State Mandated Topics Addressed in this Unit

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N/A	N/A

## Cell Growth, Division and Reproduction

### Learning Objectives

- Objective 1 - Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
- Objective 2 - Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

### Essential Skills

- Essential Skill 1 - Reflect on and revise observations as new evidence emerges
- Essential Skill 2 - Apply data representations and new models to revise predictions and explanations
- Essential Skill 3 - Distinguish between the processes of cellular growth and development.
- Essential Skill 4 - Describe modern applications of the regulation of cell differentiation and analyze the benefits and risks.
- Essential Skill 5 - Describe how a disease is the result of a malfunctioning system, organ, and cell, and relate this to possible treatment interventions.

### Standards

SCI.HS-LS1-2	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
SCI.HS-LS1-4	Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

### Instructional Tasks/Activities

- Analyze Cyclins Activity: students analyze and interpret graph of cyclins present in each phase of mitosis and answer analysis questions
- Foldables – organization of material
- Group discussion
- Inquiry based lab activity: Division differences in cancer cells compared to normal cells (paper lab)
- Mitosis Microscope Slides Lab: students observe pre-prepared slides of onion root tip. Students indicate which phase of mitosis each slide shows. Students describe what is occurring during each phase
- Mitosis Plates – drawing and labeling the stages and cell parts involved
- Mitosis Plates: Students draw and label each organelle present in the proper location in each phase on a different plate
- Mitosis Worksheet: Label phase and indicate organelles involved in process of mitosis
- PowerPoint presentation of material
- Review game
- Surface Area vs. Volume Cubes: Students may create their own cubes of indicated sizes or they may use prepared cubes to measure their surface area and volume. Students combine cubes then compare the surface area : volume ratio as the cube grows larger. Students compare this process to a cell as it grows larger
- Think, pair, share (read assigned section of text individually, discuss with a partner, present material in pairs to class – use PowerPoint as a reference)

## **Assessment Procedure**

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- 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**

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- 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**

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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**

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

## **Instruction/Materials**

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- 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**

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- 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**

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## **Resources**

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- Resource 1
- Resource 2

- Resource 3
- Resource 4
- Resource 5