

Understanding By Design Unit Template

Title of Unit	Cell By Cell	Grade Level	7th
Curriculum Area	Cells/Biology/Cloning Ethics	Time Frame	5 weeks
Developed By	Dawn Casaday, Yvonne German, Mitchell, Moore, Sheena Walker		

Identify Desired Results (Stage 1)

Content Standards

Science

MS-LS1-1 From Molecules to Organisms: Structures and Processes

MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. [Clarification Statement: Emphasis is on developing evidence that living things are made of cells, distinguishing between living and non-living things, and understanding that living things may be made of one cell or many and varied cells.]

LS1.A: Structure and Function

All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular)

LS1.A Structure and Function

The smallest living unit is a **cell**.

Plant cells have different structures than **animal cells**.

Microbes have structures that help them grow and survive.

Microbes grow and reproduce

LS1.B GroMicrobes are single-celled living organisms that have the same basic needs as other living organisms.

Microbes can develop in **suitable environments**.

Some microbes live together in large groups called colonies that provide advantages for **survival**.

Social Studies

Social Studies -RH.6-8.1

Cite specific textual evidence to support analysis of primary and secondary source

Social Studies- RH.6-8.2

Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions.

Social Studies-RH.6-8.4

Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.

Social Studies-RH.6-8.6

Identify aspects of a text that reveal an author's point of view or purpose (e.g., loaded language, inclusion or avoidance of particular facts).

Social Studies-RH.6-8.8

Distinguish among fact, opinion, and reasoned judgment in a text.

ELA

CCSS.ELA-LITERACY.RI.7.1

Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-LITERACY.RI.7.2

Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.

CCSS.ELA-LITERACY.RI.7.4

Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.

CCSS.ELA-LITERACY.RI.7.6

Determine an author's point of view or purpose in a text and analyze how the author distinguishes his or her position from that of others.

CCSS.ELA-LITERACY.RI.7.7

Compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium's portrayal of the subject (e.g., how the delivery of a speech affects the impact of the words).

CCSS.ELA-LITERACY.RI.7.8

Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.

CCSS.ELA-LITERACY.SL.7.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.7.1.C

Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.

Big Ideas		Essential Questions	
Overarching Understanding		Overarching	Topical
How far is to far?		Is the whole greater than the sum of its parts? Who determines what's too far? Explain the concept of ethics?	Is it ethical to overlook the homeless? Is it ethical to be homeless when you don't have to be? Is stem cell research murder? Is testing animals ethical?
Related Misconceptions		Once the damage is done, can you return rom too far? What is the responsibility to society? Are constitutional rights being infringed upon?	Should human beings be cloned?
What is life? What is the criteria that defines life? Is all life valued the same? Is all-human life valued the same? Can animals be harmed? Do all fetus survive? When does life begin? Is it acceptable to engineer life?			
Knowledge Students will know...		Skills Students will be able to...	

<p>Cells are the building blocks of life. Students will distinguish the difference between human, plant, and animal life. Students will determine various types of cells. What are the criteria for determining life?</p>	<p>Expand critical thinking skills concerning ethics and ideologies surrounding cell reproduction. How to write an argumentative essay. Utilizing evidence based text concerning cells. How to make inference from text, visual arts, and data collections. Comparing and contrast living vs. non-living. Citing textual evidence. Collaborative discussions. Pose questions that elicit elaboration. Determine the main idea and central idea. Summarize visual and textual information. Analyze visual and textual information. Analyze the point of view and perspective. Determine the meaning of words and phrases while utilizing the text.</p>
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Assessment Evidence (Stage 2)

Performance Task Description	
Goal	Students will understand the dynamics of the cell.
Student Roles	Facilitator, speaker, recorder, writer, messenger, materials person
Audience	School Community
Product/Performance	Cell Museum

Other Evidence

Learning Plan (Stage 3)

Where are your students headed? Where have they been? How will you make sure the students know where they are going?	<p>ELA/SS-Students will explore the ethical boundaries surrounding cell reproduction in living things. Students will utilize research-based information to support their arguments on the issues of cloning. Students will be assessed daily through various techniques such as questions, pair-share activities, exit tickets, etc. Art-Students will review the element of form and space' through a variety of exercises, practice using the two to create a cohesive piece of art.</p>
How will you hook students at the beginning of the unit?	<p>Write the word cell ELA/SS-Draw the meaning of the word cell Art-Use artwork to describe the cell through written language Science-Explain the size of a cell utilizing another object to compare size.</p>
What events will help students experience and	ELA/SS-Students will write an argumentative essay on cloning to explore whether the topic is

explore the big idea and questions in the unit? How will you equip them with needed skills and knowledge?	supported or opposed. Students will explore scientists and cloning throughout the ages by creating a timeline of cloning. Art-Students will analyze and interpret abstract artwork; discuss the ethics of using cancer cells, blood, etc as subjects in art.
How will you cause students to reflect and rethink ? How will you guide them in rehearsing, revising, and refining their work?	ELA/SS-Students will peer edit essays and revise essays accordingly. Students will also have conference times with teacher. Art-Students will be given a checklist to evaluate their work; self and class critiques will be utilized throughout the project.
How will you help students to exhibit and self-evaluate their growing skills, knowledge, and understanding throughout the unit?	ELA/SS-Student will utilize a student friendly rubric for their essay and timeline. Art-Student work will be showcased in a gallery setting; written and oral evaluations (teacher and peer) will take place throughout the unit.
How will you tailor and otherwise personalize the learning plan to optimize the engagement and effectiveness of ALL students, without compromising the goals of the unit?	ELA/SS-Lessons will be tailored for students by incorporating hands on activities that will engage all students. Art-Students will be assigned responsibilities based on their strengths; assessment will be based on critiques (oral and written) and artmaking (individual and group work)
How will you organize and sequence the learning activities to optimize the engagement and achievement of ALL students?	ELA/SS & Art-Students will begin with individual exercises; move to small group collaborations and finally to whole class project; final critiques and evaluations will be teacher and student collaborations.

Learning Plan (Stage 3)	
Resources:	Elmo, projector, various articles, iPad's, construction paper, markers, gel cell kit, microscope, coloring pencils, copy paper, thin permanent markers, color index cards, colored post its, spiral notebooks, folders, butterfly kit,
Vocabulary:	Ethics, reproduction, form, balance, ,space, installation, additive, subtractive, membrane, cells, nucleus, mitochondria, cell wall, cloning, chloroplast, cytoplasm, vacuole, stem cells, misconceptions,
Diverse Learner Accommodations:	Graphic Organizers Technology IPads Leveled text Hands-on activities Leveled Questioning Peer Assistance Longer Time Clarifying Directions Visual Information Extra Modeling/Support

	Collaboration w/Sped Teacher Various Media Forms Discussion Guides for partners/groups Research Activity Diverse Learning Teacher/Gen Ed Teacher Collaboration
Websites:	Wiley.com Centerofthecell.org Corestandards.org Nextgenscience.org

From: Wiggins, Grant and J. Mc Tighe. (1998). *Understanding by Design*, Association for Supervision and Curriculum Development
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