

Week 2

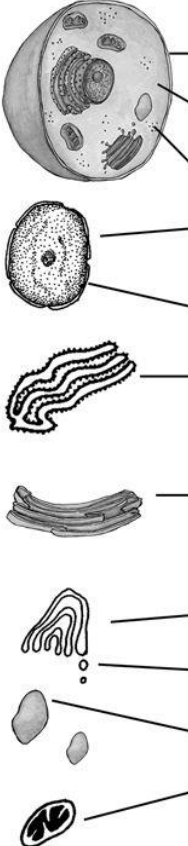
4.Cellular Organelles

Grade: 7 th -8 th		Subject: Science
Materials: cellular art materials, homework worksheet		Technology Needed: PowerPoint system, computer, projector
Instructional Strategies: *Direct instruction * Peer teaching/collaboration/ cooperative learning *Guided practice *Learning Centers *Visuals/Graphic organizers *Lecture *Discussion/Debate *Technology integration		Guided Practices and Concrete Application: *Large group activity *Hands-on *Independent activity *Technology integration *Pairing/collaboration *Simulations/Scenarios
Standard(s) Standard 4: Students understand the basic concepts and principles of life science.		Differentiation Below Proficiency: If a student identifies as below proficiency I would put them into groups or with a partner to aid them. Above Proficiency: If a student identifies as above proficiency I would have them look further into the topic by researching on the computer cellular organelles. Approaching/Emerging Proficiency: If students are emerging proficiency they should be able to complete and understand the homework. Modalities/Learning Preferences: I encourage students to move around the classroom, interact with students, and ask questions.
Objective(s) 7.4.1. Explain the functions of the cell (e.g., growth, metabolism, reproduction, photosynthesis, response)		
Bloom’s Taxonomy Cognitive Level: Application, Analysis		
Classroom Management- (grouping(s), movement/transitions, etc.) During the lecture students will be arranged in tables with 3 to 4 students. It’s the students’ responsibility to take notes during the lecture and participate in group activities. I will create a positive environment by engaging the students in an activity. I will provide instruction for moving around the room during transition times.		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) I expect students to sit through the lecture and ask questions as we go through the content. I will regain students’ attention and assign homework for the evening.
Minutes	Procedures	
30	Set-up/Prep: Create PowerPoint Notes/group activity/worksheet. Set up PowerPoint before class. Print worksheets.	
5	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) I will start class by accessing student’s prior knowledge to cells and their functions. I will ask questions regarding cell organelles, cell appendages. I will start the lesson by showing an interesting cell video from YouTube to engage the students. https://youtu.be/B_zD3NxSsD8	
20	Explain: (concepts, procedures, vocabulary, etc.) The main concepts and components of cells, their functions, and the individual organelles will be explained. I will use the PowerPoint lecture to guide and build on the cell. Important terms are discussed deeply and are relevant to students’ prior knowledge. I will ask questions to promote student engagement and provide real world examples to help students connect with the content. I will make sure to explain all pictures.	

20	<p>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)</p> <p>After the lesson I will assign a worksheet for students to complete. Students must attempt each problem and come to class ready to ask questions. The following day after homework is assigned I will answer questions and have a class discussion about the content. I also have a cellular art project prepared so students can explore their creative sides later in the unit.</p>
5	<p>Review (wrap up and transition to next activity):</p> <p>I will ask students if they have any remaining questions and have them cleanup/pack up for their next class. If I feel the students need more practice I will have them come in after school to see where the confusion is.</p>
<p>Formative Assessment: (linked to objectives)</p> <p>Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc.</p> <p>Why do you think it's important that cells are very small?</p> <p>Why does moving something from lower concentration to higher concentration require energy?</p> <p>Consideration for Back-up Plan: I have prepared an additional worksheet for the students. I also have a recent biology article from the internet, so students can read.</p>	<p>Summative Assessment (linked back to objectives)</p> <p>End of lesson: As you all can see cells are very small. They are made of a smaller monomer that come together to create macromolecules. Each organelle has a specific function that helps the cell to survive.</p> <p>If applicable- overall unit, chapter, concept, etc.: Unit 1: Chapter 2, Cellular structures and functions.</p>
<p>Reflection (What went well? What did the students learn? How do you know? What changes would you make?):</p> <p>This lesson went well. I prepared enough material to keep the students busy and engaged. Next time, I will put PowerPoint questions into the lecture slides to check for understanding.</p>	

Assessment for Cellular Organelles:

Animal Cell Organelles Quiz



1. Each cell has a protective, semi-permeable, outer layer called the _____.
2. Inside the cell, the watery medium in which all the organelles float, is called _____.
3. Little grains floating around inside the cell involved in proteins production are called _____.
4. The cell _____ contains our **DNA** with all our genetic information found on 23 paired structures called _____.
5. It is surrounded by a protective _____.
6. _____ is a series of folded membrane pathways spotted with ribosomes. Together they make new proteins and membranes.
7. _____ has no ribosomes on it and forms containers called **transport vesicles** that are used to move things around inside the cell.
8. _____ are package things to be transported out and around the cell.
9. _____ are vesicles with digestive enzymes inside to break down the things the cell no longer needs.
10. _____ are membrane large membranous sacs for storing things. **Vesicles** are smaller sacs.
11. _____ have a double membrane with finger-like _____ and break down sugars to make energy for the cell.

5.Canva-Cellular Organelles Technology

Grade: 7th -9th		Subject: Science	
Materials: Computer, student emails		Technology Needed: PowerPoint, laptops, access credentials	
Instructional Strategies: *Direct instruction *Guided practice *Technology integration *Peer teaching/collaboration/cooperative learning *Visuals/Graphic organizers *PBL *Modeling		Guided Practices and Concrete Application: *Independent activity *Simulations/Scenarios *Hands-on *Technology integration Explain: Students will use Canva software to create and infographic	
Standard(s) Standard 4: Students understand the basic concepts and principles of life science. Standard 6: Students understand relations between science and technology.		Differentiation Below Proficiency: If a student identifies as below proficiency I would put them into groups or with a partner to aid them. Above Proficiency: If a student identifies as above proficiency I would have them look further into the topic by researching new software techniques that could be used in the science field. Approaching/Emerging Proficiency: If students are emerging proficiency they should be able to complete and understand the homework. Modalities/Learning Preferences: I encourage students to move around the classroom, interact with students, and ask questions.	
Objective(s) 9-10.6.1. Use appropriate technologies and techniques to solve a problem (e.g., computer-assisted tools, Internet, research skills) 7.4.1. Explain the functions of the cell (e.g., growth, metabolism, reproduction, photosynthesis, response) Bloom's Taxonomy Cognitive Level: Application, Analysis			
Classroom Management- (grouping(s), movement/transitions, etc.) Students are required to sit in their desks with their laptops. They must work individually and can ask me for questions. Student must demonstrate proper internet/computer use.		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) As I lecture for a few short minutes I expect students to be attentive and participate in discussion. During the activity, I encourage students to maintain an inside voice and be respectful while everyone works.	
Minutes	Procedures		
15	Set-up/Prep: Login in to Canva. Find a few examples for students to view. Become familiar with the software.		
5	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) Hello class, yesterday we talk about the cellular organelles that are required to keep a cell functioning. Can anyone tell me the function of the mitochondria? So today we are going to be using our laptops to create an infographic using the software Canva. The purpose of creating the infographic is to organize the organelles in a creative way and to help students remember the content.		
10	Explain: (concepts, procedures, vocabulary, etc.) I am going to explain the guidelines and how to access the canvas software. So, I need everyone to go get a laptop. I will walk students through the Canva login in by asking them for their school email. I then will show them how to navigate the site and create a new infographic. The infographic must contain at least 10 organelles from the notes. The organelle needs to be listed and its function. The infographic must have at least 5 pictures of organelles. The infographic must be neat and organized to receive full credit. No grammar mistakes.		
30	Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions) Students will have the remaining time of class to work on creating their infographic and exploring the Canva site. The requirements for the infographics are posted below and handed to the students before they start working.		
5	Review (wrap up and transition to next activity):		

Student will use this time to put away laptops and ask me any questions about the software or the content.	
<p>Formative Assessment: (linked to objectives) Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc.</p> <p>Does everyone have at least 10 organelles listed with their functions? Is anyone having trouble navigating Canva?</p> <p>Consideration for Back-up Plan: If the internet is not working I will ask the students to create a small poster describing the function of the organelles.</p>	<p>Summative Assessment (linked back to objectives) End of lesson: Cellular organelles are essential for healthy cells; therefore it is important to know their function and how they help the cell survive.</p> <p>If applicable- overall unit, chapter, concept, etc.: NA</p>
<p>Reflection (What went well? What did the students learn? How do you know? What changes would you make?): To be reflected after lesson is taught.</p>	

Canva Assessment: Students will be assessed based on quality and number of requirements met, based off the above guidelines. Examples of infographics are shown below.

THE BEST HEALTH APPS

One rarely falls in love without being as much attracted to what is interestingly wrong with someone as what is objectively healthy
by Stephanie Potter

- 1 THERMOMETER APP**
A further sign of health is that we don't become undone by fear and trembling, but we take it as a message that it's time to stop struggling and look directly at what's threatening us, said Penna Chidris.
- 2 HEART RATE MONITOR**
If we are creating ourselves all the time, then it is never too late to begin creating the bodies we want instead of the ones we mistakenly assume we are stuck with, said Deepak Chopra.
- 3 PERIOD TRACKER**
The greatest miracle on Earth is the human body. It is stronger and wiser than you may realize, and improving its ability to self-heal is within your control, said Dr. Fabrizio Mancini.
- 4 INSULIN MONITOR**
Freedom from obsession is not about something you do; it's about knowing who you are. It's about recognizing what sustains you and what exhausts you, says Geneen Roth.
- 5 HEART RATE MONITOR**
If we are creating ourselves all the time, then it is never too late to begin creating the bodies we want instead of the ones we mistakenly assume we are stuck with, said Deepak Chopra.
- 6 GLUTEN-FREE RECIPES**
The human body has been designed to resist an infinite number of changes brought about by its environment. The secret of good health lies in successful adjustment to changing stresses on the body.
- 7 SLEEP ANALYSIS**
Learn to follow the inner self, healing is simply attempting to do more of those things that bring joy and fewer of those things that bring pain, said O. Carl Simonton.
- 8 TRAINING CLUB**
I promise you nothing is as chaotic as it seems. Nothing is worth diminishing your health. Nothing is worth poisoning yourself into stress, anxiety, and fear, said Steve Maraboli.

Research on this article is done with the help of Health Thomas, a health technology expert teaching at University of Louisiana.

Cells & DNA

A single cell can contain from 0.1 to 10 feet of DNA

75 to 100 trillion
The amount of cells the body is composed of

When a cell undergoes damage or undergoes some type of stress, it will undergo a process called apoptosis.

A cell's inability to undergo apoptosis can result in the development of cancer.

The chromosomes and DNA from all your cells spread out and to fill...
6,000 times
the amount of cells the body is composed of

or from the Earth to the Sun
30 times

200
Humans have 200 chromosomes, which are used by a lot of all the bases in your DNA (A, T, C, G, and P).

Your body is creating and killing about **15 million red** blood cells per second

It takes about eight hours for one of your cells to completely copy its DNA

Humans shed and regrow outer skin cells about every 27 days

Humans cells contain 23 pairs of chromosomes.

You could fit one thousand cell nuclei across the period at the end of this sentence.

About **95%** of the cells in your body are bacteria

100 billion
The number of neurons in the human brain

20	<p>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)</p> <p>After this lesson I will assign an exit slip asking students to explain the different between active and passive transport. Students will be required to read the lab the night before for homework. Student can also use this time to start thinking about how they want to complete their cell model.</p>
5	<p>Review (wrap up and transition to next activity):</p> <p>I will ask students if they have any remaining questions and have them clean up/pack up for their next class.</p>
<p>Formative Assessment: (linked to objectives)</p> <p>Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc.</p> <p>Does active transport require energy? What about passive?</p> <p>Consideration for Back-up Plan: I have prepared an additional worksheet for the students. I also have created vocabulary games to help study for the test.</p>	<p>Summative Assessment (linked back to objectives)</p> <p>End of lesson: As you can see diffusion is a form of passive transport and that new energy is required. While energy is required for active transport.</p> <p>If applicable- overall unit, chapter, concept, etc.:</p> <p>NA</p>
<p>Reflection (What went well? What did the students learn? How do you know? What changes would you make?):</p> <p>To be completed after lesson is taught.</p>	

Assessment: Exit slip

HW: read lab for tomorrow

2. Osmosis Lab

Grade:7-8th		Subject: Science	
Materials: eggs, vinegar, corn start, distilled water, beakers		Technology Needed:	
Instructional Strategies: *Direct instruction *Peer teaching/collaboration/ *Guided practice cooperative learning *Learning Centers *Technology integration		Guided Practices and Concrete Application: *Independent activity *Hands-on *Pairing/collaboration *Technology integration *Simulations/Scenarios Explain: Students will work with lab partners to complete the lab procedure	
Standard(s) Standard 1: Students understand the unifying concepts and processes of science.		Differentiation Below Proficiency: If a student identifies as below proficiency I would put them into groups or with a partner to aid them. Above Proficiency: If a student identifies as above proficiency I would have them look further into the topic by researching on the computer real world examples of diffusion and osmosis. Approaching/Emerging Proficiency: If students are emerging proficiency they should be able to complete and understand the homework. Modalities/Learning Preferences: I encourage students to move around the classroom, interact with students, and ask questions.	
Objective(s) 7.1.1. Explain how models can be used to illustrate scientific principles (e.g., osmosis, cell division) 6.2.4. Use appropriate tools and techniques to gather and analyze data.			
Bloom's Taxonomy Cognitive Level: Analyze and Apply			
Classroom Management- (grouping(s), movement/transitions, etc.) Students will be broken up into lab groups of 2 or 3. They will complete the lab procedure following the directions. They will transition between tasks effortlessly and be aware of other groups materials.		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) All students are expected to participate equally in the lab. They must follow the lab contract by using equipment property and putting it away clean.	
Minutes	Procedures		
30	Set-up/Prep: I will gather materials such as eggs, vinegar, distilled water, corn starch, graduated cylinders, and beakers.		
5	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) I will review the topic of osmosis and diffusion which was taught in class the day before. I will start off the lab by briefly stating what is expected of the students during lab. I will walk through the procedure with the students stating the objectives, and what materials the students will need to gather. I will divide the lab groups up heterogeneously and allow the students to get started.		
30	Explain: (concepts, procedures, vocabulary, etc.) Students will use this time to follow the lab procedure and conduct the lab experiment. All groups will be given 1 egg to put into 3 different solutions. The students will have to make observations while the eggs sit in the solution for approximately 10 minutes each.		
10	Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions) After the students have completed the lab they will use this time to check answers with their lab partners and ensure proper units. Each student will compile their answers, so they are neat and clearly labeled. They will hand in their post lab in the correct homework bin. If the lab is not completed, students will have until the next day to turn in the post lab.		
5	Review (wrap up and transition to next activity):		

