

Louisiana Believes

Distance Learning Support for OpenSciEd Grade 6 Unit 6.6 Cells Field Test Unit

This resource is designed to support teachers in implementing distance learning for OpenSciEd Grade 6 Unit 6.6, Unit 6 on the [Louisiana Guide to Piloting OpenSciEd Grade 6](#). It is intended as a supporting document and should be used in conjunction with the [OpenSciEd Unit 6.6 Unit Resources](#). The resources contained in this document have been adapted from [OpenSciEd](#) with permission under [Creative Commons 4.0 licensing](#).

The OpenSciEd Remote Learning Resources linked below contain detailed information about adapting specific routines to a remote learning environment and a wide variety of options including those for students who do not have internet access:

- [Fostering Productive Norms](#)
- [Anchor Phenomenon Routine](#)
- [Navigation Routine](#)
- [Supporting Discourse](#)
- [Problematizing Routine](#)

This guidance document is considered a “living” document as we believe that teachers and other educators will find ways to improve the document as they use it. Please send feedback to STEM@la.gov so that we may use your input when updating this guide.

Updated May 5, 2021



Norming Language

Term	Description
Virtual Class Pre-Work	Assignments that students should do prior to virtual class meetings in order to be prepared to engage in discussions, there may be multiple assignments throughout a given lesson
Virtual Class Post-Work	Assignments designed for students to apply learning from virtual class meetings, there may be multiple assignments throughout a given lesson
Virtual Class	Live sessions with students through any digital conferencing platform, teachers may choose to allow students without internet to call in during these sessions and record virtual class sessions to share with those who cannot join
Thinking Deeper Documents	Progress trackers for students to use throughout each lesson to record and revise their thinking about science concepts related to the phenomenon; contain assignments for students to complete before, during, and after virtual classes, discussion boards, and home investigations
Lesson Slideshows	Lesson progression specific to each lesson used to guide student work; used during pre-work, post-work, virtual classes, home investigations, and discussion boards; can be shared with students in their entirety at the beginning of the lesson or broken into small portions and shared as needed
Discussion Boards	Assignments designed for students to share ideas and engage in discussion with one another over time rather than a live environment; students will use their Thinking Deeper Documents to brainstorm prior to submitting; teachers may choose to allow students without internet to text in responses and may screenshot/download and share portions of or full discussions via text (ex. through apps like Remind)
Home Investigations	Investigations with readily available materials designed for students to perform at home; teachers may choose to substitute videos or photos of data collection for students who cannot complete investigations at home

Lesson Set Overview: Lessons [1](#), [2](#), [3](#), [4](#), [5](#), [6](#), [7](#)

Lesson Set 1: Lessons 1-7		
Provided Resources Students Will Need	Additional Resources Students Will Need	Additional Materials for Students Without Internet Access
<p>Lesson Slideshows for each lesson:</p> <p>L1, L2, L3, L4, L5, L6, L7</p> <p>Thinking Deeper Documents for each lesson:</p> <p>Lesson 1 TDD, Lesson 2 TDD, Lesson 3 TDD, Lesson 4 TDD, Lesson 5 TDD, Lesson 6 TDD, Lesson 7 TDD</p> <p>Additional Documents (<i>not already linked within slideshows</i>):</p> <p>Optional: Pre-Unit Letter Home</p> <p>Lesson 2: Exit Ticket</p> <p>Lesson 4: Exit Ticket</p> <p>Lesson 5: Exit Ticket</p> <p>Lesson 7: Mysterious Object: Argue From Evidence</p>	<p>Shared documents used in multiple lessons (<i>teacher made</i>):</p> <p>Driving Question Board (1, 4, 7)</p> <p>Consensus Model (1, 6)</p> <p>Healing Timeline (1, 7)</p> <p>Parts of the Foot/Body Poster (1, 2, 5-7)</p> <p>Word Wall (4-6)</p> <p>Other Resources:</p> <p>Discussion Boards (All lessons -teacher made)</p> <p>Lesson 1:</p> <ul style="list-style-type: none"> Class Record of Investigation Ideas <p>Lesson 7:</p> <ul style="list-style-type: none"> Thinking Deeper Document from Lessons 1-6 	<p>Prior to Lesson:</p> <p>Lesson 2:</p> <ul style="list-style-type: none"> Chicken Wing Dissection Injured Chicken Wing Dissection <p>Lesson 4:</p> <ul style="list-style-type: none"> Blood Under Microscope interactive How to Use a Microscope - optional <p>Lesson 5:</p> <ul style="list-style-type: none"> Nerve Images <p>Lesson 6:</p> <ul style="list-style-type: none"> Images of Skin, Bone and Muscle Skin, Muscle, and Bone Interactive <p>Lesson 7:</p> <ul style="list-style-type: none"> Mysterious Object Pictures Mysterious Object Interactive <p>After Lesson Completion:</p> <p>Virtual Class Recordings (1, 2, 4-7)</p> <p>Discussion Boards (All Lessons)</p>

Students should ideally join VIRTUAL CLASS on the following days:

Days 2 & 4 - Lesson 1

Day 6 - Lesson 2

Day 9 - Lesson 4

Day 10 - Lesson 5

Day 12 - Lesson 6

Day 14 - Lesson 7

Formative and Summative Assessment Opportunities:

Lesson 2: [Exit Ticket](#)

Lesson 4: [Exit Ticket](#)

Lesson 5: [Exit Ticket](#)

Lesson 7: [Mysterious Object: Argue From Evidence](#)

Lesson Set Overview: Lessons [8](#), [9](#), [10](#), [11](#), [12](#), [13](#), [14](#)

Lesson Set 2: Lessons 7-14		
Provided Resources Students Will Need	Additional Resources Students Will Need	Additional Materials for Students Without Internet Access
<p>Lesson Slideshows for each lesson:</p> <p>L8, L9, L10, L11, L12, L13, L14</p> <p>Thinking Deeper Documents for each lesson:</p> <p>Lesson 8 TDD, Lesson 9 TDD, Lesson 10 TDD, Lesson 11 TDD, Lesson 12 TDD, Lesson 13 TDD, Lesson 14 TDD</p> <p>Additional Documents (not already linked within slideshows):</p> <p>Lesson 10 Assessment Lesson 10 Jigsaw Readings: Archaea, Bacteria, Yeast, or Algae Lesson 14 Assessment</p> <p><i>**NOTE: Lesson 15 is an optional project that has been omitted – if time allows, review teacher resources and project guide and adapt for remote learning.</i></p>	<p>Shared documents used in multiple lessons (teacher made):</p> <p>Driving Question Board (8, 14) Consensus Model (8, 9, 12) Healing Timeline (8, 12) Word Wall (8, 9, 10, 13)</p> <p>Other Resources:</p> <p>Discussion Boards (Lessons 9, 10, 12, 13, 14 - teacher made)</p> <p>Lesson 12:</p> <ul style="list-style-type: none"> • Shared Healing Timeline Chart • Parts of the Foot/Body Poster • Related Phenomena Poster <p>Lesson 14</p> <ul style="list-style-type: none"> • Noticings About Bones From Different-Aged People Poster 	<p>Prior to Lesson:</p> <p>Lesson 8:</p> <ul style="list-style-type: none"> • Skin Healing Video <p>Lesson 9:</p> <ul style="list-style-type: none"> • Video 1 Mammalian Cells • Video 2 Mammalian Cells • Video 3 Mammalian Cells <p>Lesson 10:</p> <ul style="list-style-type: none"> • Pouring Agar Video • Cooled Agar Video • Streaking E.Coli Video <p>Lesson 11:</p> <ul style="list-style-type: none"> • Investigating Red Onion Skin Video • Observing Red Onion Skin Interactive • Observing Plant and Animal Cells Interactive <p>Lesson 14</p> <ul style="list-style-type: none"> • Assessment <p>After Lesson Completion:</p> <p>Virtual Class Recording (Lessons 8, 10, 11, 12, 13) Discussion Board (9, 10, 12, 13, 14)</p>

Students should ideally join VIRTUAL CLASS on the following days:

Day 15 - Lesson 8 Day 17 - Lesson 10 Day 19 - Lesson 11 Day 21 - Lesson 12 Day 22 - Lesson 13 Day 23 - Lesson 14

Formative and Summative Assessment Opportunities:

Lesson 8 – Initial Models of Healing (shared in Virtual Class)

Lesson 10 – Jigsaw Readings Discussion Board, [Assessment](#)

Lesson 12 – Healing Timeline Chart (on TDD, Day 1), option to turn in models of related phenomena at the end of Day 2 virtual class

Lesson 13 – Methods of Healing Presentation and Feedback

Lesson 14 - [Assessment](#)

Lesson 1 (4 days) - Anchoring Phenomenon

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- [Pre-Unit Letter Home](#)
- Define Healing Discussion Board - *teacher made*
- How People Experience the World Discussion Board - *teacher made*
- Healing Timeline - *teacher made*
- Parts of the Foot poster - *teacher made*
- Driving Question Board - *teacher made*

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- [Pre-Unit Letter Home](#)
- Define Healing Discussion Board - *teacher made*
- How People Experience the World Discussion Board - *teacher made*
- Healing Timeline - *teacher made*
- Parts of the Foot poster - *teacher made*
- Driving Question Board - *teacher made*
- Consensus Model - *after completion*
- Discussion Boards - *after completion*
- Class Record of Investigation Ideas - *after completion*
- Virtual Class Recordings - *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 2 and Day 4

Lesson 1 (4 days) - Anchoring Phenomenon

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 1 (10 min) NAVIGATION Slides A - B	<ol style="list-style-type: none"> 1. Share Lesson Slideshow with students. 2. Share Thinking Deeper Document with students. 	VIRTUAL CLASS PRE-WORK: <ol style="list-style-type: none"> 1. Make a list of favorite activities that involve moving and indicate what parts of the body are used. 2. Reflect on not being able to do the activity and what you might have done to be able to do the activity again.
Part 2 (15 min) EXPLORE AN INTERESTING (SIMILAR) PHENOMENON Slides C -F	<ol style="list-style-type: none"> 1. Create and share a discussion board (jamboard, shared document, etc.) to post notice/wonders from Hospital Report, Post Operation Report, and Recovery Report. 	DISCUSSION BOARD: <ol style="list-style-type: none"> 1. Read the scenario and make a prediction as to why the activities couldn't be completed. 2. Read and analyze the Hospital Report, Post Operation Report and the Recovery Report. Jot down notice/wonders after each and share on the discussion board.
Part 3 (10 min) RECORD EVIDENCE FOR HEALING Slides G - H	<ol style="list-style-type: none"> 1. Create and share a discussion board (jamboard, shared document, etc.) to post a definition of healing. 	DISCUSSION BOARD: <ol style="list-style-type: none"> 1. Brainstorm and create a definition for the word "Healing" and post to the discussion board. 2. Look back on reports and notice/wonders. Record important clues/evidence that healing is occurring
Part 4 (10 min) CREATE A TIMELINE FOR HEALING Slide I		VIRTUAL CLASS PRE-WORK: <ol style="list-style-type: none"> 1. Create a timeline listing in chronological order, the important events that indicate healing is occurring. 2. Explain why each event would be a clue.

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Parts 5 - 9 (43 min) NAVIGATION DEVELOP AN INITIAL MODEL FOR HEALING REVISIT CLASSROOM NORMS/COMMUNITY AGREEMENTS COMPARE INITIAL MODELS PREPARE FOR HOME LEARNING ABOUT RELATED PHENOMENA Slides J -O	Prior to the virtual class, the teacher should: <ol style="list-style-type: none"> 1. Ensure that the “Healing” definition discussion board is open for discussion. 2. Create a space for the “Parts of the Foot” poster (shared doc, Jamboard, etc.). 3. Setup a shared space (jamboard, shared document, etc.) for students to share their models. 4. Add links to shared documents and modify directions as needed on the slideshow. VIRTUAL CLASS: <ol style="list-style-type: none"> 1. Have students share self-made definitions for “Healing” and co-construct a definition as a class. 2. Share important events where healing is occurring that was documented on the timeline. 3. Create a Parts of the Foot poster by having students identify parts that were impacted by the injury and needed to heal (This sets students up to create their initial model. Ensure students have access to this document when complete - will revisit in the next lesson) 4. Develop an initial model answering the question “What happens during the healing process so the student was able to use his foot again to walk, run, jump, and dance?” 5. Review Classroom Norms and select one to work on. 6. Compare initial ideas of “Healing”. While sharing, students will record similarities and differences in models. 7. Develop a whole-group record of what we agree/disagree on that should be on our model and create an initial consensus model. (Ensure students have access to the model when complete.) 	
Part 10 (2 min) PREPARE FOR HOME LEARNING ABOUT RELATED PHENOMENA		VIRTUAL POST-WORK: <ol style="list-style-type: none"> 1. Complete the Home Learning Assignment.

Day 3

Lesson Components	Distance Learning Plan	
	Teacher	Student
<p style="text-align: center;">Part 11 (30 min)</p> <p style="text-align: center;">EXPLORE DIFFERENT ASPECTS OF VISIBLE AND INVISIBLE DISABILITY</p> <p style="text-align: center;">Slides Q-BB</p>	<p>1. Create and share a discussion board (jamboard, shared document, etc.) to post how people experience the world. (Ways people communicate, perceive/sense, eat, & move.)</p>	<p>VIRTUAL PRE-WORK:</p> <ol style="list-style-type: none"> 1. Jot down questions about if something counts as healing, how different people function differently after an injury, and how healing might be similar or different for each individual. <p>DISCUSSION BOARD:</p> <ol style="list-style-type: none"> 1. Brainstorm ways people communicate, ways people perceive/sense, ways people eat, and ways people move. 2. Share on the discussion board. <p>VIRTUAL PRE-WORK:</p> <ol style="list-style-type: none"> 1. Create a new definition of the word “Healing”. 2. Reflect back on the home learning assignment and jot down anything to change/revise.
<p style="text-align: center;">Part 12 (10 min)</p> <p style="text-align: center;">SHARE RELATED PHENOMENA OF HEALING</p> <p style="text-align: center;">Slides CC-DD</p>		<p>VIRTUAL PRE-WORK:</p> <ol style="list-style-type: none"> 1. Brainstorm examples of things that have healed from injury. 2. Reflect back on the process involved in the foot healing and jot down your thoughts on if the process would be the same for any injury.

<p>Part 13 (5 min)</p> <p>DEVELOP QUESTIONS FOR THE DRIVING QUESTION BOARD</p> <p>Slide EE</p>		<p>VIRTUAL PRE-WORK:</p> <ol style="list-style-type: none"> 1. Record questions about the phenomena. (These questions will be used on the DQB.)
--	--	--

Day 4		
Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Parts 14 - 16 (45 min)</p> <p>BUILDING OUR DRIVING QUESTION BOARD</p> <p>DEVELOP INITIAL IDEAS FOR FUTURE INVESTIGATIONS</p> <p>DEVELOP QUESTIONS FOR THE DRIVING QUESTION BOARD</p> <p>Slides FF – II</p>	<p>Prior to the virtual class, the teacher should:</p> <ol style="list-style-type: none"> 1. Setup Driving Question Board (jamboard, shared document, etc.) so students can share questions. 2. Setup a shared space (jamboard, shared document, etc.) for investigation ideas. 3. Add links to shared documents and modify directions as needed on the slideshow. <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> 1. Share questions on the Driving Question Board. 2. Brainstorm ideas to investigate and data that may be needed to help answer our questions. 3. Create a list of ideas to investigate and data needed to investigate our questions. 4. Discuss how investigating different parts of our own body functions or works may help us answer our questions. 	

Return to [Lesson Set Overview](#)

Lesson 2 (2 days) - Investigation

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- [Exit Ticket](#) - *make your own copy before assigning*
- Share Your Predictions Discussion Board - *teacher made*
- Parts of the Foot poster

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- [Chicken Wing Dissection](#)
- [Exit Ticket](#) - *make your own copy before assigning*
- [Injured Chicken Wing Dissection](#)
- Share Your Predictions Discussion Board - *teacher made*
- Parts of the Foot poster
- Discussion Board - *after completion*
- Virtual Class Recording - *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 2

Lesson 2 (2 days) - Investigation

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 1 (5 min) NAVIGATION Slide A - C	1. Share Lesson Slideshow with students. 2. Share Thinking Deeper Document with students.	VIRTUAL CLASS PRE-WORK: 1. Brainstorm how the parts of our body work together. 2. Reflect on how knowledge about how bones and muscle move could help explain why a person with an injured foot can't walk. 3. Brainstorm how using a chicken wing could help us figure out how the foot works.
Part 2 (20 min) INVESTIGATE SKIN, MUSCLES, AND BONES IN A CHICKEN WING Slides D - G		VIRTUAL CLASS PRE-WORK: 1. Compare the chicken wing to a human arm and record the similarities. 2. Watch the Chicken Wing Dissection Video and record observations. 3. Analyze the pictures and jot down any additional observations and questions.
Part 3 (10min) MAP THE CHICKEN WING STRUCTURES TO THE FOOT MODEL Slide H		VIRTUAL CLASS PRE-WORK: 1. Compare the chicken wing to the human foot and fill in the Mapping the Chicken Wing to Human Foot Chart.

<p>Part 4 REVISE OUR PARTS OF THE FOOT POSTER</p>	<p><i>Addressed in Virtual Class</i></p>	
<p>Part 5 (5 min) BRAINSTORM HOW TO REVISE THE INVESTIGATION Slides I - J</p>	<ol style="list-style-type: none"> 1. Assign Exit Ticket. 2. Review the responses from the exit ticket. 	<p>VIRTUAL CLASS PRE-WORK:</p> <ol style="list-style-type: none"> 1. Brainstorm how we could revise the dissection to resemble the injured foot. 2. Complete the Exit Ticket.

Day 2

Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Part 6 -9 (40 min)</p> <p style="text-align: center;">NAVIGATION</p> <p>INVESTIGATE SKIN, MUSCLES, AND BONES IN AN INJURED CHICKEN WING</p> <p>COMPARE THE INJURED WING TO THE INJURED FOOT</p> <p>BUILDING UNDERSTANDING DISCUSSION TO BEGIN THINKING ABOUT A BODY AS A SYSTEM</p> <p style="text-align: center;">Slides K - P</p>	<p>Prior to the virtual class, the teacher should:</p> <ol style="list-style-type: none"> 1. Create a Discussion Board so students can share predictions (consider that students may want to share drawings when choosing the platform). 2. Option to demonstrate the dissection of the injured chicken wing live rather than showing the video - remove the video on Slide N and provide Virtual Class video to students who were absent. 3. Add links to shared documents and modify directions as needed on the slideshow. <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> 1. Revisit and revise the parts of the foot poster to include the structures and functions of muscles, bones, and skin and rename “Parts of a Body”. 2. Share predictions on how the function of the chicken wing may be affected if the wing was injured on the discussion board. 3. Watch the Injured Chicken Wing Dissection Video or live teacher demonstration and record observations. 4. Reflect on both dissection investigations and compare the uninjured wing to the injured wing. Make note of anything that was similar on the timeline. 5. Discuss different systems (Solar System, Speaker System) and how the systems work together. 6. Record thoughts on if the body is a system and what parts work as a system. Share and Discuss. 	
<p>Part 10 (12 min)</p> <p>CREATE A PROGRESS TRACKER FOR THE UNIT</p> <p style="text-align: center;">Slide Q</p>		<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> 1. Reflect back on the lesson and complete the Progress Tracker.

Return to [Lesson Set Overview](#)

Lesson 3 (1 day) - Investigation

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Discussing Connections Discussion Board - *teacher made*

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Discussing Connections Diagrams Discussion Board - *teacher made*
- Discussion Board - *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- None

Lesson 3 (1 day) - Investigation

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 1 (5 min) NAVIGATION Slides A - B	1. Share Lesson Slideshow with students. 2. Share Thinking Deeper Document with students.	VIRTUAL CLASS PRE-WORK: 1. Reflect on the previous lesson. 2. Brainstorm ways medical professionals observe the inside of the body.
Part 2 (7 min) COMPARE MEDICAL IMAGES FOR PARTS OF THE BODY Slides C - F		VIRTUAL CLASS PRE-WORK: 1. Reflect on experience with MRIs and/or x-rays. 2. Examine MRI and X-Ray images to identify the parts of the body and circle the parts there are questions about. 3. Record observations of MRI's and X-Rays and reflect on what type of images would need help to understand inner body interactions.
Part 3 (3 min) DISCUSS CROSS-SECTIONAL IMAGES Slide G		VIRTUAL CLASS PRE-WORK: 1. Reflect back to the dissection of the speaker in the Forces at a Distance Unit and explain its importance.
Part 4 (7 min) EXAMINING CROSS-SECTIONAL IMAGES OF THE LEG Slides H - I		VIRTUAL CLASS PRE-WORK: 1. Examine MRI images of a leg and record notices/wonders. 2. Analyze side-by side MRI images and diagrams of the leg. Annotate with labels and question marks.

<p>Part 5 (7 min)</p> <p>LOOKING CLOSER AT THE SKIN, MUSCLE, AND BONE</p> <p>Slides J - K</p>		<p>VIRTUAL CLASS PRE-WORK:</p> <ol style="list-style-type: none"> 1. Analyze the images of skin, muscle, and bone. Jot down any new information learned and any patterns observed. 2. Look for connections between the Close-Up diagrams and the MRI Pictures. Add any additional labels the new structures identified.
<p>Part 6 (10 min)</p> <p>DISCUSS AND RECORD OBSERVED STRUCTURES</p> <p>Slides L - M</p>	<ol style="list-style-type: none"> 1. Create and share a discussion board (jamboard, shared document, etc) to post structures identified and patterns noticed in the skin, muscle, & bone. 	<p>DISCUSSION BOARD:</p> <ol style="list-style-type: none"> 1. Identify the structures and patterns noticed between the skin, muscle, & bone. Share on the Discussion Board. <p>VIRTUAL CLASS PRE-WORK:</p> <ol style="list-style-type: none"> 1. Reflect on the blood vessels and nerves and how they relate to the body system.
<p>Part 7 (3 min)</p> <p>NAVIGATION</p>	<p><i>Not addressed in the remote learning plan.</i></p>	

Return to [Lesson Set Overview](#)

Lesson 4 (3 days) - Investigation

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Looking Back Discussion Board - *teacher made*
- Looking Ahead Discussion Board - *teacher made*
- Circulatory System Discussion Board - *teacher made*
- Driving Question Board
- Word Wall
- [Exit Ticket](#) - *make your own copy before assigning*

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- [Blood Under Microscope interactive](#)
- Exit Ticket - *make your own copy before assigning*
- Looking Back Discussion Board - *teacher made*
- Looking Ahead Discussion Board - *teacher made*
- Circulatory System Discussion Board - *teacher made*
- Driving Question Board
- Word Wall
- [How to Use a Microscope](#) - *optional*
- Discussion Boards - *after completion*
- Virtual Class Recording- *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 2

Lesson 4 (3 days) - Investigation

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Part 1 (8 min)</p> <p>CONSIDER WHERE BLOOD IS IN OUR BONES</p> <p>Slides A - E</p>	<ol style="list-style-type: none"> 1. Share Lesson Slideshow with students. 2. Share Thinking Deeper Document with students. 3. Create and share a discussion board (jamboard, shared document, etc.) to post questions about blood. 	<p>DISCUSSION BOARD:</p> <ol style="list-style-type: none"> 1. Post questions about what blood on the discussion board. <p>VIRTUAL CLASS PRE-WORK:</p> <ol style="list-style-type: none"> 1. Study the image of the body and record observations. 2. Examine the 2 vials of blood record noticings. 3. Compare vinegar and oil salad dressing to the blood in the vials. 4. Brainstorm things that could be done to figure out what is in blood.
<p>Part 2 (10 min)</p> <p>PREPARE TO PRACTICE USING MICROSCOPES</p> <p>Slides F - J</p>		<p>VIRTUAL CLASS PRE-WORK:</p> <ol style="list-style-type: none"> 1. Reflect on what we would need to know about microscopes to use them to investigate blood. 2. Read about different types of lenses and magnification on the slideshow. 3. Observe images of different magnifications and jot down notice/wonders. 4. Examine an image to learn about focus and what an object will look like when it is in focus.

<p>Part 3 (12min)</p> <p>PRACTICE USING MICROSCOPES</p> <p>Slide K</p>	<p>Optional - How to Use a Microscope Video linked on Slide K</p>	<p>VIRTUAL PRE-WORK:</p> <ol style="list-style-type: none"> Using what was learned about microscopes, answer questions to check for understanding.
<p>Part 4 (15min)</p> <p>BUILDING UNDERSTAND DISCUSSION ABOUT SCALE</p> <p>Slides L - M</p>	<ol style="list-style-type: none"> Create and share a discussion board (jamboard, shared document, etc.) to post thoughts on how using a microscope could help investigate blood. 	<p>VIRTUAL PRE-WORK:</p> <ol style="list-style-type: none"> Reflect back about how to use a microscope and what was noticed about how what things look like changed with magnification. <p>DISCUSSION BOARD:</p> <ol style="list-style-type: none"> Post on the discussion board how using a microscope could help us to figure out more about blood.

Day 2

Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Parts 5 - 7 (45 min)</p> <p>PREPARE TO INVESTIGATE BLOOD WITH A MICROSCOPE</p> <p>INVESTIGATE BLOOD WITH A MICROSCOPE</p> <p>SHARE OBSERVATIONS OF BLOOD</p> <p>Slides N - U</p>	<p>Prior to the virtual class, the teacher should:</p> <ol style="list-style-type: none"> 1. Prepare to demonstrate the microscope investigation live. **If the teacher does not have access to a microscope, Blood Under a Microscope (linked on Slide P) can be used** 2. Prepare to assign the Exit Ticket at the end of the Virtual Class meeting. <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> 1. Answer questions to prepare for the blood investigation. 2. Teacher reviews the different parts of a microscope and explains how magnification works. 3. Teacher demonstrates an investigation to compare human blood to animal blood under a microscope. While the teacher is conducting the investigation, the students are jotting down their observations of the human blood and animal blood at different magnifications. 4. Reflect on observations and record comparison of the blood under the microscope to without the microscope. 5. Share similarities and differences between the human blood to the animal blood and identify any patterns that were seen. 6. Share their observations of the blood (human and animal) under the different magnifications. 7. Complete and submit the Exit Ticket. 	

Day 3

Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Part 8 (15 min)</p> <p>READ ABOUT BLOOD</p> <p>Slides V - W</p>		<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> 1. Reflect on what patterns we noticed about blood last time. 2. Read an article to find out what structures are in blood and what they do for the body. 3. Fill out guidance as reading.
<p>Part 9 (15 min)</p> <p>BUILDING UNDERSTANDINGS DISCUSSION ABOUT BLOOD</p> <p>Slides X - Z</p>	<ol style="list-style-type: none"> 1. Create and share a discussion board for students to share their meaning of the circulatory system. (add to Word Wall) 	<p>VIRTUAL CLASS POST-WORK/DISCUSSION BOARD:</p> <ol style="list-style-type: none"> 1. Use ideas from the article to make sense of the patterns we saw in the blood samples. 2. Compare the picture that was labeled in the reading with slide Y. 3. Share ideas about what the circulatory system is on the discussion board.
<p>Part 10 (15 min)</p> <p>UPDATE PROGRESS TRACKER AND REVISIT THE DQB</p> <p>Slides AA -BB</p>	<ol style="list-style-type: none"> 1. Ensure students can access the DQB (If there is no more space, consider providing a new page on the Jamboard or new shared document. Option to create a discussion board for students to share new questions and the teacher adds them to the DQB - modify instructions on Slide BB as needed.) 2. Organize the DQB with new questions and ensure students have access to the updated version. 	<p>VIRTUAL CLASS POST WORK/DISCUSSION BOARD:</p> <ol style="list-style-type: none"> 1. Reflect on and record what we figured out about blood. 2. Submit new questions to the driving question board.

Return to [Lesson Set Overview](#)

Lesson 5 (2 days) - Investigation

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- [Exit Ticket](#) - *make your own copy before assigning*
- Parts of the Body Poster
- Word Wall
- Nervous System Discussion Board - *teacher made*

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- [Exit Ticket](#) - *make your own copy before assigning*
- [Nerve Images](#)
- Word Wall
- Nervous System Discussion Board - *teacher made*
- Discussion Board - *after completion*
- Virtual Class Recording - *after completion*
- Parts of the Body Poster - *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 1

Lesson 5 (2 days) - Investigation

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Parts 1-4 (45 min) NAVIGATION DETERMINE NEXT STEPS OBSERVE MICRO-SCALE NERVE SAMPLES NAVIGATION Slides A-I	<p>Prior to the virtual class, the teacher should:</p> <ol style="list-style-type: none"> 1. Determine if you will use real time microscope pictures or use the interactive linked on slide and modify slideshow directions as needed. 2. Ensure students have access to the Parts of the Body Poster. 3. Share Lesson Slideshow and Thinking Deeper Document with students. <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> 1. Facilitate a class discussion to revisit what we have figured out about the role of blood in the body and update parts of the body poster. Reflect on whether we could use the same tools to investigate nerves. 2. Share what we know about nerves. 3. Make a prediction about whether or not nerves will look like blood under a microscope. 4. Use microscopes and pre-prepared slides (or the interactive linked on Slide G if a microscope is not available) to observe basic structure of nerve cells and document observations. 5. Share observations and make comparisons to the structure of blood cells. 6. Summarize what we have observed and determine the next steps. 	

Day 2

Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 5 (4 min) NAVIGATION Slide J		VIRTUAL CLASS POST WORK: 1. Review observations of nerves and their role in the body.
Part 6 (18 min) OBTAIN INFORMATION FROM TEXT Slide K		VIRTUAL CLASS POST-WORK: 1. Use a scaffolding tool to help gather information from a reading about structure and function of nerves and nervous system.
Part 7 (16 min) CONDUCT A BUILDING UNDERSTANDING DISCUSSION Slides L-M		VIRTUAL CLASS POST-WORK/DISCUSSION BOARD: 1. Use information from the reading to answer Building Understandings questions. 2. Share ideas about the definition of Nervous System to the discussion board.
Part 8 (7 min) UPDATE PROGRESS TRACKER AND REVISIT DRIVING QUESTION BOARD Slides N-O	1. Share Exit Ticket with students. 2. Review responses from exit tickets.	VIRTUAL CLASS POST-WORK: 1. Reflect on and record what we figured out about nerves. 2. Complete Exit Ticket and submit.

Return to [Lesson Set Overview](#)

Lesson 6 (1 day) - Investigation

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Parts of a Body Poster
- Investigation Questions Discussion Board - *teacher made*
- Consensus Model
- Word Wall

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Parts of a Body Poster - *after completion*
- [Images of Skin, Bone, and Muscle with a Microscope](#)
- [Skin, Muscle, and Bone Interactive](#)
- Word Wall
- Virtual Class Recording - *after completion*
- Investigation Questions Discussion Board - *teacher made*
- Discussion Board - *after completion*
- Consensus model - *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 1

Lesson 6 (1 day) - Investigation

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Parts 1 -3 (42 min)</p> <p>NAVIGATION</p> <p>INVESTIGATE SKIN, BONE, AND MUSCLE WITH A MICROSCOPE</p> <p>CONSENSUS DISCUSSION ABOUT STRUCTURE AND FUNCTION</p> <p>Slides A-I</p>	<p>Prior to the virtual class, the teacher should:</p> <ol style="list-style-type: none"> 1. Determine if you will use real time microscope pictures or use the interactive linked on the slide and modify slideshow directions as needed. 2. Create a discussion board (jamboard, shared document, etc.) for students to share investigation questions. 3. Share parts of body parts poster and consensus model. 4. Share Lesson Slideshow and Thinking Deeper Document with students. <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> 1. Recall how microscopes have helped us investigate blood and nerves, and discuss how they could help us figure out what skin, bone, and muscle are made of. 2. Update Parts of Body Poster and consensus model. 3. Predict what we think we will see when looking at muscle, skin, and bone under the microscope. 4. Come up with an investigating question and share it to the discussion board. 5. Discuss procedure with class and demonstrate using the microscope and slides of human, skin, bone, and muscle, providing images to students. 6. Students document their observations. 7. Discussion to have students use their observational data to come to a consensus around how cell's unique structures support their functions in the body. 8. As discussed, add words cell, tissue, and structure to the word wall. 9. Update Parts of a Body Poster. 10. Update consensus model. 	

<p>Part 4 (8 min)</p> <p>UPDATE PROGRESS TRACKERS</p> <p>Slide J</p>		<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none">1. Reflect on and record what we figured out about cells and their structure/function relationship.
--	--	---

Return to [Lesson Set Overview](#)

Lesson 7 (2 days) - Putting the Pieces Together

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Healing Timeline
- Parts of Body Poster
- Gotta-Have-It Checklist Discussion Board - *teacher made*
- Thinking Deeper Document from Lessons 1-6
- [Mysterious Object: Argue From Evidence](#) - *make your own copy before assigning*
- Driving Question Board

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Healing Timeline
- Gotta-Have-It Checklist Discussion Board - *teacher made*
- Discussion Board - *after completion*
- Thinking Deeper Document from Lessons 1-6
- Parts of Body Poster
- Driving Question Board- *after completion*
- [Mysterious Object Pictures](#)
- [Mysterious Object Interactive](#)
- [Mysterious Object: Argue From Evidence](#) - *make your own copy before assigning*
- Virtual Class Recording- *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 2

Lesson 7 (2 days) - Putting the Pieces Together

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 1 (5 min) NAVIGATION Slide A	<ol style="list-style-type: none"> 1. Share Lesson Slideshow with students. 2. Share Thinking Deeper Document with students. 3. Create and share a discussion board (jamboard, shared document, etc.) to share ideas from the Gotta-Have-It Checklist. 4. Share the healing timeline and parts of the body poster. 	VIRTUAL CLASS PRE-WORK: <ol style="list-style-type: none"> 1. Reflect on what we figured out about bone, skin, and muscle.
Part 2 (20 min) BUILD A GOTTA-HAVE-IT CHECKLIST Slides B -C		VIRTUAL CLASS PRE-WORK/DISCUSSION BOARD: <ol style="list-style-type: none"> 1. Review previous work to decide which ideas we need to explain how a healed or injured foot functions. 2. Create a Gotta-Have-It Checklist. 3. Share ideas to a discussion board.
Part 3 (10 min) EXPLORE A MYSTERIOUS PHENOMENON Slides D - E		VIRTUAL CLASS PRE-WORK: <ol style="list-style-type: none"> 1. Examine pictures of a mysterious object that washed up on the beach. 2. Record notices and wonders.
Part 4 (10min) PLAN AN INVESTIGATION & REFLECT ON NORMS Slides F-G		VIRTUAL CLASS PRE-WORK: <ol style="list-style-type: none"> 1. Plan an investigation to determine what the mysterious object is using what we figured out about the parts of the human body. 2. Choose a norm to focus on for the virtual class meeting.

Day 2

Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Parts 5 -8 (45 min)</p> <p>CARRY OUT AN INVESTIGATION TO IDENTIFY THE OBJECT</p> <p>ARGUE FROM EVIDENCE ABOUT THE IDENTITY OF THE MYSTERIOUS OBJECT</p> <p>REVISIT THE DRIVING QUESTION BOARD AND DRIVING QUESTION</p> <p>NAVIGATION</p> <p>Slides H - K</p>	<p>Prior to the virtual class, the teacher should:</p> <ol style="list-style-type: none"> 1. Prepare to deliver the assessment (Mysterious Object: Argue From Evidence) to students during the class meeting. 2. Remind students that they will need their TDDs from Lessons 1-6. 3. Ensure students have access to the Driving Question Board. <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> 1. Discuss ideas of the plans to investigate the mystery object. 2. Observe images to determine if the mysterious object is similar to humans. 3. Share and discuss observations. 4. Work individually to argue from evidence about the identity of the object based on similarities to human body systems and structures. 5. Revisit the driving question board to determine what questions we have answered, questions we haven't answered, and to add any new questions. 	

Return to [Lesson Set Overview](#)

Lesson 8 (1 day) - Problematizing/Investigation

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Driving Question Board – *teacher made*
- Healing Timeline – *teacher made*
- Word Wall – *teacher made*
- Consensus Model: Different Skin Healing Predictive Models - *teacher made*

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Driving Question Board – *alternative way to submit questions and after completion*
- Healing Timeline - *teacher made*
- [Skin Healing Video](#)
- Word Wall
- Virtual Class Recording - *after completion*
- Consensus Model: Different Skin Healing Predictive Models - *teacher made*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 1

Lesson 8 (1 day) - Problematizing/Investigation

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Parts 1 - 4 (45 min) NAVIGATION REVISE OUR DEFINITION OF HEALING OBSERVE A TIME-LAPSE VIDEO OF SKIN HEALING REVISE OUR MODEL OF SKIN HEALING NAVIGATION Slides A – I	<p>Prior to the virtual class, the teacher should:</p> <ol style="list-style-type: none"> 1. Share Lesson Slideshow and Thinking Deeper Document with students. 2. Ensure students have access to the Driving Question Board, Healing Timeline, and Word Wall. 3. Determine how you want students to share their models of healing (provide screenshots on a shared doc, screenshare in breakout groups, etc.) and make necessary preparations. <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> 1. Revisit the Driving Question Board and Healing Timeline to re-anchor where we are going based on our questions and what we have figured out so far. 2. Add any new questions to the Driving Question Board. 3. Revise our definition of biological healing based on what we figured out. 4. Observe video of skin healing after a bike crash and record observations. 5. Individually model how healing happens, then share models. 6. Discuss models and create a class model called Different Skin Healing Predictive Models. 	

Return to [Lesson Set Overview](#)

Lesson 9 (1 day) – Investigation

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Consensus Model: Different Skin Healing Predictive Models
- Definitions Discussion Board - *teacher made*
- Word Wall

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Consensus Model: Different Skin Healing Predictive Models
- Definitions Discussion Board - *teacher made*
- [Video 1 of Mammalian Cells](#)
- [Video 2 of Mammalian Cells](#)
- [Video 3 of Mammalian Cells](#)
- Discussion Board - *after completion*
- Word Wall - *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- None

Lesson 9 (1 day) – Investigation

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 1 (7 min) NAVIGATION Slide A	<ol style="list-style-type: none"> 1. Share Lesson Slideshow with students. 2. Share Thinking Deeper Document with students. 	VIRTUAL CLASS PRE-WORK: <ol style="list-style-type: none"> 1. Revisit the Skin Healing Predictive Model to review and reflect on our ideas for what is happening in the gap of the skin.
Part 2 (7 min) INTRODUCE VIDEOS OF CELLS SPLITTING Slides B - D	<ol style="list-style-type: none"> 1. Setup discussion board (jamboard, shared document, etc.) so students can share their definitions of cell membrane and update the word wall based on students' submissions. 	VIRTUAL CLASS PRE-WORK/DISCUSSION BOARD: <ol style="list-style-type: none"> 1. Watch a video 1 of mammalian cells splitting. 2. Record notices and wonders. 3. Come up with the meaning of cell membrane and share on the discussion board.
Part 3 (7 min) PLAY VIDEO #2 OF CELLS SPLITTING Slides E - F		VIRTUAL CLASS PRE-WORK: <ol style="list-style-type: none"> 1. Zoom in and observe a second video of mammalian cells splitting. 2. Record notices and wonders about cells multiplying under higher magnification.
Part 4 (10 min) PLAY VIDEO #3 OF CELLS SPLITTING Slides G - J	<ol style="list-style-type: none"> 1. Use previous discussion board and create a new thread or create a new discussion board so students can share their definitions of nucleus and chromosome and update the word wall based on students' submissions. 	VIRTUAL CLASS PRE-WORK/DISCUSSION BOARD: <ol style="list-style-type: none"> 1. Watch a video 1 of mammalian cells splitting. 2. Record notices and wonders. 3. Come up with the meaning of cell membrane and share on the discussion board.

<p>Part 5 (8 min)</p> <p>ADD TO PROGRESS TRACKER</p> <p>Slide K</p>		<p>VIRTUAL CLASS PRE-WORK:</p> <ol style="list-style-type: none"> 1. Reflect on and record what we figured out about what happens at the site of injury to fill a gap.
<p>Part 6 (3 min)</p> <p>NAVIGATION</p>		<p>VIRTUAL CLASS PRE-WORK:</p> <ol style="list-style-type: none"> 1. Reflect on what we figured out about cells and consider what cells need to keep making copies of themselves in order to fill the gaps.

Return to [Lesson Set Overview](#)

Lesson 10 (2 days) - Investigation

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Jig-saw Readings: [Algae](#), [Yeast](#), [Bacteria](#), [Archaea](#)
- Jig-saw Readings Discussion Board - *teacher made*
- Definitions Discussion Board – *teacher made*
- [Lesson 10 Assessment](#)

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- [Pouring Agar Video](#)
- [Cooled Agar Video](#)
- [Streaking E. Coli Video](#)
- Jig-saw Readings: [Algae](#), [Yeast](#), [Bacteria](#), [Archaea](#)
- Jig-saw Readings Discussion Board - *teacher made*
- Definitions Discussion Board – *teacher made*
- Discussion Boards - *after completion*
- [Lesson 10 Assessment](#)

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 1

Lesson 10 (2 days): Investigation

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Parts 1 - (33 min)</p> <p>NAVIGATION</p> <p>INTRODUCE BACTERIA AND SHARE INITIAL IDEAS ABOUT THEM</p> <p>REVIEW A PROCEDURE TO INVESTIGATE HOW BACTERIA RESPONDS TO DIFFERENT NUTRIENT LEVELS</p> <p>ANALYZE SECOND-HAND DATA FOR E. COLI GROWTH</p> <p>Slides A - M</p>	<p>Prior to the virtual class, the teacher should:</p> <ol style="list-style-type: none"> 1. Share Lesson Slideshow and Thinking Deeper Document with students. 2. Determine how to assign students for jig-saw readings and plan accordingly. 3. Setup discussion board (jamboard, shared document, etc.) so students can post a summary about the jigsaw reading. <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> 1. Recall what cells might need to grow and make new cells and consider where they might get those things. 2. Discuss what we know about bacteria. 3. Look at bacteria and human cells and compare them. 4. Propose investigation ideas about bacteria. 5. Introduce agar and watch the videos pouring agar and cooled agar. 6. Calculate nutrient percentage of agar so we can compare them. 7. Watch the investigation procedure streaking E. Coli video. 8. Show investigate step 3 and predict outcomes of what you think will happen in the investigation. 9. Analyze data for the growth of E.coli on agar with different nutrient levels. 10. Assign jigsaw reading: Archaea, Bacteria, Yeast, or Algae and discussion board 	
<p>Part 5 (12 min)</p> <p>ABOUT DIFFERENT SINGLE-CELLED ORGANISMS</p> <p>Slides N - P</p>	<ol style="list-style-type: none"> 1. Review discussion board submissions and facilitate discussion as needed. 	<p>VIRTUAL CLASS POST-WORK/DISCUSSION BOARD:</p> <ol style="list-style-type: none"> 1. Read and analyze the assigned reading and fill out reading guide. 2. Answer questions about reading and post summary to the discussion board.

Day 2

Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 6 (10 min) DISCUSS THE READING IN JIGSAW Slide Q		VIRTUAL CLASS POST-WORK: 1. Read through the discussion board about single-celled organisms. 2. Answer questions and write a summary for each article.
Part 7 (13 min) BUILDING UNDERSTANDINGS DISCUSSION ABOUT MULTI-AND UNICELLULAR ORGANISMS Slide R & S	1. Create and share a discussion board (jamboard, shared document, etc.) for students to share definitions and update the word wall based on students' submissions.	VIRTUAL CLASS POST-WORK/DISCUSSION BOARD: 1. Use the information from the reading and the investigation data to compare and contrast the structures and functions of unicellular and multicellular organisms. 2. Add to the discussion board the definitions single celled organisms and multiple celled organisms.
Part 8 (10 min) READ ABOUT THE LIFESPAN OF CELLS Slide T		VIRTUAL CLASS POST-WORK: 1. Read and annotate the reading Lifespan of Cells.
Part 9 (5 min) UPDATE PROGRESS TRACKER Slide U		VIRTUAL CLASS POST-WORK: 1. Reflect on and record what we figured out about what cells need to make more cells, whether they are single-celled or multi-celled organisms.

<p>Part 10</p> <p>WRITE AN ARGUMENT ABOUT WHAT CELLS WOULD NEED TO HEAL THE WOUND</p> <p>Slide V</p>	<ol style="list-style-type: none">1. Provide students with assessment.2. Review assessment and provide feedback as needed.	<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none">1. Construct a written argument about what cells would need to heal a wound.
--	---	--

Return to [Lesson Set Overview](#)

Lesson 11 (1 day) - Investigation

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Word Wall

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- [Investigating Red Onion Skin](#)
- [Observing Red Onion Skin Interactive](#)
- [Observing Plant and Animal Cells Interactive](#)
- Word Wall
- Virtual Class Recording- *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 1

Lesson 11 (1 day) – Investigate

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Parts 1 - 4 (38 min)</p> <p>NAVIGATION</p> <p>COLLABORATIVELY PLAN AN INVESTIGATION TO OBSERVE HOW THINGS CAN GET IN AND OUT OF CELLS</p> <p>INVESTIGATE STRUCTURES IN RED ONION CELLS</p> <p>CONDUCT A BUILDING UNDERSTANDING DISCUSSION</p> <p>Slides A - I</p>	<p>Prior to the virtual class, the teacher should:</p> <ol style="list-style-type: none"> 1. Share Lesson Slideshow and Thinking Deeper Document with students. 2. Determine if you will use real time microscope pictures or use the interactive linked on slide and modify slideshow directions as needed. <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> 1. Revisit what we have figured out about what cells need to grow and to make more cells. 2. Think about and discuss previous investigations to determine ways to investigate how things can get in and out of cells. 3. Investigate red onion cell samples under the microscope. Observe changes in cells when water and water and salt are added. 4. Document observations to use as evidence to figure out how things get in and out of the cells. 5. Use observations to make sense of what happened when water and salt were added to the cells. 6. Compare images of animal and plant cells. 7. Add to the word wall the words cytoplasm, cell membrane, and cell wall. 	
<p>Part 5 (7 min)</p> <p>UPDATE PROGRESS TRACKER</p> <p>Slide J</p>		<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> 1. Develop a model to show what we figured out about how cells get what they need to grow.

Return to [Lesson Set Overview](#)

Lesson 12 (2 days) - Putting Pieces Together

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Healing Timeline
- Read a Report from a Doctor Discussion Board - *teacher made*
- What Happens Inside the Body Discussion Board - *teacher made*
- Shared Healing Timeline Chart – *teacher made*
- Consensus Model
- Parts of a Body Poster
- Related Phenomena Poster

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Healing Timeline
- Read a Report from a Doctor Discussion Board - *teacher made*
- What Happens Inside the Body Discussion Board - *teacher made*
- Consensus Model
- Parts of a Body Poster
- Related Phenomena Poster
- Shared Healing Timeline Chart – *teacher made, after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 2

Lesson 12 (2 days) - Putting Pieces Together

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 1 (8 min) NAVIGATION Slide A	<ol style="list-style-type: none"> 1. Share Lesson Slideshow and Thinking Deeper Document with students. 2. Share teacher-made healing timeline. 3. Share teacher-made Parts of a Body Poster. 	VIRTUAL CLASS PRE-WORK: <ol style="list-style-type: none"> 1. Decide what events we can explain on our timeline.
Part 2 (5 min) INITIAL IDEAS DISCUSSION ABOUT SWELLING Slides B - C		VIRTUAL CLASS PRE-WORK: <ol style="list-style-type: none"> 1. Look at images of swelling and document notice and wonders.
Part 3 (7 min) BUILDING UNDERSTANDING DISCUSSION ABOUT SWELLING Slides D - F	<ol style="list-style-type: none"> 1. Create and share a discussion board for students to share ideas about swelling and healing. 2. Review student submissions and facilitate discussion as needed. 	VIRTUAL CLASS PRE-WORK/DISCUSSION BOARD: <ol style="list-style-type: none"> 1. Make sense of how swelling is related to healing using doctor notes and prior knowledge. 2. Share on the discussion board and determine what was figured out about swelling.
Part 4 (15 min) DEVELOP EXPLANATIONS FOR HOW HEALING HAPPENS Slide G		VIRTUAL CLASS PRE-WORK: <ol style="list-style-type: none"> 1. Explain events on our healing timeline.

<p>Part 5 (10 min) SHARE HOW HEALING HAPPENS EXPLANATIONS Slide H</p>	<p>1. Have students submit their TDD's. Copy and paste explanations and evidence into a shared timeline chart document for use at the beginning of class.</p>	<p>VIRTUAL CLASS PRE-WORK:</p> <ol style="list-style-type: none"> 1. Explain the final event on our timeline about walking on crutches. 2. Submit the TDD.
---	---	--

Day 2		
Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Parts 6 - 9 (42 min)</p> <p>CONSENSUS DISCUSSION ABOUT HEALING</p> <p>CREATE A CONSENSUS MODEL & REVISIT OUR RELATED PHENOMENA</p> <p>INDEPENDENTLY MODEL HEALING IN A RELATED PHENOMENON EXAMPLE Slides I - L</p>	<p>Prior to the virtual class, the teacher should:</p> <ol style="list-style-type: none"> 1. Ensure students have access to the teacher-made healing timeline, parts of a body poster, and related phenomena poster. 2. Compile student explanations and evidence on a class chart to share at the beginning of class. <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> 1. The class works together to notice patterns they have in their how healing happened charts. 2. Consensus Discussion about healing and co-construct a Gotta-Have-it- Checklist. 3. Co-construct a model of the foot healing. 4. Consider which of the examples of healing on our Related Phenomena poster we think we can now explain. 5. Individually select an example of healing from the class list of related phenomena and develop a model to explain how healing happened in that situation. <i>(Option to have students turn their models in for formative assessment opportunity)</i> 	
<p>Part 10 (3 min) NAVIGATION AND HOME LEARNING Slide M</p>		<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> 1. Ask family and/or community members about how they have supported healing.

Return to [Lesson Set Overview](#)

Lesson 13 (1 day) – Investigation

**Note that an adjustment has been made to allow students more time to work on their presentations by making this an asynchronous and independent assignment. There is an option to extend the virtual class and allow students to work in groups on the presentations as originally designed if your platform allows break-outs and you will have enough time. If choosing to make this adjustment, make needed modifications to instructions on the slideshow and/or TDD before sharing with students. **

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Methods of Healing Presentation Discussion Board - *teacher made*
- Methods that Support Healing Poster
- Word Wall

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Methods of Healing Presentation Discussion Board - *teacher made, alternate way of submitting the presentation to be shared*
- Discussion Board – *after completion*
- Methods that Support Healing Poster - *after completion*
- Word Wall

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 1

Lesson 13 (1 day) - Investigation

Day 2		
Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Part 1 (22 min)</p> <p>NAVIGATION: COMPARE HEALING STORIES AND METHODS</p> <p>Slides A - E</p>	<p>Prior to virtual class, teachers should:</p> <ol style="list-style-type: none"> 1. Create a discussion board (shared document, flipgrid, etc.) where students can post their presentations and modify directions as needed for the presentation. 2. Share Lesson Slideshow and Thinking Deeper Document with students. 3. Ensure students have access to the word wall. <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> 1. Reflect on different ways we can support the healing process as students share home learning. 2. Discuss and create a list of different healing methods. 3. Recall our definition of biological healing. 4. Categorize healing methods. 5. Discuss presentation guidelines and instructions for post-work. 	
<p>Part 2 (15 min)</p> <p>HOW DO THESE METHODS SUPPORT THE HEALING PROCESS?</p> <p>Slides E – F</p>	<ol style="list-style-type: none"> 1. Review student presentations and feedback. 2. Facilitate discussion as needed. 	<p>VIRTUAL CLASS POST-WORK/DISCUSSION BOARD</p> <ol style="list-style-type: none"> 1. Create a presentation on a chosen healing method and share on the discussion board. 2. Read through other presentations and complete peer feedback self-assessment. 3. Revisit the class definition of healing.

<p>Part 3 (7 min)</p> <p>REVISIT OUR DEFINITION OF HEALING</p> <p>Slide G</p>		<p>VIRTUAL CLASS POST-WORK</p> <ol style="list-style-type: none"> 1. Add to the definition of healing.
<p>Part 4 (1 min)</p> <p>NAVIGATION AND SELF-ASSESSMENT</p> <p>Slide H</p>	<p><i>Omitted in remote learning plan – option to use feedback self-assessment at the beginning of Virtual Class in Lesson 14.</i></p>	

Return to [Lesson Set Overview](#)

Lesson 14 (2 days) - Putting Pieces Together

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Noticings About Bones From Different-Aged People Poster
- [Growth Summative Assessment](#)
- Driving Question Board
- DQB Reflection Discussion Board - *teacher made*

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Noticings About Bones From Different-Aged People Poster
- [Growth Summative Assessment](#)
- Driving Question Board
- DQB Reflection Discussion Board - *teacher made*
- Discussion Board - *after completion*
- Virtual Class Recording - *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 1

Lesson 14 (2 days) - Putting Pieces Together

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Part 1 (20 min)</p> <p>DISCUSS HOW THE BONES OF YOUNG CHILDREN ARE DIFFERENT THAN OLDER CHILDREN/ADULTS</p> <p>Slides A - G</p>	<p>Prior to the virtual class, the teacher should:</p> <ol style="list-style-type: none"> 1. Share Lesson Slideshow and Thinking Deeper Document with students. <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> 1. Introduce a context for a new phenomenon to investigate using what we have figured out so far. 2. Make notices and wonders about x-rays of bones from people of various ages. 3. Teacher will create a poster titled Noticings About Bones from Different-aged People and record as students share. 4. Name the growth plates and make predictions about them. 5. Examine an image of growth plates throughout the body. 	
<p>Part 2 (25 min)</p> <p>DEMONSTRATE UNDERSTANDING ON AN ASSESSMENT</p> <p>Slide H</p>	<ol style="list-style-type: none"> 1. Share assessment with students. 2. Review student assessments and provide feedback as needed. 	<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> 1. Complete assessment about healing to explain how the growth process may happen in the body.

Day 2

Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Part 3 (20 min)</p> <p>CLOSE OUT OUR DRIVING QUESTION BOARD</p> <p>Slides I - J</p>	<ol style="list-style-type: none"> 1. Share Driving Question Board. – ensure that students have editing access in order to add virtual sticky notes 2. Create and share a discussion board where students can share what we figured out, what new questions do we have. 	<p>VIRTUAL CLASS POST-WORK/DISCUSSION BOARD:</p> <ol style="list-style-type: none"> 1. Look at DQB and determine what questions we have made progress on. 2. Reflect on what we have figured out and what new questions we have by sharing on the discussion board.
<p>Part 4 (5min)</p> <p>ADD TO OUR PROGRESS TRACKER</p> <p>Slide K</p>		<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> 1. Reflect on what we learned.
<p>Part 5 (20 min)</p> <p>CELEBRATE ACCOMPLISHMENTS AND REFLECT ON THE UNIT AND YEAR</p> <p>Slide L</p>		<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> 1. Reflect on what was challenging and rewarding about this unit and year.

Return to [Lesson Set Overview](#)