

Project Planning Form

Name of Project:	Cell	Duration: 5 weeks?
Class(es):	7 th grade science	Semester: 1 st
Content/Curriculum areas to partner with	N/A	
Project Idea (investigation, scenario, problem, challenge, issue, etc.)	Create a PSA about a disease. Along with your PSA, create an informational wiki/prezi that includes name of disease, symptoms of the disease, causes of the disease, how the disease is spread, how it can be prevented, medical treatments of the disease and how the disease is either caused by a certain cell and/or the effects of the disease on human cells. (wiki webpage, prezi)	
Entry Event (grabber) to launch inquiry and spark curiosity	As we begin our unit, we will start with a discussion about diseases that we have heard of, possible symptoms and possible causes. A few students will unknowingly have glogerm powder given to them. At the end of class, we will get out the black lights and see who “caught” the disease. (Activity 48) Resource: http://www.youtube.com/watch?v=qKiQA5e-fPg	
The Driving Question, Problem or Challenge Statement or Issue	What is the connection between cells and diseases? If students demonstrate understanding, how might this question be expanded to problem solving and an audience beyond the class? For example: How might we reduce the spread of disease during this next winter season? --with this question, the original question becomes a Guiding Question that must be answered in order to address the larger community-based question.	
Content and Skills Standards addressed:	S.IA.M.1 Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations. L.OL.07.21 Recognize that all organisms are composed of cells (single cell organisms, multicellular organisms). L.OL.07.22 Explain how cells make up different body tissues, organs, and organ systems. L.OL.07.23 Describe how cells in all multicellular organisms are specialized to take in nutrients, which they use to provide energy for the work that cells do and to make the materials that a cell or organism needs. L.OL.07.24 Recognize that cells function in a similar way in all organisms	

		T	P			T	P
Partnership for P21 Skills to be taught (T) and practiced (P): Check all that apply	Critical Thinking/Problem Solving	x	x	Social Literacy and Cross/Multi-Cultural Literacy		<input type="checkbox"/>	<input type="checkbox"/>
	Communication (oral and written)	x	x	Productivity and Accountability		<input type="checkbox"/>	x
	ICT Literacy	<input type="checkbox"/>	<input type="checkbox"/>	Leadership and Responsibility		<input type="checkbox"/>	x
	Collaboration	x	x	Financial, Economic and Entrepreneurial literacy		<input type="checkbox"/>	<input type="checkbox"/>
	Information Literacy	x	x	Civic Literacy		<input type="checkbox"/>	<input type="checkbox"/>
	Flexibility and Adaptability	<input type="checkbox"/>	<input type="checkbox"/>	Health Literacy		x	X
	Initiative and Self-Direction	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
						Presentation Audience	
Student work	Major group product(s):	Wiki Webpage or Prezi				Class	†
	Major individual product(s):	Cell Membrane Scientific Explanation (CER)				School	†
						Community	†?
						Experts	†x
						Web	
						Other	
Assessment & Reflection	Rubric(s) I'll use (check all that apply)	Collaboration	x	Content Knowledge	x		
		Critical Thinking	<input type="checkbox"/>	CTE Competencies	<input type="checkbox"/>		
		Oral Communication	<input type="checkbox"/>	Physical Education skills	<input type="checkbox"/>		
		Written Communication	<input type="checkbox"/>	Physical Education skills	<input type="checkbox"/>		
		Visual/Performing Arts	<input type="checkbox"/>		<input type="checkbox"/>		
	Other assessments, benchmarks & checkpoints (check all that apply)	Quizzes/tests	x	Practice presentations	<input type="checkbox"/>		
		Self-evaluations	x	Notes	x		
		Peer evaluations	x	Checklists	x		
		On-line tests/exams	<input type="checkbox"/>	Concept Maps	x		
		Reflections	Survey	?	Focus group	<input type="checkbox"/>	
	Discussion		<input type="checkbox"/>	Learning plan	<input type="checkbox"/>		
	Journal write/learning log		<input type="checkbox"/>		<input type="checkbox"/>		

Resources		
Resources	On-site personnel:	
	Technical (equipment)	Lap Top carts (2-3?)
	Community resources	Kent County Health Department (?) DeVos Children's Hospital (?), VanAndel Institute (?)
	Material resources	

PROJECT TEACHING AND LEARNING GUIDE

Project:	Course/Semester: 1st Semester
Knowledge and Skills Needed by Students to successfully complete culminating products and performances, and do well on summative assessments	Scaffolding / Materials / Lessons to be Provided by the project teacher, other teachers, experts, mentors, community members
Use of a Microscope	→ Drawing of a microscope, model parts of a microscope while labeling, flow map detailing how to make a wet mount slide, Guided and Individual practice on use of microscope quiz, Parts of a microscope quiz, earning a “Microscope License” (activity 35-36)
Parts of a Cell	→ Cell Membrane Lab, Pictures of different cells, Microscope drawings of plant, animal and protest cell (noticing similarities and differences, activity 38) Textbook Reading (activity 42), Web Resources (http://www.cellsalive.com/cells/cell_model.htm)
Classifying Cells (Bacteria, Protist, Fungi, Plant, Animal)	→ Textbook Reading (activity 42), Microbes under view (activity 43) Who’s Who (Activity 44-students sort cards into categories and check their sorting based on scientific descriptions of cells of different kingdoms). Guided practice completing a Tree Map. Textbook reading (activity 45)
Cell Functions	→ Cell Membrane Lab, Textbook reading (activity 42), Cells Alive (activity 39-cellular respiration), A cell so small (activity 41-small size increases rate at which particles pass through cell membrane)
Function of Human Immune System and Antimicrobial Drugs	→ Disease Fighters (Activity 46-Immune System/WBCs), Reducing Risk (Activity 47 –bacterial growth/antimicrobial solns) An ounce of prevention (activity 49-reading/how vaccinations work)

Online Research Skills	→ Laptops, Modeling Search Engines, Citing online resources
Prezi	→ Online Tutorials, Examples, Guided Practice, Independent Practice
Wiki	Online Tutorials, Examples, Guided Practice, Independent Practice
Knowing and following Group Norms	Teambuilding Activities, Murder Mystery Investigation (Group norms + Claim, Evidence, Reasoning), Guided Practice, Independent Practice, Videos (?)

P R O J E C T C A L E N D A R

Project: Cells

Start Date: September 12, 2011

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

P R O J E C T W E E K O N E

See following plans. I was asked to create lessons using GRPS lesson planning templates for all teachers to access.

P R O J E C T W E E K T W O

P R O J E C T W E E K T H R E E

<p style="text-align: center;">Lesson Design: Careful construction of lessons to remove barriers and provide assess for all students.</p>	<p style="text-align: center;">Checkpoints: Includes</p>
<p>Lessons will include readings, hands-on activities, modeling, drawing, youtube clips, and lecture (whole group/small group)</p>	<ul style="list-style-type: none"> ✓ Multiple ways to represent information ✓ Alternatives to text ✓ Support provided for text comprehension ✓ Flexible technology-based materials, strategies and tools ✓ Multiple ways for students show what they know ✓ Conspicuous supports for learning new strategies ✓ Mechanism for rapid feedback to learners ✓ Active student-centered methods ✓ Choice, Challenge, Novelty ✓ Connected, relevant learning
<p>Formative assessments will include: teacher observations, student written/verbal responses and CPS clickers.</p>	
<p>CPS will allow for formative assessment while providing immediate feedback to both student and teacher.</p>	
<p>Final project choices may include: poster (handmade or digital), video or audio for PSA; Wiki, prezi, powerpoint, publisher for disease information.</p>	
<p>Real World Connection: Many of my students are translators for parents, especially at doctor's appointments. There is also an onsite clinic from which many of my students receive health care and vaccinations.</p>	
<p>Thinking Maps used to aid in concept/text comprehension.</p> <p>Students will interact with one another using multiple Accountable Talk formats. Students will practice listening and using Accountable Talk and teacher will model Accountable Talk.</p>	

Activate Lesson Template A

Overarching Concept: All living organisms are composed of cells, from one cell to many, and they exhibit cell growth and division.

Engage Phase

What question or problem will be posed to engage students in the overarching concept?	Is it made of cells?
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Explore Phase

Describe the steps of the activity which will allow students to explore what they already know about the posed question or problem.	For each step, identify the format (whole class, small groups, pairs, or individuals).	For each step, identify the question(s) that will help to uncover prior knowledge and/or misconceptions.	For each step, identify the strategy (Think-Pair-Share, whiteboarding, etc.).
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Procedure:

Quick Write: Is it made of Cells? (Assessment Probes, Vol. 1, p 131-7)	Individual- Whole group	Assessment Probe	Think-Pair- Share.
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Activate Lesson Template B

Overarching Concept: All living organisms are composed of cells, from one cell to many; and cells are specialized within multicellular organisms.

Engage Phase

What question or problem will be posed to engage students in the overarching concept?	What is the connection between cells and disease?
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Explore Phase

Describe the steps of the activity which will allow students to explore what they already know about the posed question or problem.	For each step, identify the format (whole class, small groups, pairs, or individuals).	For each step, identify the question(s) that will help to uncover prior knowledge and/or misconceptions.	For each step, identify the strategy (Think-Pair-Share, whiteboarding, etc.).
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Procedure: Based on Activities 31 & 48

Unknowing to students, spread some glowgerm (TE C-234) powder around the classroom (papers, table, doorknobs, pencil sharpener, your hands-handshakes, etc.)			
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Quick write: What are some different ways in which diseases are caused?	Individual	What are some different ways in which diseases are caused?	Think-Pair-Share
Solicit student responses. For each factor, students brainstorm diseases (TE C-4) or scaffold by giving students a list of diseases and ask them to sort.	Pair-Whole Group	What are examples of diseases for each cause?	Classifying
Let students in on glow germ, circulate with UV light, share with them that you circulated an infectious disease, such as cold or flu, around the classroom. Show “The Sneeze” PSA, available on youtube.com. Quick write: Think about how this infectious disease was spread from person to person in our classroom. If you were trying to avoid catching this disease, what could you do?	Whole Group- Individual	Think about how this infectious disease was spread from person to person in our classroom. If you were trying to avoid catching this disease, what could you do?	Modeling, Analyzing

Unit 1 Concept-development Lesson 1

Overarching Concept: All living organisms are composed of cells, from one cell to many; and cells are specialized within multicellular organisms.

Key Concept: Microscopes are tools that can reveal a variety of living organisms.

Engage Phase

What question or problem will be posed to engage students in the key concept?	What kind of microbes can you find using a microscope?
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Explore, Analyze, Share, Discuss Phase

Describe the steps of the activity which will allow students to explore and make sense of ideas, data, and/or explanations around the posed question or problem. Please consider: What information or data will students explore? How will students explain or make sense of the information or data? How will students relate the activity to the key concept?	For each step, identify the format (whole class, small groups, pairs, or individuals).	Describe how students will publically share their current understanding of ideas, data, and/or explanations to further make sense of this key concept.	For each step, identify the question(s) that will either assess or advance student understanding.	For each step, identify the strategy (Think-Pair-Share, Modeling, Classifying, Sequencing, Whiteboarding, Interaction, Building Background, SI, etc.).
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Procedure: Activities 35/36

Demonstrate the parts of the microscope and their uses. Discuss how levels of magnification are calculated.	Whole Class	Fill in student Sheet 35.1		Modeling, Building Background
Create a “Flow Map” of how to make a wet mount slide of a material using procedure steps 7-9 in student book page C-25	Pairs	Flow Map in science notebook	Why is it important for the sample to be small?	Modeling, Summarizing, Sequencing
Have students prepare and examine their own wet mount slides.	Pairs	Microscopic drawings	<ul style="list-style-type: none"> • What differences did you observe as you moved from low to medium power? • How does this compare with what you see with your eyes? 	Inquiry
Prepare wet mount slides of pond water or Hay Infusion. Find and draw at least 2 microbes.	Pairs	Correct procedure for making wet mount slide	<ul style="list-style-type: none"> • How could you figure out if something is a microbe? • Could something that doesn't move still be alive? 	Modeling

Reflect Phase

How will students connect this key idea to the overarching concept?	How could you figure out if something is a microbe? Could something that doesn't move still be alive?
How will students individually reflect on what they have learned or how they have learned it in light of their prior conceptions?	Write a short paragraph describing the 2 microbes they observed. Analysis Q2, Act 36.

Unit 1 Concept-development Lesson 2

Overarching Concept: All living organisms are composed of cells, from one cell to many; and cells are specialized within multicellular organisms.

Key Concept: Cells of different organisms have some similar structures with similar functions.

Engage Phase

What question or problem will be posed to engage students in the key concept?	What structures do different cells have in common? What structures are only found in some cells?
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Explore, Analyze, Share, Discuss Phase

Describe the steps of the activity which will allow students to explore and make sense of ideas, data, and/or explanations around the posed question or problem. Please consider: What information or data will students explore? How will students explain or make sense of the information or data? How will students relate the activity to the key concept?	For each step, identify the format (whole class, small groups, pairs, or individuals).	Describe how students will publically share their current understanding of ideas, data, and/or explanations to further make sense of this key concept.	For each step, identify the question(s) that will either assess or advance student understanding.	For each step, identify the strategy (Think-Pair-Share, Modeling, Classifying, Sequencing, Whiteboarding, Interaction, Building Background, SI, etc.).
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Procedure: Activity 38/42

Students prepare wet mount slides of onion calls. Teacher provides wet mount slides of cheek cells and Amoeba.	Pairs	Correct procedure for making wet mount slides		Modeling, Interaction
Students draw/write observations for each cell (student sheet 38.1). Group discussion on similar structures, label organelles with correct names as they are discussed.	Individual- Whole group	Cell drawings include organelles found in each type of cell.	<ul style="list-style-type: none"> • How are these cells different? • How are they similar? 	Think-Pair-Share, Modeling
Quick write: Did you find evidence in this lab that the human body is made of cells? Explain.	Individual	Quick write	<ul style="list-style-type: none"> • Do all cells have the same structures? • Why do you think that all cells do not have the same structures? • What is your evidence? 	Socializing Intelligence, Accountable Talk
Students complete Reading Only from activity 42 (pgsC-58-61)	Teacher Discretion	SST Questions	<ul style="list-style-type: none"> • What are similarities and differences among cells? • Can you think of other examples in which cells can give us information about 	Metacognitive (SST questions)

			diseases? • What is the relationship between cells and organ systems, such as the digestive system?	
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Reflect Phase

How will students connect this key idea to the overarching concept?	Plants, Animals and Protists are living organisms and are made of cells (Step 2 in procedure). STT Q1: How did scientists discover the common structure of cells?
How will students individually reflect on what they have learned or how they have learned it in light of their prior conceptions?	Quick write: Did you find evidence in this lab that the human body is made of cells? Explain.

Unit 1 Concept-development Lesson 3

Overarching Concept: All living organisms are composed of cells, from one cell to many; and cells are specialized within multicellular organisms.

Key Concept: Cells are alive and perform life functions such as respiration.

Engage Phase

What question or problem will be posed to engage students in the key concept?	What do yeast cells have in common with human cells?
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Explore, Analyze, Share, Discuss Phase

Describe the steps of the activity which will allow students to explore and make sense of ideas, data, and/or explanations around the posed question or problem. Please consider: What information or data will students explore? How will students explain or make sense of the information or data? How will students relate the activity to the key concept?	For each step, identify the format (whole class, small groups, pairs, or individuals).	Describe how students will publically share their current understanding of ideas, data, and/or explanations to further make sense of this key concept.	For each step, identify the question(s) that will either assess or advance student understanding.	For each step, identify the strategy (Think-Pair-Share, Modeling, Classifying, Sequencing, Whiteboarding, Interaction, Building Background, SI, etc.).
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Procedure: Activity 39

Quick write: Assessment Probe #17: Respiration, p 131-37, vol.3	Individual- Whole group	Quick write, Charting	<ul style="list-style-type: none"> • Can yeast respire? (take in nutrients, break them down, and produce energy) 	Think-Pair-Share
<p>Students observe yeast cells and conduct experiment to collect evidence that yeast cells respire(C48-9)</p> <p>While waiting for results, reread the intro on page C-47 and further explain cellular respiration (reactants and products). Review BTB as an indicator for CO₂.</p>	Student Led Groups	Complete data table	<ul style="list-style-type: none"> • If yeast can respire, what would you expect to happen in each cup? • Can yeast respire? (take in nutrients, break them down, and produce energy) • What evidence do we have? • What does your data say? • Is your data consistent? 	Interaction
CER: Do yeast cells respire?	Student Led Groups	Chart Paper CER (focus mainly on Claim and Evidence)	<ul style="list-style-type: none"> • What evidence do we have that yeast cells respire? • How can you explain your evidence? • Why did the BTB change color? • Why did the BTB stay the same? • What is the difference between the cups? 	Interaction

Reflect Phase

How will students connect this key idea to the overarching concept?	What do yeast cells have in common with human cells?
How will students individually reflect on what they have learned or how they have learned it in light of their prior conceptions?	<p>Gallery Walk: Which group answer do they think is best, Why?</p> <p>Analysis question 2: CA in grade book.</p> <p>Revise assessment Probe.</p>

Unit 1 Concept-development Lesson 4

Overarching Concept: All living organisms are composed of cells, from one cell to many; and cells are specialized within multicellular organisms.

Key Concept: Every cell has a cell membrane that functions to control what enters and leaves the cell.

Engage Phase

What question or problem will be posed to engage students in the key concept?	What is the function of the cell membrane?
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Explore, Analyze, Share, Discuss Phase

Describe the steps of the activity which will allow students to explore and make sense of ideas, data, and/or explanations around the posed question or problem. Please consider: What information or data will students explore? How will students explain or make sense of the information or data? How will students relate the activity to the key concept?	For each step, identify the format (whole class, small groups, pairs, or individuals).	Describe how students will publically share their current understanding of ideas, data, and/or explanations to further make sense of this key concept.	For each step, identify the question(s) that will either assess or advance student understanding.	For each step, identify the strategy (Think-Pair-Share, Modeling, Classifying, Sequencing, White-boarding, Interaction, Building Background, SI, etc.).
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Procedure: Activity 40

Students/Teacher create a model for a cell membrane and complete steps 1-11 After completing Step 9, reinforce that Lugol's is an indicator and will change color in the presence of starch.	Student Led Groups	Analysis Question 1 (and bridge map??)	<ul style="list-style-type: none"> • What do you think is the function of a cell membrane? • What do the parts of the model represent in a cell? 	Modeling, Analogies
CER: Based on the cell model, what is the function of the cell membrane? (CA in grade book)	Student Led Groups	CER (focus on claim and evidence)	<ul style="list-style-type: none"> • How is it possible that some of the mixtures changed colors? • Why aren't the inside and outside of the bag the same colors? • What must have happened in order for the mixture to change color? • What might happen if 	Application, Socializing Intelligence

			particles were unable to enter or leave a cell? • Why are membranes so important to cells? Explain.	
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Reflect Phase

How will students connect this key idea to the overarching concept?	What might happen if particles were unable to enter or leave a cell?
How will students individually reflect on what they have learned or how they have learned it in light of their prior conceptions?	Students create an analogy: A cell membrane is like a... because... Share examples with class. Ex. A cell membrane is like a screen because a screen allows air to pass into the room but does not allow bugs to come into the room.

Unit 1 Concept-development Lesson 5

Overarching Concept: All living organisms are composed of cells, from one cell to many; and cells are specialized within multicellular organisms.

Key Concept: Cell structures help to determine classification into 5 kingdoms of living organisms.

Engage Phase

What question or problem will be posed to engage students in the key concept?	How can cell structures help us to classify cells into kingdoms?
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Explore, Analyze, Share, Discuss Phase

Describe the steps of the activity which will allow students to explore and make sense of ideas, data, and/or explanations around the posed question or problem. Please consider: What information or data will students explore? How will students explain or make sense of the information or data? How will students relate the activity to the key concept?	For each step, identify the format (whole class, small groups, pairs, or individuals).	Describe how students will publically share their current understanding of ideas, data, and/or explanations to further make sense of this key concept.	For each step, identify the question(s) that will either assess or advance student understanding.	For each step, identify the strategy (Think-Pair-Share, Modeling, Classifying, Sequencing, Whiteboarding, Interaction, Building Background, SI, etc.).
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Procedure: Activity 43/44/45

View prepared slides of protists and	Pairs	Drawings/Observations	• What are you	Building Background
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bacteria and complete student sheet 43.1		of microbes	seeing? <ul style="list-style-type: none"> • What do you notice about the size, shape and what you see in these cells? • What similarities and differences do you notice amongst the cells? • How are these cells similar to other cells that we have seen? • Look back at your microbe drawings. Do you think any of those organisms could have been protists or bacteria? Evidence? 	
Students sort Micro-life cards into groups and develop “rules” for each group. Student groups compare their sorting/rules to other groups (Gallery Walk)	Small Groups	Card Sort with rules	<ul style="list-style-type: none"> • What are your rules? • Why did you choose to separate into these groups? • Can you break these groups down into smaller groups? • Why didn't we all have the same groups and rules? 	Classifying, Interaction
Provide students with Classification Cards, allow time for students to reorganize cards.	Small groups	Card Sort	<ul style="list-style-type: none"> • How did your “rules” compare to the Classification Cards? 	Classifying
Using Classification Cards, create a tree map of the 5 kingdoms + viruses based on # of cells and cell structure.	Whole Group	Tree Map	<ul style="list-style-type: none"> • What kingdoms are most alike? • What are the major differences between the kingdoms? 	Classifying

			<ul style="list-style-type: none"> Do you think the 5 kingdoms are more similar or different from each other? Why do you think that? 	
Give students pictures of different types of cells (powerpoint?) Have students make a <u>claim</u> to what each cell is and <u>evidence</u> as to why they think so.	Pairs	Claim and Evidence on white boards	<ul style="list-style-type: none"> How could knowing the classification of a disease-causing microbe help scientists fight the disease? 	Whiteboarding
Students read Activity 45: The World of Microbes, p C-70-75. While reading students complete a circle map "Microbes"	Teacher Discretion	STT Questions, Circle Map	<ul style="list-style-type: none"> Do you think a microbe could be neither helpful nor harmful? Explain What would the world be without microbes? 	Metacognitive
			<ul style="list-style-type: none"> 	

Reflect Phase

How will students connect this key idea to the overarching concept?	<p>What 2 kingdoms are most similar? Why?</p> <p>Give students pictures of different types of cells (powerpoint?) Have students make a <u>claim</u> to what each cell is and <u>evidence</u> as to why they think so.</p>
How will students individually reflect on what they have learned or how they have learned it in light of their prior conceptions?	Create a double bubble to compare 2 kingdoms.

Unit 1 Concept-development Lesson 6

Overarching Concept: All living organisms are composed of cells, from one cell to many; and cells are specialized within multicellular organisms.

Key Concept: Humans have specialized cells that aid in immune response.

Engage Phase

What question or problem will be posed to engage students in the key concept?	How does your blood help fight infectious diseases?
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Explore, Analyze, Share, Discuss Phase

Describe the steps of the activity which will allow students to explore and make sense of ideas, data, and/or explanations around the posed question or problem. Please consider: What information or data will students explore? How will students explain or make sense of the information or data? How will students relate the activity to the key concept?	For each step, identify the format (whole class, small groups, pairs, or individuals).	Describe how students will publically share their current understanding of ideas, data, and/or explanations to further make sense of this key concept.	For each step, identify the question(s) that will either assess or advance student understanding.	For each step, identify the strategy (Think-Pair-Share, Modeling, Classifying, Sequencing, White-boarding, Interaction, Building Background, SI, etc.).
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Procedure: Activity 42/46

Use Analysis Q 1-2 from Activity 42 to begin lesson. (CA in gradebook: Q1-2) Ideally, have pictures, descriptions and cell types copied so that students may manipulate and classify. Read intro to Activity 46 (p C77-8) Set up the idea that there are specialized cells within our immune system that help to fight infectious diseases.	Small Groups	AQ 1-2, Pictures, descriptions and cell types correct	<ul style="list-style-type: none"> • What is the function of a ____ cell? • What might that cell look like? • Why would an organism have to have different types of cells? • Why can't an organism be composed of only one type of cell? 	Classifying
Activity 46: Half of the class will begin Part One, the other half, Part Two; then switch.	Pairs		<ul style="list-style-type: none"> • Can any person receive any type of blood? • Why would it be important to know their blood type? • If you didn't have time to find a person's blood type, what blood type would you give them? Why? 	Inquiry

			<ul style="list-style-type: none"> • Are all the cells the same? What is different about them? • How would you describe a RBC? • How would you describe a WBC? 	
Explain whether the hospital had enough of the right type of blood for each patient?	Individual-Pairs-Whole Class	Written Claim and Evidence	<ul style="list-style-type: none"> • Are there any other ways the blood could be “divvied” up? 	Think/Pair/Share
<p>Extension: Jigsaw background information in teacher’s guide p C211-214</p> <p>Human Blood- Tree Map Antibodies- Flow or Multi-Flow Map Human Blood Types- Tree Map</p>	Small Groups	Appropriate Thinking Map		Classifying, Sequencing

Reflect Phase

How will students connect this key idea to the overarching concept?	AQ 4: In what ways does your body prevent you from catching an infectious disease?
How will students individually reflect on what they have learned or how they have learned it in light of their prior conceptions?	AQ 4: In what ways does your body prevent you from catching an infectious disease?

Application Lesson Unit 1

Overarching Concept: All living organisms are composed of cells, from one cell to many; and cells are specialized within multicellular organisms.

Engage Phase

What question or problem will be posed to engage students in applying their current understanding of key concepts to the	What is the relationship between cells and disease?
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overarching concept?	
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Summative Assessment Phase

Describe the steps of the activity which will allow students to demonstrate their current understanding of the overarching and key concepts in light of the posed question or problem. Note: This activity should meet or exceed state or district assessment expectations.	For each step, identify the format (whole class, small groups, pairs, or individuals).	For each step, identify the question(s) that will assess student understanding.	For each step, identify the strategy (Think-Pair-Share, Modeling, Classifying, Sequencing, Whiteboarding, Interaction, Building Background, SI, etc.).
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Procedure:			
<p>Introduce students to the project: Create a PSA Poster and Information Page (wiki) for a Disease and present their project to local health care providers.</p> <p>Groups of 2-3 students pick a disease that they would like to study. Many examples can be found on p C26-8 in TE.</p> <p>Ideally this would be done after completing Activate Lesson b</p>	Pairs/Small groups	<ul style="list-style-type: none"> • What are symptoms of the disease? • What causes the disease? • How is the disease spread? • How can the disease be prevented? • Can the disease be treated? How? • Is the disease caused by a particular cell? • What effects does the disease have on cells? 	Building Background
<p>Discussion: What do you need to know in order to complete this project? Chart ideas/questions-refer back to throughout unit.</p>	Individual-Pair-Share	<ul style="list-style-type: none"> • What do you need to know in order to complete this project? 	Think/Pair/Share
<p>Research Skills: agoogleday.com Poses a question with only one answer but many ways to search it.</p>	Small Groups	<ul style="list-style-type: none"> • What is the question asking? • How else could you search for the answer? • What are the key words? 	Modeling, Collaboration

Allow for time to research each week, provide students with checkpoints	Small Groups	<ul style="list-style-type: none"> • Could you explain that in more detail? • Can you explain it in another way? • Can you tell me what that means? • Could you tell me how you found this information? • What else might be affected by-----? 	Modeling, Collaboration
<p>Wiki Skills: If unfamiliar with Wiki, choose a format that you are comfortable with for students to present information (Powerpoint, Prezi, Poster, Publisher, etc)</p> <p>Many tutorials are “out there” for Wiki, in fact, students may be able to learn from the tutorials themselves.</p>	Small Groups	<ul style="list-style-type: none"> • Who is responsible for ----- ? • What are your next steps? • What are some concerns/problems that you are running into? • Does anyone know how to help ----- do --- ---? 	Collaboration
Students present PSA and information pages to local health care providers, may be in person, through email, skype, etc.	Small Groups	<ul style="list-style-type: none"> • What did you learn? • How could the project be changed to make it better. 	Presentation

Reflect Phase

How will students individually reflect on how their ideas have developed or changed through this unit?	Revisit Assessment Probe: Is it made of Cells? (Assessment Probes, Vol. 1, p 131-7) What would they change about their initial answer? What might they add? What other topics does this unit make you wonder about?
How will students connect their current understanding of the overarching concept to other overarching concepts in science?	

Disease Public Service Announcement and Informational Wiki

Teacher Name: **Maat**

Student Name: _____

CATEGORY	4	3	2	1
Amount of Information	All topics are addressed and all topics have at least a 2 sentence description. All sources of information are cited.	All topics are addressed and most topics have at least a 2 sentence description. Most sources of information are cited.	All topics are addressed and most topics are described using only one sentence. Most sources of information are cited.	Some topics are addressed, but much information is missing. Most sources of information are cited.
Relationship between cells and disease	The relationship between the disease and human cells is thoroughly and accurately explained.	The relationship between the disease and human cells accurately explained.	There is a weak relationship between the disease and human cells.	No connection is made between the disease and human cells.
PSA	The PSA is an original, accurate and interesting product that sufficiently addresses the disease.	The PSA is accurate product that sufficiently addresses the disease.	The PSA is a product that that has weak connections to the disease.	The PSA is inaccurate or confusing.
Attractiveness & Organization	The products are exceptionally attractive and the information is well organized.	The products are attractive and the information is well organized.	The products could be more attractive and the information is somewhat organized.	The products layout and information is confusing.
Knowledge Gained	All students in the group can accurately answer all questions related to the facts on the disease informational page.	All students in the group can accurately answer most questions related to the facts on the disease informational page.	Most students in the group can accurately answer most questions related to the facts on the disease informational page.	Most students in the group appear to have little knowledge about the facts on the disease informational page.