



<b>Course Name: Medical Detectives</b>	<b>Grade Level(s): 8</b>
<b>Department: Science/Exploratory</b>	<b>Credits:</b>
<b>BOE Adoption Date: September 17, 2020</b>	<b>Revision Date(s):</b>

**Course Description**

In Medical Detectives, students play the role of real-life medical detectives as they collect and analyze medical data to diagnose disease. They solve medical mysteries through hands-on projects and labs, measure and interpret vital signs, dissect a sheep brain, investigate disease outbreaks, and explore how a breakdown within the human body can lead to dysfunction.

**Mission Statement**

*The Pittsgrove Township School District believes in growing all learners to thrive. The district offers an intellectually rigorous, dynamic curriculum aligned to state and national standards coupled with research-based practices in classrooms. The Pittsgrove Township School District strives to highlight critical thinking, problem-solving, intercultural literacy, digital literacy, collaboration, innovation, and a growth mindset as part of the instructional core of learning. The district provides high quality resources to provide young people the knowledge they need to approach the future as leaders and learners.*

**Curriculum & Instruction Goals**

1. To ensure students are college and career ready upon graduation
2. To vertically and horizontally align curriculum PreK-12 to ensure successful transition of students at each grade level
3. To identify individual student strengths and weaknesses utilizing various assessment measures (formative, summative, alternative, etc.) so as to differentiate instruction while meeting the rigor of the applicable content standards
4. To improve student achievement as assessed through multiple measures including, but not limited to, state testing, local assessments, and ongoing progress monitoring

### How to Read this Document

This curricular document contains both a  *pacing guide*  and  *curriculum units* . The  *pacing guide*  serves to communicate an estimated timeframe as to  *when*  critical knowledge and skills will be taught throughout the year. The  *pacing* , however, may differ slightly depending upon the unique needs of each learner. The  *curriculum units*  contain more detailed information as to the content, goals, objectives, instructional strategies, resources, and assessments.

#### NJ Administrative Code and Statutes Key

**^=Amistad Law**

**O=Diversity & Inclusion Law**

**<>=Holocaust**

**+ =LGBT and Disabilities Law**

**\*=AAPI (Asian American and Pacific Islanders)**

**\$=Financial Literacy**

**Use this key to understand where the NJ mandates are being implemented in the K-12 curriculum units.**

## Pacing Guide

**Course Title: Medical Detectives**

**Prerequisite: none (exploratory)**

Unit Title	Duration/ Month(s)	Related Standards	Learning Goals	Critical Knowledge and Skills
<b>Unit 1: Disease Detectives</b>	<b>25 days</b>	LA.6-8.CCSS.ELA-Literacy. WHST.6-8.1c, LA.6-8.CCSS.ELA-Literacy. WHST.6-8.1b, LA.6-8.CCSS.ELA-Literacy. WHST.6-8.1a, <i>LA.6-8.CCSS.ELA-Literacy. WHST.6-8.2a</i> LA.6-8.CCSS.ELA-Literacy. WHST.6-8.2d  6-8.MS-LS1-1.3.1, 6-8.MS-LS1-1.LS1.A.1, 6-8.MS-LS1-1.3.1, 6-8.MS-LS1-3.LS1.A.1, 6-8.MS-LS1-3.4.1,  6-8.MS-ETS1-1.1.1, 6-8.MS-ETS1-1.ETS1.A.1, 6-8.MS-ETS1-2.ETS1.B.1, 6-8.MS-ETS1-3.4.1	<ul style="list-style-type: none"> <li>● Solve a problem using analytical and critical thinking skills.</li> <li>● Design and conduct an experiment that investigates a question.</li> <li>● Collect and analyze medical evidence to draw conclusions.</li> <li>● Analyze health and disease data to identify the source of a disease outbreak.</li> <li>● Collaborate effectively on a diverse and multi-disciplinary team.</li> <li>● Communicate effectively for specific purposes and settings.</li> <li>● Identify the variety of careers related to engineering, biomedical sciences, and computer science.</li> </ul>	<ul style="list-style-type: none"> <li>● Devise and execute a plan to solve a problem.</li> <li>● Analyze data and evidence to craft a conclusion supported by evidence.</li> <li>● Develop an experimental protocol that includes a testable hypothesis, is repeatable, and produces reliable results.</li> <li>● Distinguish between the independent and dependent variables and de ne controls.</li> <li>● Perform necessary data calculations and draw logical conclusions from experimental data.</li> <li>● Measure vital signs.</li> </ul>
<b>Unit 2: Mysteries of the Human Body</b>	<b>20 days</b>	6-8.MS-LS1 6-8.MS-LS1-8 6-8.MS-LS1-8.8 6-8.MS-LS1-8.8.1 6-8.MS-LS1-8.LS1.D 6-8.MS-LS1-8.LS1.D.1 6-8.MS-LS1-8. 6-8.MS-LS1-8.2. 6-8.MS-LS1-2.6.1	<ul style="list-style-type: none"> <li>● Interpret how a breakdown in communication in the nervous system would impact the function of the human body.</li> <li>● Communicate effectively for specific purposes and settings.</li> </ul>	<ul style="list-style-type: none"> <li>● Create a model to describe the structures and function of the central and peripheral nervous system.</li> <li>● Explain how the nervous system passes signals to and from the brain and spinal cord.</li> </ul>

		<p>6-8.MS-LS1-3 6-8.MS-LS1-3.7</p> <p>LA.6-8.CCSS.ELA-Literacy.WHST.6-8.1c, LA.6-8.CCSS.ELA-Literacy.WHST.6-8.1b, LA.6-8.CCSS.ELA-Literacy.WHST.6-8.1a, <i>LA.6-8.CCSS.ELA-Literacy.WHST.6-8.2a</i> LA.6-8.CCSS.ELA-Literacy.WHST.6-8.2d</p> <p>6-8.MS-ETS1-1.1.1, 6-8.MS-ETS1-1.ETS1.A.1, 6-8.MS-ETS1-2.ETS1.B.1, 6-8.MS-ETS1-3.4.1</p>	<ul style="list-style-type: none"> <li>● Solve a problem using analytical and critical thinking skills.</li> <li>● Collect and analyze medical evidence to draw conclusions.</li> <li>● Identify the variety of careers related to engineering, biomedical sciences, and computer science.</li> <li>● Collaborate effectively on a diverse and multi-disciplinary team.</li> </ul>	<ul style="list-style-type: none"> <li>● Create a model to describe the structures and function of the central and peripheral nervous system.</li> <li>● Explain how the nervous system passes signals to and from the brain and spinal cord.</li> <li>● Devise and execute a plan to solve a problem.</li> <li>● Analyze data and evidence to craft a conclusion supported by evidence.</li> <li>● Explain how neurons pass signals to and from the brain and spinal cord.</li> <li>● Explain how solutions for complex problems can require interdisciplinary collaboration to incorporate a wide range of perspectives and skills.</li> <li>● Determine investigative questions for a case.</li> <li>● Interpret medical information to draw conclusions about a patient's health.</li> <li>● Explain how neurons pass signals to and from the brain and spinal cord.</li> <li>● Match regions of the brain with their primary function in the human body.</li> <li>● Illustrate successful collaboration through effective communication and constructive feedback.</li> <li>● Apply team norms to encourage productivity and determine how a team will function and measure its success.</li> </ul>
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				<ul style="list-style-type: none"> <li>● Identify and evaluate positive and negative behaviors that impact the team's effectiveness.</li> <li>● Communicate to meet the needs of the audience and be appropriate to the situation.</li> <li>● Document a process, including findings or solutions, in a notebook.</li> <li>● Explore a variety of careers related to engineering, biomedical sciences, and computer science.</li> </ul>
<b>Unit 3: Outbreak!</b>	<b>15 days</b>	<p>6-8.MS-LS1-1.3.1 6-8.MS-LS2-1.LS2.A. 6-8.MS-LS2-2.6 MA.K-12.4 MA.7.RP MA.7.RP.A</p> <p>LA.6-8.CCSS.ELA-Literacy.WHST.6-8.1c, LA.6-8.CCSS.ELA-Literacy.WHST.6-8.1b, LA.6-8.CCSS.ELA-Literacy.WHST.6-8.1a, <i>LA.6-8.CCSS.ELA-Literacy.WHST.6-8.2a</i> LA.6-8.CCSS.ELA-Literacy.WHST.6-8.2d</p> <p>6-8.MS-ETS1-1.1.1, 6-8.MS-ETS1-1.ETS1.A.1, 6-8.MS-ETS1-2.ETS1.B.1, 6-8.MS-ETS1-3.4.1</p>	<ul style="list-style-type: none"> <li>● Solve a problem using analytical and critical thinking skills.</li> <li>● Design and conduct an experiment that investigates a question.</li> <li>● Collect and analyze medical evidence to draw conclusions.</li> <li>● Interpret how a breakdown in communication in the nervous system would impact the function of the human body.</li> <li>● Analyze health and disease data to identify the source of a disease outbreak.</li> <li>● Collaborate effectively on a diverse and multi-disciplinary team.</li> </ul>	<ul style="list-style-type: none"> <li>● Analyze data and evidence to craft a conclusion supported by evidence.</li> <li>● Identify the types of pathogens that cause disease.</li> <li>● Describe the manners of disease transmission.</li> <li>● Calculate measures of risk used to demonstrate a possible association between a risk factor and a disease.</li> <li>● Devise and execute a plan to solve a problem.</li> <li>● Analyze data and evidence to craft a conclusion supported by evidence.</li> <li>● Explain how solutions for complex problems can require interdisciplinary collaboration to incorporate a wide range of perspectives and skills.</li> <li>● Perform necessary data calculations and draw logical conclusions from experimental data.</li> </ul>

			<ul style="list-style-type: none"><li>● Communicate effectively for specific purposes and settings.</li><li>● Identify the variety of careers related to engineering, biomedical sciences, and computer science.</li></ul>	<ul style="list-style-type: none"><li>● Determine investigative questions for a case.</li><li>● Interpret medical information to draw conclusions about a patient's health.</li><li>● Explain how neurons pass signals to and from the brain and spinal cord.</li><li>● Match regions of the brain with their primary function in the human body.</li><li>● Describe the manners of disease transmission.</li><li>● Analyze connections between individuals in a disease outbreak</li> <li>● Calculate measures of risk used to demonstrate a possible association between a risk factor and a disease.</li><li>● Illustrate successful collaboration through effective communication and constructive feedback.</li><li>● Apply team norms to encourage productivity and determine how a team will function and measure its success.</li><li>● Identify and evaluate positive and negative behaviors that impact the team's effectiveness.</li><li>● Communicate to meet the needs of the audience and be appropriate to the situation.</li><li>● Document a process, including findings or solutions, in a notebook.</li><li>● Explore a variety of careers related to engineering,</li></ul>
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				biomedical sciences, and computer science.
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Instructional Unit Map				
Course Title: Medical Detectives				
Unit Title	Unit 1: Disease Detectives		Start Date:	Beginning of T1, T2, & T3
			Length of Unit:	25 days
<b>Content Standards</b> <i>What do we want them to know, understand, &amp; do?</i>	<b>LA.6-8.CCSS.ELA-Literacy.WHS T.6-8.1a</b> - Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.  <b>LA.6-8.CCSS.ELA-Literacy.WHS T.6-8.2a</b> - Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.  <b>LA.6-8.CCSS.ELA-Literacy.WHS T.6-8.1b</b> - Support claim(s) with logical reasoning and relevant, accurate data and	<b>Learning Goals</b>	Students will be able to: <ul style="list-style-type: none"> <li>● Solve a problem using analytical and critical thinking skills.</li> <li>● Design and conduct an experiment that investigates a question.</li> <li>● Collect and analyze medical evidence to draw conclusions.</li> <li>● Analyze health and disease data to identify the source of a disease outbreak.</li> <li>● Collaborate effectively on a diverse and multi- disciplinary team.</li> <li>● Communicate effectively for specific purposes and settings.</li> <li>● Identify the variety of careers related to engineering, biomedical sciences, and computer science.</li> </ul>	

*evidence that demonstrate an understanding of the topic or text, using credible sources.*

**LA.6-8.CCSS.ELA-Literacy.WHS**

**T.6-8.1c** - *Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.*

**LA.6-8.CCSS.ELA-Literacy.WHS**

**T.6-8.2d** - *Use precise language and domain-specific vocabulary to inform about or explain the topic*

**6-8.MS-LS1-1.LS1.A** - *Structure and Function*

**6-8.MS-LS1-1.LS1.A.1** -

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

**6-8.MS-LS1-1.3** - *Scale, Proportion, and Quantity*

**6-8.MS-LS1-1.3.1** -

*[Crosscutting Concept] - Phenomena that can be observed at one scale may not be observable at another scale.*

**6-8.MS-LS1-2** - *[Performance Expectation] - Develop and use*



*a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.*

**6-8.MS-LS1-3.LS1.A.1 -**  
*[Disciplinary Core Idea] - In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions.*

**6-8.MS-LS1-1.3.1 -**  
*[Crosscutting Concept] - Phenomena that can be observed at one scale may not be observable at another scale.*

**6-8.MS-LS1-2 -**  
*[Performance Expectation] - Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.*

**6-8.MS-LS1-3.4 - Systems and System Models**

**6-8.MS-LS1-3.4.1 -**  
*[Crosscutting Concept] - Systems may interact with other systems; they may have sub-systems and be a*

*part of larger complex systems.*

*6-8.MS-LS1-4 - [Performance Expectation] - Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.*

**6-8.MS-LS2-4.7.1 -**

*[Crosscutting Concept] - Small changes in one part of a system might cause large changes in another part.*

**6-8.MS-LS2-5 - [Performance Expectation] - Evaluate competing design solutions for maintaining biodiversity and ecosystem services**

**6-8.MS-ETS1-1.ETS1.A.1 -**

*[Disciplinary Core Idea] - The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions.*

**6-8.MS-ETS1-2** - *[Performance Expectation] - Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.*

**6-8.MS-ETS1-2.7** - *Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world.*

**6-8.MS-ETS1-2.ETS1.B.1** - *[Disciplinary Core Idea] - There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.*

**6-8.MS-ETS1-3** - *[Performance Expectation] - Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.*

**6-8.MS-ETS1-3.4** - *Analyzing data in 6–8 builds on K–5 experiences and progresses to*

	<p><i>extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.</i></p> <p><b>6-8.MS-ETS1-3.4.1 - [Practice] - Analyze and interpret data to determine similarities and differences in findings.</b></p>		
<p><b>Essential Questions</b></p>	<p>What can patient signs and symptoms tell us about what’s happening in the human body?  How do medical detectives investigate their cases?  What does effective teamwork look like?</p>		
<p><b>Assessments</b>  <i>How will we know they have gained the knowledge &amp; skills?</i></p>	<p style="text-align: center;"><b>Formative</b></p> <ul style="list-style-type: none"> <li>● Choral and individual responses to questioning</li> <li>● Entrance/Exit Tickets</li> <li>● Quizzes (paper-based and/or Google forms)</li> <li>● Signals (thumbs up/down, sit/stand, and other answering strategies)</li> <li>● Graded Classwork/ Homework</li> <li>● Plickers Assessments</li> <li>● Quizlet live</li> <li>● Kahoot games/reviews</li> <li>● Individual white boards</li> <li>● Observations &amp; informal discussions with small groups or individuals during labs</li> <li>● Silent classroom polls</li> </ul>	<p style="text-align: center;"><b>Summative</b></p> <ul style="list-style-type: none"> <li>● Body System Presentation</li> <li>● End of Unit Test</li> <li>● Extended Constructed Response Questions</li> <li>● Lab Analysis/Conclusion</li> <li>● Demonstration with explanation &amp; fielding questions</li> </ul>	<p style="text-align: center;"><b>Alternative</b></p> <ul style="list-style-type: none"> <li>● Student-Taught Lesson (small groups of students will teach the class)</li> <li>● BrainPop Video (students create their own BrainPop-style video to explain a science phenomena)</li> <li>● Advice Column (students write advice to an “anonymous friend” to help)</li> <li>● Additional medical -patient files to read and interpret</li> <li>● Trivia Game (students create the questions and answers to be</li> </ul>

				used in a review game)
<b>Unit Pre-Assessment(s)</b> <i>What do they already know?</i>	-round table discussion -question and answer session -body system check in -body system purpose game			
<b>Instructional Strategies/Student Activities</b>	-Students will: 1. Use and interactive site to review the different body systems			
<b>Instructional/Assessment Scaffolds</b> <i>(Modifications /Accommodations) – planned for prior to instruction</i>	<b>English Language Learners</b> <ul style="list-style-type: none"> <li>● Preferential seating</li> <li>● Small group instruction as applicable</li> <li>● Read directions aloud</li> <li>● Clarified instruction</li> <li>● Highlight and discuss key words (notes and verbally)</li> <li>● Provide key vocabulary prior to lesson and/or assessment</li> <li>● One-on-one conferencing when needed</li> <li>● Differentiated grouping</li> <li>● Allow oral responses</li> <li>● Use multiple choice format</li> <li>● Read test aloud</li> </ul>	<b>Special Education Learners</b> <ul style="list-style-type: none"> <li>● Tiered assessments</li> <li>● Limit required material for class presentation</li> <li>● Differentiated grouping</li> <li>● Use of visual representations of concepts</li> <li>● Provide leveled reading material</li> <li>● Preferential seating</li> <li>● Small group instruction</li> <li>● Small group testing</li> </ul>	<b>Struggling Learners</b> <ul style="list-style-type: none"> <li>● flexible grouping</li> <li>● Digital resources via Google Classroom</li> <li>● Read directions aloud</li> <li>● Clarifying directions or conducting check-ins as needed</li> <li>● Highlight/underline key words</li> <li>● Concrete examples / examples related to personal interests or background</li> <li>● Use of mnemonics</li> <li>● Provide more detailed instructions for analysis tasks</li> <li>● Provide visuals to accompany instruction</li> <li>● Provide leveled reading material</li> <li>● Preferential seating</li> <li>● Small group instruction</li> <li>● Additional time</li> <li>● Allow for test corrections</li> <li>● Vary test formats</li> <li>● Provide study guides and study opportunities</li> </ul>	<b>Advanced Learners</b> <ul style="list-style-type: none"> <li>● Independent reading choices beyond texts studied with the class as a whole</li> <li>● Tiered assessments</li> <li>● Choice of assessment styles/formats</li> <li>● Independent study</li> <li>● Learning stations</li> <li>● Virtual escape rooms (unit specific)</li> <li>● Current event presentations</li> <li>● Creation of presentation, video or written</li> </ul>

- Provide definitions of key terms in native language
- Use native language for directions (if possible - use translator program or person)
- Single step directions
- Additional time
- Allow for tests corrections
- Vary test format
- Chunking
- Accept short answers on assessments
- Provide multiple texts (English and native language translation)
- Use of visual representations of concepts
- Modify writing tasks (provide multiple topics/assignments to choose from)
- Short homework assignments
- Digital resources via Google Classroom
- Provide study guides and study opportunities, preferably in native language
- Small group testing

- Allow oral responses
- Use multiple choice format
- Modify assessments, as needed
- Read test aloud
- Read directions aloud
- Single step directions
- Answers to be dictated, as needed
- Additional time
- Allow for test corrections
- Allow retakes
- Provide study guides or study opportunities/class notes
- Read test passages/articles aloud (if assessing reading comprehension)
- Chunk projects or long-term assignments
- Provide schedule/timeline

- Chunk projects or long-term assignments
- Vary test formats
- Allow retakes
- Rest breaks, as needed
- Preview test procedures
- Pace long-term assignments (keeping calendar/schedule)
- Small group testing
- Collaborate with after-school programs or clubs to extend learning opportunities.
- Note taking on computer

review of a science topic or phenomena to be posted on our classroom website and shared with peers

	<ul style="list-style-type: none"> <li>Note taking on computer</li> </ul>	<ul style="list-style-type: none"> <li>Choice of writing topics</li> <li>Digital resources via Google Classroom</li> <li>Note taking on computer</li> </ul>		
<p><b>Differentiated Instructional Methods:</b>  <i>(Multiple means for students to access content and multiple modes for student to express understanding)</i></p>	<p><b>Access</b> (Resources and/or Process)</p>		<p><b>Expression</b> (Products and/or Performance)</p>	
	<ul style="list-style-type: none"> <li>Class discussions with questions at varied complexity levels</li> <li>Varying collaboration, independence competition (work alone or with a partner when possible)</li> <li>Assignment checklists/guides</li> <li>Mini lessons to reteach, clarify &amp; extend</li> <li>Use of small group sharing (Think-Pair-Share)</li> <li>D.I. with use of technology</li> <li>Interactive Notebook/Note-taking sheet (guided notes, “doodle” notes, Cornell notes, etc.)</li> <li>Learning Stations with varied standard-based tasks</li> <li>Use of Promethean Board for discussions, visuals, note-taking, interactives, etc.</li> <li>Multi-level electronic texts (with audio capability) provided through Google Classroom</li> <li>Read &amp; Think Alouds</li> <li>Flexible grouping</li> <li>Reteaching /Reviewing</li> <li>Targeting Different Senses Within the Lesson (verbal, video, hands-on, use of visuals, modeling/acting out, songs/chants, etc)</li> <li>Reflection &amp; Goal-setting</li> <li>Free Study Time (student choice: reviewing of notes, completion of task cards, watching a video review, small-group game, work completion with teacher-</li> </ul>		<ul style="list-style-type: none"> <li>Student choice during formal assessment style (eliminate a certain number of questions, answer open-ended option A or B, draw a diagram or explain, etc.)</li> <li>Menu Project / Choice Board</li> <li>Individual or Small-group presentation</li> <li>Rubric/criteria for success generated by teacher and students (may be different for different individuals/groups)</li> <li>Problem based learning</li> <li>Open ended opportunities</li> </ul>	

<p><b>Vocabulary</b>  <i>Highlight key vocabulary (both Tier II and Tier III words)</i></p>	<p>Tier II: solve, design, collect and analyze, collaborate, communicate, identify, devise and execute, distinguish, measure, investigate</p> <p>Tier III: body systems, vital signs, pulse, temperature, respiratory rate, blood pressure, patient, medical professional, systolic, diastolic, hypertension, independent variable, dependent variable, disease, sterile, agar, e. Coli, pipette, microbiologist, antibiotic, pneumonia, experimental design, campylobacter, cholera, rotavirus, salmonella, scarlet fever, strep throat, measles, lyme disease, zika, ringworm</p>	
<p><b>Integration of Technology</b> <a href="#">SAMR</a></p>	<p>Substitution:</p> <ul style="list-style-type: none"> <li>● Taking notes via Google Docs</li> <li>● Typing up responses to questioning and sharing with teacher/peer</li> <li>● Completing graphic organizers via Google Docs or Slides</li> <li>● Completing digital worksheets via Google Forms, Docs, or Slides</li> <li>● Use of online-based texts with dictionary and highlighting features</li> <li>● Conducting research via Google</li> <li>● Use of Google Classroom for providing and organizing materials</li> </ul> <p>Augmentation:</p> <ul style="list-style-type: none"> <li>● Completing quizzes/tests via Google Forms</li> <li>● Researching within Google Docs to add information and graphics to enhance notes</li> <li>● Use of online-based texts with embedded videos and links to enhance understanding</li> <li>● Using Gizmos, Phet, and other virtual labs/simulations</li> <li>● Creation of scientific diagrams/models using Google Drawings</li> <li>● Sharing videos, simulations, and other “extras” via Google Classroom to supplement notes and understanding</li> <li>● Posting student created material via Padlet for sharing with peers</li> <li>● Use of Quizizz or Kahoot! to review before a test</li> </ul> <p>Modification:</p> <ul style="list-style-type: none"> <li>● Collaboration of students on a multimedia/slides project</li> <li>● Peer-editing multimedia work</li> <li>● Using Gizmos, Phet, and other virtual labs/simulations</li> <li>● Creation of presentation, video, or written review of a science topic or phenomena posted on our classroom website</li> <li>● Student completion of WebQuests</li> <li>● Student participation in Digital Escape Rooms</li> <li>● Plickers assessments</li> </ul> <p>Redefinition:</p>	



	<ul style="list-style-type: none"> <li>● Collaboration of students on a multimedia/slides project</li> <li>● Posting, reviewing, and commenting on student created material via Padlet</li> <li>● Student-Created and Student-Taught Lesson with multimedia presentation</li> <li>● Use of Quizizz or Kahoot! to review before a test</li> <li>● Plickers assessments</li> </ul>
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- Digital tools make it possible to analyze and interpret data, including text, images, and sound. These tools allow for broad concepts and data to be more effectively communicated.
    - 9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b).
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- Some digital tools are appropriate for gathering, organizing, analyzing, and presenting information, while other types of digital tools are appropriate for creating text, visualizations, models, and communicating with others.
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<b>21<sup>st</sup> Century Themes/Skills</b> <u>P21 Framework</u>	<b>Themes</b>	<b>Skills</b>
	<ul style="list-style-type: none"> <li>● Global Awareness</li> <li>● Health Literacy</li> </ul>	<ul style="list-style-type: none"> <li>● Creativity and innovation</li> <li>● Critical thinking and problem solving</li> <li>● Communication and collaboration</li> <li>● Flexibility and adaptability</li> </ul>

<b>Resources/Materials</b>	<p><a href="https://www.msnuceus.org/membership/html/k-6/lc/humanbio/5/lchb5_1a.html">-https://www.msnuceus.org/membership/html/k-6/lc/humanbio/5/lchb5_1a.html</a></p> <p>-Purpose games</p> <p>-Google documents</p> <p>Google Slides: Body System Presentation</p> <p>-Google Classroom</p> <p>-Quizizz: Body Systems</p> <p>-Kahoot: Vital Signs</p> <p>-Fever Video</p> <p>-Disease Dictionary</p> <p>-PLTW site</p> <p>-Lab 1.3: antibiotics, petri dishes, e. Coli, swabs, forceps, bleach, ppe</p> <p>-Patient files</p>
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Course Title: Medical Detectives				
Unit Title	Unit 2: Mysteries of the Human Body		Start Date:	After Unit 1 (during each trimester)
			Length of Unit:	20 days
Content Standards <i>What do we want them to know, understand, &amp; do?</i>	<p><b>6-8.MS-LS1</b> - <i>[Disciplinary Core Idea] - From Molecules to Organisms: Structures and Processes</i></p> <p><b>6-8.MS-LS1-8</b> - <i>[Performance Expectation] - Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the BRAIN for immediate behavior or storage as memories.</i></p> <p><b>6-8.MS-LS1-8.8</b> - <i>Obtaining, evaluating, and communicating information in 6-8 builds on K-5 experiences and progresses to evaluating the merit and validity of ideas and methods.</i></p> <p><b>6-8.MS-LS1-8.8.1</b> - <i>[Practice] - Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence.</i></p> <p><b>6-8.MS-LS1-8.LS1.D - Information Processing</b></p> <p><b>6-8.MS-LS1-8.LS1.D.1</b> - <i>[Disciplinary Core Idea] - Each</i></p>	Learning Goals	<p>Students will be able to:</p> <ul style="list-style-type: none"> <li>● Interpret how a breakdown in communication in the nervous system would impact the function of the human body.</li> <li>● Communicate effectively for specific purposes and settings.</li> <li>● Solve a problem using analytical and critical thinking skills.</li> <li>● Collect and analyze medical evidence to draw conclusions.</li> <li>● Identify the variety of careers related to engineering, biomedical sciences, and computer science.</li> <li>● Collaborate effectively on a diverse and multi-disciplinary team.</li> </ul>	

*sense receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the BRAIN. The signals are then processed in the BRAIN, resulting in immediate behaviors or memories.*

**6-8.MS-LS1-8.2 - Cause and Effect**

**6-8.MS-LS1-8.2.1** - [Crosscutting Concept] - *Cause and effect relationships may be used to predict phenomena in natural systems.*

**6-8.MS-LS1-2.6.1** - [Crosscutting Concept] - *Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function.*

**6-8.MS-LS1-3** - [Performance Expectation] - *Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells*

**6-8.MS-LS1-3.7** - Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s).

**LA.6-8.CCSS.ELA-Literacy.WHS**

**T.6-8.1a** - Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.

**LA.6-8.CCSS.ELA-Literacy.WHS**

**T.6-8.2a** - Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.

**LA.6-8.CCSS.ELA-Literacy.WHS**

**T.6-8.1b** - Support claim(s) with logical reasoning and relevant, accurate data and

*evidence that demonstrate an understanding of the topic or text, using credible sources.*

**LA.6-8.CCSS.ELA-Literacy.WHS**

**T.6-8.1c** - *Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.*

**LA.6-8.CCSS.ELA-Literacy.WHS**

**T.6-8.2d** - *Use precise language and domain-specific vocabulary to inform about or explain the topic*

**6-8.MS-ETS1-1.ETS1.A.1** -

*[Disciplinary Core Idea] - The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions.*

**6-8.MS-ETS1-2** - *[Performance Expectation] - Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.*

**6-8.MS-ETS1-2.7** - *Engaging in argument from evidence in 6–8*

*builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world.*

**6-8.MS-ETS1-2.ETS1.B.1 -**

*[Disciplinary Core Idea] - There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.*

**6-8.MS-ETS1-3 - [Performance Expectation]** - *Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.*

**6-8.MS-ETS1-3.4 - Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.**

**6-8.MS-ETS1-3.4.1 - [Practice]** - *Analyze and interpret data to*

	<i>determine similarities and differences in findings.</i>		
<b>Essential Questions</b>	<p>What can patient signs and symptoms tell us about what is happening in the human body?</p> <p>How do medical detectives investigate their cases?</p> <p>What does effective teamwork look like?</p> <p>How does the nervous system allow our bodies to interact with the outside world?</p>		
<b>Assessments</b> <i>How will we know they have gained the knowledge &amp; skills?</i>	<b>Formative</b>	<b>Summative</b>	<b>Alternative</b>
	<ul style="list-style-type: none"> <li>● Choral and individual responses to questioning</li> <li>● Entrance/Exit Tickets</li> <li>● Quizzes (paper-based and/or Google forms)</li> <li>● Signals (thumbs up/down, sit/stand, and other answering strategies)</li> <li>● Graded Classwork/ Homework</li> <li>● Plickers Assessments</li> <li>● Quizlet live</li> <li>● Kahoot games/reviews</li> <li>● Individual white boards</li> <li>● Observations &amp; informal discussions with small groups or individuals during labs</li> <li>● Silent classroom polls</li> </ul>	<ul style="list-style-type: none"> <li>● Neuron Model</li> <li>● End of Unit Test</li> <li>● Extended Constructed Response Questions</li> <li>● Lab Analysis/Conclusion</li> <li>● Demonstration with explanation &amp; fielding questions</li> </ul>	<ul style="list-style-type: none"> <li>● Student-Taught Lesson (small groups of students will teach the class)</li> <li>● BrainPop Video (students create their own BrainPop-style video to explain a science phenomena)</li> <li>● Advice Column (students write advice to an “anonymous friend” to help)</li> <li>● Additional medical-patient files to read and interpret</li> <li>● Trivia Game (students create the questions and answers to be used in a review game)</li> </ul>



<p><b>Unit Pre-Assessment(s)</b> <i>What do they already know?</i></p>	<ul style="list-style-type: none"> <li>● Simple game (style may vary: kahoot, quizizz, plickers, etc)</li> <li>● Discussions</li> <li>● Pre-Test (paper-based, Google Form, Plickers, etc.)</li> <li>● Teacher-generated warm up questions with class discussion</li> <li>● Individual Whiteboards (students hold up agree/disagree or short answers in response to questions or statements)</li> <li>● Blind-Polling with Thumbs Up/Down (teacher asks a question or provides a vocabulary word; students close their eyes and demonstrate their comfort level with the information by indicating a thumbs up or down)</li> <li>● “Four Corners” (students are given a series of statements, decide for each one the level to which they agree/disagree, and then move to the appropriate area of the classroom identified with one of the options. Students will discuss their positions with the others in their group and present their opinions to the rest of the class)</li> </ul>			
<p><b>Instructional Strategies/Student Activities</b></p>	<ul style="list-style-type: none"> <li>● Direct Instruction</li> <li>● Scaffolding</li> <li>● Guided Practice</li> <li>● Cooperative learning</li> <li>● Modeling</li> <li>● Learning Stations</li> <li>● Graphic organizers</li> <li>● Note-taking sheets/interactive notebook</li> <li>● Turn and Talk / Think-Pair-Share</li> <li>● Flexible grouping</li> <li>● Inquiry-based learning</li> <li>● Self and Peer Review</li> </ul>			
<p><b>Instructional/Assessment Scaffolds</b> <i>(Modifications /Accommodations) – planned for prior to instruction</i></p>	<p><b>English Language Learners</b></p>	<p><b>Special Education Learners</b></p>	<p><b>Struggling Learners</b></p>	<p><b>Advanced Learners</b></p>
	<p>Preferential seating</p> <ul style="list-style-type: none"> <li>● Small group instruction as applicable</li> <li>● Read directions aloud</li> <li>● Clarified instruction</li> <li>● Highlight and discuss key words (notes and verbally)</li> </ul>	<p>Tiered assessments</p> <ul style="list-style-type: none"> <li>● Limit required material for class presentation</li> <li>● Differentiated grouping</li> <li>● Use of visual representations of concepts</li> </ul>	<ul style="list-style-type: none"> <li>● flexible grouping</li> <li>● Digital resources via Google Classroom</li> <li>● Read directions aloud</li> <li>● Clarifying directions or conducting check-ins as needed</li> <li>● Highlight/underline key words</li> <li>● Concrete examples / examples related to personal interests or background</li> <li>● Use of mnemonics</li> </ul>	<ul style="list-style-type: none"> <li>● Independent reading choices beyond texts studied with the class as a whole</li> <li>● Tiered assessments</li> <li>● Choice of assessment styles/formats</li> </ul>

- Provide key vocabulary prior to lesson and/or assessment
- One-on-one conferencing when needed
- Differentiated grouping
- Allow oral responses
- Use multiple choice format
- Read test aloud
- Provide definitions of key terms in native language
- Use native language for directions (if possible - use translator program or person)
- Single step directions
- Additional time
- Allow for tests corrections
- Vary test format
- Chunking
- Accept short answers on assessments
- Provide multiple texts (English and native language translation)
- Use of visual representations of concepts
- Modify writing tasks (provide multiple topics/assignments to choose from)

- Provide leveled reading material
- Preferential seating
- Small group instruction
- Small group testing
- Allow oral responses
- Use multiple choice format
- Modify assessments, as needed
- Read test aloud
- Read directions aloud
- Single step directions
- Answers to be dictated, as needed
- Additional time
- Allow for test corrections
- Allow retakes
- Provide study guides or study opportunities/class notes
- Read test passages/articles aloud (if assessing)

- Provide more detailed instructions for analysis tasks
- Provide visuals to accompany instruction
- Provide leveled reading material
- Preferential seating
- Small group instruction
- Additional time
- Allow for test corrections
- Vary test formats
- Provide study guides and study opportunities
- Chunk projects or long-term assignments
- Vary test formats
- Allow retakes
- Rest breaks, as needed
- Preview test procedures
- Pace long-term assignments (keeping calendar/schedule)
- Small group testing
- Collaborate with after-school programs or clubs to extend learning opportunities.
- Note taking on computer

- Independent study
- Learning stations
- Virtual escape rooms (unit specific)
- Current event presentations
- Creation of presentation, video or written review of a science topic or phenomena to be posted on our classroom website and shared with peers

	<ul style="list-style-type: none"> <li>● Short homework assignments</li> <li>● Digital resources via Google Classroom</li> <li>● Provide study guides and study opportunities, preferably in native language</li> <li>● Small group testing</li> <li>● Note taking on computer</li> </ul>	<p>reading comprehension )</p> <ul style="list-style-type: none"> <li>● Chunk projects or long-term assignments</li> <li>● Provide schedule/timeline</li> <li>● Choice of writing topics</li> <li>● Digital resources via Google Classroom</li> <li>● Note taking on computer</li> </ul>		
<p><b>Differentiated Instructional Methods:</b>  <i>(Multiple means for students to access content and multiple modes for student to express understanding)</i></p>	<p><b>Access</b> (Resources and/or Process)</p> <ul style="list-style-type: none"> <li>● Class discussions with questions at varied complexity levels</li> <li>● Varying collaboration, independence competition (work alone or with a partner when possible)</li> <li>● Assignment checklists/guides</li> <li>● Mini lessons to reteach, clarify &amp; extend</li> <li>● Use of small group sharing (Think-Pair-Share)</li> <li>● D.I. with use of technology</li> <li>● Interactive Notebook/Note-taking sheet (guided notes, “doodle” notes, Cornell notes, etc.)</li> <li>● Learning Stations with varied standard-based tasks</li> <li>● Use of Promethean Board for discussions, visuals, note-taking, interactives, etc.</li> <li>● Multi-level electronic texts (with audio capability) provided through Google Classroom</li> <li>● Read &amp; Think Alouds</li> </ul>	<p><b>Expression</b> (Products and/or Performance)</p> <ul style="list-style-type: none"> <li>● Student choice during formal assessment style (eliminate a certain number of questions, answer open-ended option A or B, draw a diagram or explain, etc.)</li> <li>● Menu Project / Choice Board</li> <li>● Individual or Small-group presentation</li> <li>● Rubric/criteria for success generated by teacher and students (may be different for different individuals/groups)</li> <li>● Problem based learning</li> <li>● Open ended opportunities</li> </ul>		

- Flexible grouping
- Reteaching /Reviewing
- Targeting Different Senses Within the Lesson (verbal, video, hands-on, use of visuals, modeling/acting out, songs/chants, etc)
- Reflection & Goal-setting
- Free Study Time (student choice: reviewing of notes, completion of task cards, watching a video review, small-group game, work completion with teacher-

**Vocabulary**  
 Highlight key  
 vocabulary (both  
 Tier II and Tier III  
 words)

Tier II: solve, design, collect and analyze, collaborate, communicate, identify, devise and execute, distinguish, measure, investigate

Tier III:

**Integration of  
 Technology [SAMR](#)**

Substitution:

- Taking notes via Google Docs
- Typing up responses to questioning and sharing with teacher/peer
- Completing graphic organizers via Google Docs or Slides
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<b>Resources/Materials</b>	Pltw.org PLTW Lab supplies Google Classroom BrainPop	

## Instructional Unit Map

**Course Title: Medical Detectives**

<b>Unit Title</b>	Unit 3: Outbreak!		<b>Start Date:</b>	After Unit 2 (during each trimester)
			<b>Length of Unit:</b>	15 days
<b>Content Standards</b> <i>What do we want them to know, understand, &amp; do?</i>	<p><b>6-8.MS-LS1-1.3.1</b> - <i>[Practice]</i> - Conduct an investigation to produce data to serve as the basis for evidence that meet the goals of an investigation.</p> <p><b>6-8.MS-LS2-1.LS2.A.1</b> - <i>[Disciplinary Core Idea]</i> - Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors.</p> <p><b>6-8.MS-LS2-2.6</b> - <i>Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.</i></p> <p><b>MA.K-12.4</b> - <i>[Standard]</i> - Model with mathematics.- Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In</p>	<b>Learning Goals</b>	<p>Students will be able to:</p> <ul style="list-style-type: none"> <li>● Solve a problem using analytical and critical thinking skills.</li> <li>● Design and conduct an experiment that investigates a question.</li> <li>● Collect and analyze medical evidence to draw conclusions.</li> <li>● Interpret how a breakdown in communication in the nervous system would impact the function of the human body.</li> <li>● Analyze health and disease data to identify the source of a disease outbreak.</li> <li>● Collaborate effectively on a diverse and multi-disciplinary team.</li> <li>● Communicate effectively for specific purposes and settings.</li> <li>● Identify the variety of careers related to engineering, biomedical sciences, and computer science.</li> </ul>	

*early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.*

**MA.7.RP** - [Domain] - Ratios and Proportional Relationships



**MA.7.RP.A** - Analyze proportional relationships and use them to solve real-world and mathematical problems.

**LA.6-8.CCSS.ELA-Literacy.WHS**

**T.6-8.1a** - Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.

**LA.6-8.CCSS.ELA-Literacy.WHS**

**T.6-8.2a** - Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.

**LA.6-8.CCSS.ELA-Literacy.WHS**

**T.6-8.1b** - Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.

**LA.6-8.CCSS.ELA-Literacy.WHS**

**T.6-8.1c** - Use words, phrases, and clauses to create cohesion

*and clarify the relationships among claim(s), counterclaims, reasons, and evidence.*

**LA.6-8.CCSS.ELA-Literacy.WHS**

**T.6-8.2d** - *Use precise language and domain-specific vocabulary to inform about or explain the topic*

**6-8.MS-ETS1-1.ETS1.A.1** -

*[Disciplinary Core Idea] - The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions.*

**6-8.MS-ETS1-2** - *[Performance Expectation] - Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.*

**6-8.MS-ETS1-2.7** - *Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions*

	<p><i>about the natural and designed world.</i></p> <p><b>6-8.MS-ETS1-2.ETS1.B.1</b> - <i>[Disciplinary Core Idea] - There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.</i></p> <p><b>6-8.MS-ETS1-3</b> - <i>[Performance Expectation] - Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.</i></p> <p><b>6-8.MS-ETS1-3.4</b> - <i>Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.</i></p> <p><b>6-8.MS-ETS1-3.4.1</b> - <i>[Practice] - Analyze and interpret data to determine similarities and differences in findings.</i></p>		
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**Essential Questions**

What can patient signs and symptoms tell us about what’s happening in the human body?  
 How do medical detectives investigate their cases?

	<p>What does effective teamwork look like?</p> <p>How does the nervous system allow our bodies to interact with the outside world?</p>		
<p><b>Assessments</b></p> <p><i>How will we know they have gained the knowledge &amp; skills?</i></p>	<b>Formative</b>	<b>Summative</b>	<b>Alternative</b>
	<ul style="list-style-type: none"> <li>● Choral and individual responses to questioning</li> <li>● Entrance/Exit Tickets</li> <li>● Quizzes (paper-based and/or Google forms)</li> <li>● Signals (thumbs up/down, sit/stand, and other answering strategies)</li> <li>● Graded Classwork/ Homework</li> <li>● Plickers Assessments</li> <li>● Quizlet live</li> <li>● Kahoot games/reviews</li> <li>● Individual white boards</li> <li>● Observations &amp; informal discussions with small groups or individuals during labs</li> <li>● Silent classroom polls</li> </ul>	<ul style="list-style-type: none"> <li>● PLTW provided materials</li> <li>● End of Unit Test</li> <li>● Extended Constructed Response Questions</li> <li>● Lab Analysis/Conclusion</li> <li>● Demonstration with explanation &amp; fielding questions</li> </ul>	<ul style="list-style-type: none"> <li>● Student-Taught Lesson (small groups of students will teach the class)</li> <li>● BrainPop Video (students create their own BrainPop-style video to explain a science phenomena)</li> <li>● Advice Column (students write advice to an “anonymous friend” to help)</li> <li>● Additional medical -patient files to read and interpret</li> <li>● Trivia Game (students create the questions and answers to be used in a review game)</li> </ul>
<p><b>Unit Pre-Assessment(s)</b></p> <p><i>What do they already know?</i></p>	<p>Teacher generated questions-Google Form</p> <p>PLTW resources</p>		

<b>Instructional Strategies/Student Activities</b>	<ul style="list-style-type: none"> <li>● Direct Instruction</li> <li>● Scaffolding</li> <li>● Guided Practice</li> <li>● Cooperative learning</li> <li>● Modeling</li> <li>● Learning Stations</li> <li>● Graphic organizers</li> <li>● Note-taking sheets/interactive notebook</li> <li>● Turn and Talk / Think-Pair-Share</li> <li>● Flexible grouping</li> <li>● Inquiry-based learning</li> <li>● Self and Peer Review</li> </ul>			
<b>Instructional/Assessment Scaffolds</b> <i>(Modifications /Accommodations) – planned for prior to instruction</i>	<b>English Language Learners</b>	<b>Special Education Learners</b>	<b>Struggling Learners</b>	<b>Advanced Learners</b>
	<p>Preferential seating</p> <ul style="list-style-type: none"> <li>● Small group instruction as applicable</li> <li>● Read directions aloud</li> <li>● Clarified instruction</li> <li>● Highlight and discuss key words (notes and verbally)</li> <li>● Provide key vocabulary prior to lesson and/or assessment</li> <li>● One-on-one conferencing when needed</li> <li>● Differentiated grouping</li> <li>● Allow oral responses</li> <li>● Use multiple choice format</li> <li>● Read test aloud</li> </ul>	<p>Tiered assessments</p> <ul style="list-style-type: none"> <li>● Limit required material for class presentation</li> <li>● Differentiated grouping</li> <li>● Use of visual representations of concepts</li> <li>● Provide leveled reading material</li> <li>● Preferential seating</li> <li>● Small group instruction</li> <li>● Small group testing</li> </ul>	<ul style="list-style-type: none"> <li>● flexible grouping</li> <li>● Digital resources via Google Classroom</li> <li>● Read directions aloud</li> <li>● Clarifying directions or conducting check-ins as needed</li> <li>● Highlight/underline key words</li> <li>● Concrete examples / examples related to personal interests or background</li> <li>● Use of mnemonics</li> <li>● Provide more detailed instructions for analysis tasks</li> <li>● Provide visuals to accompany instruction</li> <li>● Provide leveled reading material</li> <li>● Preferential seating</li> <li>● Small group instruction</li> <li>● Additional time</li> <li>● Allow for test corrections</li> </ul>	<ul style="list-style-type: none"> <li>● Independent reading choices beyond texts studied with the class as a whole</li> <li>● Tiered assessments</li> <li>● Choice of assessment styles/formats</li> <li>● Independent study</li> <li>● Learning stations</li> <li>● Virtual escape rooms (unit specific)</li> <li>● Current event presentations</li> </ul>

- Provide definitions of key terms in native language
- Use native language for directions (if possible - use translator program or person)
- Single step directions
- Additional time
- Allow for tests corrections
- Vary test format
- Chunking
- Accept short answers on assessments
- Provide multiple texts (English and native language translation)
- Use of visual representations of concepts
- Modify writing tasks (provide multiple topics/assignments to choose from)
- Short homework assignments
- Digital resources via Google Classroom
- Provide study guides and study opportunities, preferably in native language
- Small group testing

- Allow oral responses
- Use multiple choice format
- Modify assessments, as needed
- Read test aloud
- Read directions aloud
- Single step directions
- Answers to be dictated, as needed
- Additional time
- Allow for test corrections
- Allow retakes
- Provide study guides or study opportunities/class notes
- Read test passages/articles aloud (if assessing reading comprehension)
- Chunk projects or long-term assignments
- Provide schedule/timeline

- Vary test formats
- Provide study guides and study opportunities
- Chunk projects or long-term assignments
- Vary test formats
- Allow retakes
- Rest breaks, as needed
- Preview test procedures
- Pace long-term assignments (keeping calendar/schedule)
- Small group testing
- Collaborate with after-school programs or clubs to extend learning opportunities.
- Note taking on computer

- Creation of presentation, video or written review of a science topic or phenomena to be posted on our classroom website and shared with peers

	<ul style="list-style-type: none"> <li>Note taking on computer</li> </ul>	<ul style="list-style-type: none"> <li>Choice of writing topics</li> <li>Digital resources via Google Classroom</li> <li>Note taking on computer</li> </ul>		
<p><b>Differentiated Instructional Methods:</b> <i>(Multiple means for students to access content and multiple modes for student to express understanding)</i></p>	<p><b>Access</b> (Resources and/or Process)</p>		<p><b>Expression</b> (Products and/or Performance)</p>	
	<ul style="list-style-type: none"> <li>Class discussions with questions at varied complexity levels</li> <li>Varying collaboration, independence competition (work alone or with a partner when possible)</li> <li>Assignment checklists/guides</li> <li>Mini lessons to reteach, clarify &amp; extend</li> <li>Use of small group sharing (Think-Pair-Share)</li> <li>D.I. with use of technology</li> <li>Interactive Notebook/Note-taking sheet (guided notes, “doodle” notes, Cornell notes, etc.)</li> <li>Learning Stations with varied standard-based tasks</li> <li>Use of Promethean Board for discussions, visuals, note-taking, interactives, etc.</li> <li>Multi-level electronic texts (with audio capability) provided through Google Classroom</li> <li>Read &amp; Think Alouds</li> <li>Flexible grouping</li> <li>Reteaching /Reviewing</li> <li>Targeting Different Senses Within the Lesson (verbal, video, hands-on, use of visuals, modeling/acting out, songs/chants, etc)</li> <li>Reflection &amp; Goal-setting</li> <li>Free Study Time (student choice: reviewing of notes, completion of task cards, watching a video review, small-group game, work completion with teacher-</li> </ul>		<ul style="list-style-type: none"> <li>Student choice during formal assessment style (eliminate a certain number of questions, answer open-ended option A or B, draw a diagram or explain, etc.)</li> <li>Menu Project / Choice Board</li> <li>Individual or Small-group presentation</li> <li>Rubric/criteria for success generated by teacher and students (may be different for different individuals/groups)</li> <li>Problem based learning</li> <li>Open ended opportunities</li> </ul>	

<p><b>Vocabulary</b>  <i>Highlight key vocabulary (both Tier II and Tier III words)</i></p>	<p>Tier II: solve, design, collect and analyze, collaborate, communicate, identify, devise and execute, distinguish, measure, investigate</p> <p>Tier III: outbreak</p>	
<p><b>Integration of Technology</b> <a href="#">SAMR</a></p>	<p>Substitution:</p> <ul style="list-style-type: none"> <li>● Taking notes via Google Docs</li> <li>● Typing up responses to questioning and sharing with teacher/peer</li> <li>● Completing graphic organizers via Google Docs or Slides</li> <li>● Completing digital worksheets via Google Forms, Docs, or Slides</li> <li>● Use of online-based texts with dictionary and highlighting features</li> <li>● Conducting research via Google</li> <li>● Use of Google Classroom for providing and organizing materials</li> </ul> <p>Augmentation:</p> <ul style="list-style-type: none"> <li>● Completing quizzes/tests via Google Forms</li> <li>● Researching within Google Docs to add information and graphics to enhance notes</li> <li>● Use of online-based texts with embedded videos and links to enhance understanding</li> <li>● Using Gizmos, Phet, and other virtual labs/simulations</li> <li>● Creation of scientific diagrams/models using Google Drawings</li> <li>● Sharing videos, simulations, and other “extras” via Google Classroom to supplement notes and understanding</li> <li>● Posting student created material via Padlet for sharing with peers</li> <li>● Use of Quizizz or Kahoot! to review before a test</li> </ul> <p>Modification:</p> <ul style="list-style-type: none"> <li>● Collaboration of students on a multimedia/slides project</li> <li>● Peer-editing multimedia work</li> <li>● Using Gizmos, Phet, and other virtual labs/simulations</li> <li>● Creation of presentation, video, or written review of a science topic or phenomena posted on our classroom website</li> <li>● Student completion of WebQuests</li> <li>● Student participation in Digital Escape Rooms</li> <li>● Plickers assessments</li> </ul>	



	<p>Redefinition:</p> <ul style="list-style-type: none"><li>● Collaboration of students on a multimedia/slides project</li><li>● Posting, reviewing, and commenting on student created material via Padlet</li><li>● Student-Created and Student-Taught Lesson with multimedia presentation</li><li>● Use of Quizizz or Kahoot! to review before a test</li><li>● Plickers assessments</li></ul>
<p><b>Interdisciplinary Connections</b> <a href="#">NJ Student Learning Standards</a></p>	<p>Career Awareness and Planning :</p> <ul style="list-style-type: none"><li>● An individual’s strengths, lifestyle goals, choices, and interests affect employment and income.<ul style="list-style-type: none"><li>○ 9.2.8.CAP.1: Identify offerings such as high school and county career and technical school courses, apprenticeships, military programs, and dual enrollment courses that support career or occupational areas of interest.</li><li>○ 9.2.8.CAP.2: Develop a plan that includes information about career areas of interest.</li><li>○ 9.2.8.CAP.3: Explain how career choices, educational choices, skills, economic conditions, and personal behavior affect income.</li><li>○ 9.2.8.CAP.4: Explain how an individual’s online behavior (e.g., social networking, photo exchanges, video postings) may impact opportunities for employment or advancement.</li></ul></li><li>● Communication skills and responsible behavior in addition to education, experience, certifications, and skills are all factors that affect employment and income.<ul style="list-style-type: none"><li>○ 9.2.8.CAP.15: Present how the demand for certain skills, the job market, and credentials can determine an individual’s earning power.</li><li>○ 9.2.8.CAP.16: Research different ways workers/ employees improve their earning power through education and the acquisition of new knowledge and skills.</li><li>○ 9.2.8.CAP.19: Relate academic achievement, as represented by high school diplomas, college degrees, and industry credentials, to employability and to potential level</li></ul></li></ul> <p>Critical Thinking and Problem-solving</p> <ul style="list-style-type: none"><li>● An essential aspect of problem solving is being able to self-reflect on why possible solutions for solving problems were or were not successful.<ul style="list-style-type: none"><li>○ 9.4.8.CT.3: Compare past problem-solving solutions to local, national, or global issues and analyze the factors that led to a positive or negative outcome.</li></ul></li></ul> <p>Information and Media Literacy</p> <ul style="list-style-type: none"><li>● Increases in the quantity of information available through electronic means have heightened the need to check sources for possible distortion, exaggeration, or misrepresentation.<ul style="list-style-type: none"><li>○ 9.4.8.IML.1: Critically curate multiple resources to assess the credibility of sources when searching for information.</li><li>○ 9.4.8.IML.2: Identify specific examples of distortion, exaggeration, or misrepresentation of information.</li></ul></li></ul>

- Digital tools make it possible to analyze and interpret data, including text, images, and sound. These tools allow for broad concepts and data to be more effectively communicated.
  - 9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b).
  - 9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations.
  - 9.4.8.IML.5: Analyze and interpret local or public data sets to summarize and effectively communicate the data.

Technology Literacy

- Some digital tools are appropriate for gathering, organizing, analyzing, and presenting information, while other types of digital tools are appropriate for creating text, visualizations, models, and communicating with others.
  - ●9.4.8.TL.1: Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.
  - 9.4.8.TL.2: Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4,6.1.8.EconET.1, 6.1.8.CivicsPR.4).

<b>21<sup>st</sup> Century Themes/Skills</b> <a href="#">P21 Framework</a>	<b>Themes</b>	<b>Skills</b>
	<ul style="list-style-type: none"> <li>● Global Awareness</li> <li>● Health Literacy</li> </ul>	<ul style="list-style-type: none"> <li>● Creativity and innovation</li> <li>● Critical thinking and problem solving</li> <li>● Communication and collaboration</li> <li>● Flexibility and adaptability</li> </ul>
<b>Resources/Materials</b>	Pltw.org Brainpop PLTW lab supplies Google Classroom	