Course Title:	Content Area:	Grade Level:	Credit (if applicable)
Grade 7 Science	Science	7	N/A (Middle School Course)

Course Description:

This course utilizes an inquiry-based framework grounded in national standards to foster advanced analytical and scientific literacy skills. Throughout the academic year, students engage in evidence-based scientific and engineering practices (including modeling phenomena, interpreting data, and constructing arguments) across four comprehensive disciplines of study.

Throughout the year, students investigate how living, physical, and Earth systems work together through the lens of structure, function, and interaction. Beginning with the organization of life from cells to body systems, learners explore how parts interact to maintain balance and respond to change. They then turn to Earth's dynamic systems, using Mt. Everest as a model to uncover how internal and external forces shape our planet. Building on these ideas, students apply Newton's Laws of Motion to design and test rollercoasters, connecting physics to real-world engineering. The course culminates in the Congo Medicine Drop challenge, where students use scientific reasoning and design thinking to solve global problems through innovation and teamwork. Across all units, inquiry, collaboration, and hands-on investigation empower students to see science as an interconnected process that explains and improves the world around them.

Aligned Core Resources:	Connection to the *BPS Vision of the Graduate*
Grade 7 - MS Science Instructional Guide Next Generation Science Standards (NGSS) Cluster/Item Specifications Specifications for Middle School • MS-LS1: From Molecules to Organisms: Structures and Processes • MS-ESS2: Earth's Systems • MS-PS2: Motion and Stability: Forces and Interactions • MS-PS3: Energy • MS-ETS1: Engineering Design	**Meaningfully Contribute to a Global Society** Collaboration during labs and inquiry related activities, social and cross-cultural skills during small and large group discussions and activities **Effectively Communicate in a Global Society** Media literacy through lab activities, investigations and projects, communication, information literacy **Demonstrate Academic Knowledge and Skills** Checking content mastery through labs and assessments, opportunities for critical thinking and problem solving during independent and group analysis

Additional Course Information: *Knowledge/Skill Dependent courses/prerequisites*	Link to *Completed Equity Audit*
N/A	Equity Curriculum Review Audit (Gr. 6-8 Science)

Standard Matrix

Standard		Unit 1	Unit 2	Unit 3	Unit 4
MS-LS1-1	Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.	✔			
MS-LS1-2	Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.	✔			
MS-LS1-3	Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.	✔			
MS-LS1-8	Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.	✔			
MS-ESS2-1	Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.		✔		
MS-ESS2-2	Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales		✔		
MS-ESS2-3	Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate motions.		✔		
MS-PS2-1	Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.			✔	
MS-PS2-2	Plan an investigation to provide evidence that the change in an object's			✔	

	motion depends on the sum of the forces on the object and the mass of the object.				
MS-PS2-3	Ask questions about data to determine the factors that affect the strength of electrical and magnetic forces.			✔	
MS-PS2-4	Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.			✔	
MS-PS3-1	Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object			✔	
MS-PS3-2	Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.			✔	
MS-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions			✔	
MS-ETS1-1	Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.				✔
MS-PS3-4	Plan an investigation to determine the relationships among energy transferred, type of matter, mass, and change in the average kinetic energy of particles, as measured by the temperature of a sample.				✔
MS-PS3-5	Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object				✔
MS-ETS1-3	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.				✔
MS-ETS1-4	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.				✔

Unit Links	
Grade 7 Science Unit 1: Body Systems Unit 2: Mt Everest Unit 3: Rollercoasters Unit 4: Congo Medicine Drop	Use of Instructional Time (181 School Days) ➔ Maximum of 177 Content and Assessment Days ➔ 2 Culture and Climate Days at the start of the year ➔ 2 half-days before long school breaks

<table>
<tr><th colspan="2">Unit Title</th></tr>
<tr><td colspan="2">Unit 1: Body Systems</td></tr>
<tr><th colspan="2">Relevant Standards</th></tr>
<tr><td colspan="2">MS LS1-1: Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.
MS LS1-2: Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.
MS LS1-3: Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
MS LS1-8: Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.</td></tr>
<tr><th>Essential Question(s)</th><th>Enduring Understanding(s)</th></tr>
<tr><td>• How do injuries affect our body from the cellular to the systems level?
• What characterizes living organisms? What characteristics of life can be impacted by injury? How might this affect living things?
• How do the parts of a cell work together as one functioning unit? How do injuries impact cells and their functions?
• How do the body systems interact? How does an injury in one system impact other systems?
• What are sense receptors and how do they work?
• How do sensory receptors play a role in preventing injury?</td><td>• An injury disrupts the structure and function of cells, tissues, and organ systems, triggering a coordinated biological healing process across multiple scales to repair damage.
• All living organisms share fundamental characteristics, including cellular organization (being unicellular or multicellular), growth, and the ability to respond to their environment.
• A cell operates as an integrated system where specialized organelles perform distinct, complementary functions necessary to sustain cellular life
• Multi-cellular organisms are organized hierarchically (from cells to tissues, organs, and organ systems), where individual systems continuously interact and depend on one another to maintain life
• Sensory receptors are specialized cells that detect external and internal stimuli and transmit signals through the nervous system to generate body responses.
• Sensory receptors detect potential hazards or pain, rapidly sending nerve signals to trigger voluntary or involuntary responses (such as reflexes) that protect the body from damage.</td></tr>
<tr><th>Demonstration of Learning</th><th>Pacing for Unit</th></tr>
<tr><td>3 Common Assessments (via Pear Assessment)
1 End of Unit Assessment (Performance Task)</td><td>51 Days</td></tr>
<tr><th>Family Overview (link below)</th><th>Integration of Technology:</th></tr>
<tr><td>Grade 7 Science - Family Overview</td><td>Open SciEd Virtual Labs
Gizmos Demonstration
PhET simulators</td></tr>
<tr><th>Unit-specific Vocabulary</th><th>Aligned Unit Materials, Resources, and Technology (beyond core resources)</th></tr>
<tr><td>Multicellular, unicellular, tissues, organ, system, organism hierarchy, bacteria, colonies, yeast, biotic, abiotic, prokaryote, eukaryote, magnify, microscope, DNA, nucleus, cell wall, cell membrane, algae, chloroplast(s), chromosomes, mitochondrion, diffusion, osmosis, semi-permeable, photosynthesis, cellular respiration, sugar, RNA, energy, cytoplasm, organelle, organization, organ system, response, internal cue, life-sustaining functions, muscular system, anatomy, aorta, artery, automatic, bone, bone marrow, brain, brain stem, cerebellum, cerebrum, circulatory system, connective tissue, cornea,</td><td>Non-Consumable
• Plant Animal Cell Mystery kit
• 3D model of animal and plant cells
• 3D models of the human body
• Clear slides
• Human skeleton model
• Microscopes
• Rulers
• Slides (animal cell (unicellular and multicellular) plant cells, human body cells,
• Access to computers for student research
• Access to Smartboard and videos
• Blindfolds - class set
• Calculators
• Eye droppers
• Triple beam balance or digital balance
• White boards
• Whiteboard erasers
• Stop watches</td></tr>
</table>

digestive system, gland, lens, muscle, muscle cell, reflex, sensory, skeletal system, tissue, respiratory system, vertebrate, invertebrate, reproduction, breed, heart, lungs, heart rate, memory, perception, transmit, accuracy, immediate, nerve, receptor, sense receptor, sensory, behavioral response to stimuli, electromagnetic, stimulus, short-term memory, long-term memory, salt, sour, sweet, bitter, nervous system, taste, smell, touch, hear, sight	blood cells, letter e and/or colored string slides) • Stethoscopes Consumable • Cell stain dyes • Chart paper • Colored pencils • Coverslips • Eggs • Index cards • Karo syrup • Legal sized papers • Long swabs • Markers • String • Student composition notebooks • Vinegar • White board markers • Food coloring • Graph paper • Highlighters • White lined paper • Plastic cups clear • Parafilm or saran wrap • Pipettes disposable • Plastic Spoons • Post-it notes •
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
• Students will meet multiple writing and speaking ELA standards throughout the unit culminating in the formal debate at the end of the unit • Students collect and interpret data from heart rate labs, and create graphs using that data. Ties into Math standards • Students craft lab reports, CER (Claim-Evidence-Reasoning) responses, and design proposals using clear structure and evidence. (ELA)	• Scale and size of cells • Cell organelles and design • Living things are not just humans but includes animals and plants, etc • Not every living organism breathes and needs oxygen, has a heart or blood, has eyes etc
Connections to Prior Units	**Connections to Future Units**
N/A	Size and scale will connect to Unit 2

Enduring Understandings: Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Papercut to Scab" investigation tracking the step-by-step microscopic and macroscopic changes that occur when skin is damaged.	Multi-scale visual diagram showing injury and repair progression across levels: damaged cells -> clotting tissue -> circulatory and immune system response.	Create a labeled comic strip or step-by-step digital storyboard depicting cellular repair and tissue healing following a minor injury.
LT2	Is It Alive?" station lab comparing seeds, yeast, water, robot toys, and crystals under different environmental conditions.	Comparative chart and Venn diagram contrasting unicellular organisms (e.g., amoeba) with multicellular organisms (e.g., humans) across life traits.	Sort physical card sets of mystery items into living vs. non-living categories with written evidence, or record a video justification
LT3	City Analogy mapping individual cell parts (nucleus, membrane, mitochondria) to real-world operational roles.	Interactive 3D cell diagram and functional flowchart displaying key organelles (nucleus, membrane, cytoplasm, mitochondria, vacuole) working together.	Construct a 3D physical cell model or write a comparative "job profile" portfolio detailing how organelles depend on one another.
LT4	"Body System Teamwork" simulation demonstrating how the digestive and circulatory systems cooperate to deliver nutrients to working muscle cells.	Nested organizational pyramid (cell -> tissue -> organ -> organ system -> organism) paired with system interaction flowcharts.	Design an explanatory infographic or presentation tracing how a necessary resource (like oxygen or sugar) moves from an organ system down to an individual cell.
LT5	"Mystery Sensory Box" investigation testing touch, smell, and sound reception to trace how body senses collect information.	Signal pathway diagram mapping the pathway: Stimulus -> Sensory Receptor -> Sensory Neuron -> Brain -> Motor Neuron -> Response.	Draw a labeled pathway map or record a screencast explaining how a specific sensory receptor (sight, touch, or hearing) sends messages to the brain.

LT6	"Ruler Drop & Hot Surface Reflex Challenge" measuring reaction speeds and comparing voluntary choices to involuntary reflex actions.	Reflex arc diagram contrasting rapid involuntary spinal cord loops (protective reflexes) with slower voluntary brain processing routes.	Write a Claim-Evidence-Reasoning (CER) paragraph or script a short skit explaining why reflexes bypass conscious brain decisions to prevent injury.

Supporting Multilingual/English Learners (CELP standards)

	Emerging	Expanding	Bridging
LT1	I can match pictures of an injury to affected body parts and label basic changes using a word bank.	I can describe how an injury disrupts cells, tissues, and organs using a graphic organizer and sentence starters.	I can explain in detail how an injury disrupts the structure and function of cells, tissues, and organ systems across multiple scales.
LT2	I can sort items into living and non-living groups and match visual cards to basic characteristics of life.	I can describe the shared characteristics of living things (cells, growth, response to environment) using sentence frames.	I can analyze whether an unknown specimen is living or non-living by evaluating all fundamental characteristics of life in a written response.
LT3	I can label cell organelles and match their pictures to simple job cards using a visual word bank.	I can describe how different cell organelles work together to keep a cell alive using an analogy chart and sentence starters.	I can explain in detail how specialized organelles function as an integrated system to sustain cellular life.
LT4	I can match body system pictures and trace connections between two systems using color-coded arrows.	I can describe how two or more body systems work together to perform a life function using cause-and-effect sentence frames.	I can analyze and explain how multiple body systems continuously interact and depend on each other to maintain overall body function.
LT5	I can label sense organs and trace a signal path from stimulus to brain using visual cards and arrows.	I can describe how sensory receptors detect stimuli and send nerve signals to the brain using a flowchart and sentence starters.	I can explain in detail how specialized sensory receptors detect internal and external stimuli and transmit signals through the nervous system to generate a body response.
LT6	I can match picture cards of dangerous situations (hazards/pain) to quick protective body reactions.	I can describe how pain receptors trigger rapid voluntary or reflex responses to protect the body using graphic organizers and sentence frames.	I can evaluate and explain how sensory receptors detect hazards and send fast neural signals to trigger protective responses (such as reflexes) that prevent injury.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences Grade 7 - MS Science Instructional Guide
Learning Sequence 1: Introduction (4 days)			
1	**Learning Target 1** I can explain how an injury affects the body.	• I can identify an injury I have/had and explain how it impacted other parts of my body. • I can ask scientific questions to help me understand how my injury changed over time.	
2		• I can read an emergency report to gather information on an injury sustained by a middle school student	
3		• I can analyze a doctor's report and develop and start to develop an idea of how the body heals	
4		• I can develop an initial model to show how the body heals.	
Learning Sequence 2: Characteristics of Life (9 Days)			
5-8	**Learning Target 2** I can describe the characteristics that living things possess.	• I can investigate what it means to be alive. • I can list and explain the characteristics of living things.	
9-10		• I can distinguish between different types of cells	
11		• I can classify a living thing as unicellular or multicellular • I can explain why unicellular and multicellular organisms have differences in their cells.	

12-13		• I can properly use a microscope to identify/make observations of different types of cells
Learning Sequence 3: Cell Structure (15 Days)		
14-25	**Learning Target 3** I can explain how the parts of a cell work together as a functioning unit.	• I can identify the parts of a cell and their unique function. • I can explain how the organelles contribute to the cell system as a whole.
26		• I can predict the impact an injury can have on cells of the body.
27-28		• I can describe how the structure of the cell membrane affects the function of a cell as a whole.
Learning Sequence 4: Body Systems (13 Days)		
29-41	**Learning Target 4** I can explain how body systems interact.	• I can identify and organize levels of organization within living things. • I can examine specialized cells in each of the body systems (skeletal, muscular, circulatory, digestive, respiratory) and describe their functions within the correlating body system. • I can describe the components and function of each body system. • I can develop an explanatory model to show how (circulatory, respiratory, digestive, skeletal, muscular) systems work together to support the body as a whole.
Learning Sequence 5: Sensory Receptors (7 Days)		
41-43	**Learning Target 5** I can explain what sense receptors are and how they work.	• I can explain the role of the nervous system in controlling body responses. • I can model the components of the nervous system. • I can compare voluntary and involuntary responses in the body.
44-47	**Learning Target 6** I can explain how sensory receptors play a role in preventing injuries.	• I can explain how sensory experiences create a response in the body. • I can create a model explaining a sensory response at the cellular, tissue, and systems levels (scale/systems).
Culminating Performance Task (3 Days)		
47-49	Students engage in a debate about whether or not youth sports should be full contact	
50	**Flex Day**	
51	**End of Unit Assessment**	

Unit Title	
Unit 2: Mt Everest	
Relevant Standards	
MS-ESS2-1: Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. MS-ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales MS-ESS2-3: Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate motions. MS-ESS3-1: Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. MS-ESS3-2: Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.	
Essential Question(s)	**Enduring Understanding(s)**
• Why are there marine fossils on the top of Mount Everest? • What evidence do we have that Earth has changed over time? • How do plates move? • What effects does plate movement have on Earth's surface? • How and why does the surface of the Earth change? • What geologic forces shape the Earth? • What are natural hazards and how can we predict them?	• Plate movement across the Earth's surface has caused the phenomenon of various landforms having unexpected features based on their present-day locations • Earth is made of moving plates that move great distances, collide, and spread apart over long periods of time • Tectonic processes make new sea floor at ocean ridges and destroy sea floor at ocean trenches • Matter cycles and energy flows on Earth to cause changes in Earth's materials • Moving water on the surface and underground causes weathering and erosion • Weathering and erosion create and destroy landforms and change Earth's surface • Understanding geologic forces helps predict natural hazards such as earthquakes and volcanoes • Mapping history can predict future natural hazards
Demonstration of Learning	**Pacing for Unit**
4 Formative Assessments 1 End of Unit Assessment	49 Days
Family Overview (link below)	**Integration of Technology:**
[Grade 7 Science - Family Overview]	Open SciEd Gizmos Demonstrations PhEt Simulators
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Collide, heat conduction, transform, transport, heat transfer, heat radiation, thermal energy, heat convection, precipitation, volcanic eruption, chemical, weathering, erosion, sediment, deposition, rock cycle, ice wedge, fault, fold, igneous rock, metamorphic rock, sedimentary rock, volcanic rock, plate tectonics, crust, mantle, outer core, inner core, earthquake, volcanic eruptions, core, pressure, continent, erosion, weathering, magma, lava, igneous, sedimentary, metamorphic, mineral, meteor, crater, continental drift, divergent boundary, convergent boundary, hot spot, fault, tsunami, hurricane, tornado, fracture, folding, compressing, sea floor spreading, layer, ridge, trench, plateau, slope, landslides, floods, caves, convection, density, plate tectonics, geosphere, element, continental, upwelling, convection,	Non-Consumable • 3D model of Earth's layers • Access to computers for student research • Access to Smartboard and videos • Calculators • Earth timeline kit for hallway wall • Fan • Glass jars • Whiteboard erasers • Ice Cube trays • Marble • Marine fossil kits • Pennies • Rulers • Stop watches • Trays • Triple beam balance or electronic scales • White boards Consumable • Rubbing alcohol • Baby oil • Plastic baggies • Plastic knives

subduction, ridge, volcanic, sedimentary, fault, extension, volcanic rock, sedimentary rock, metamorphic rock, agricultural, biosphere, conservation, consumption, deposition, distribution, efficient, energy source, geologic trap, hydrothermal, impact, interdependence, marine sediment, metal ore, organic, petroleum, regulation, renewable energy, subduction zone.	• Chart paper • Clay • Colored pencils • Food coloring • Graph paper • highlighters • Index cards • Legal sized papers • Markers • Milky Ways • molasses • Paper towels • White lined paper • Whiteboard markers • Playdough • Post-it notes • Salt • Sand • Soil • Straws • Student composition notebooks • Sugar cubes • Various fabrics to prevent erosion • Vegetable oil • Vinegar
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
• Calculating scale models and density reinforces precision and unit conversions via Math standards • Students craft lab reports, CER (Claim-Evidence-Reasoning) responses, and design proposals using clear structure and evidence. (ELA)	• Weathering and erosion are the same thing • Earth does not change • Size and scale of land formations
Connections to Prior Units	**Connections to Future Units**
Teachers can connect Mechanical and Chemical Weathering to Mechanical and Chemical Digestion, which was taught in the Body Systems unit.	In this unit students are taught how the density of magma inside the mantle affects plate movement. During Bundle 4 (Congo Drop), students are exploring and discussing the density of molecules in different states of matter. They use this knowledge to design a vaccine storage container kept at an optimal temperature.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Everest Extreme Lab" exploring weather surges, moving glaciers, avalanches, and active mountain growth on the world's highest peak.	Interactive environment map detailing active geologic, atmospheric, and ice (cryosphere) interactions at high altitude.	Write a dynamic system summary or construct a multi-layer diagram illustrating how Mt. Everest is constantly changing.
LT2	"Fast vs. Slow Earth Time" comparing rapid events (avalanches, earthquakes) with the millions of years required to form the Himalayas.	Dual-scale geologic timeline contrasting sudden changes (seconds to days) with slow, deep-time processes (millions of years).	Construct an annotated timeline plotting key events in Everest's geological history across rapid and gradual time scales.
LT3	"Himalayan Cascade Simulation" modeling how underground fault slips trigger surface avalanches, landslides, and river blockages.	Cause-and-effect flowchart mapping system interactions (e.g., tectonic stress -> earthquake -> slope failure -> river damming).	Analyze an environmental event scenario and write predictions using a cause-and-effect chain diagram or written justification.
LT4	"Continental Collision Lab" pushing clay/foam layers together to simulate how the Indian and Eurasian plates crumple and lift land upward.	Cross-section tectonic diagram showing convergent boundary collision, crustal buckling, and high-altitude mountain uplift.	Draft a Claim-Evidence-Reasoning (CER) report or construct a physical/digital cross-section explaining how plate movement built Everest.
LT5	"Global Earthquake Tracker" plotting real-time seismic data to spot patterns along plate boundaries around the world.	World tectonic map overlay connecting plate boundary types (convergent, divergent, transform) to seismic and mountain-building hot spots.	Analyze tectonic movement data to predict future changes in Everest's height and locate high-risk earthquake zones along convergent boundaries.
LT6	"Glacier Carving & Freeze-Thaw Lab" testing how expanding ice breaks rocks apart and sliding glaciers carve out mountain valleys.	Weathering and erosion diagram detailing freeze-thaw physical weathering, glacial carving (U-shaped valleys), and meltwater sediment transport.	Sketch labeled diagrams or record a video explanation detailing how liquid water and ice reshape Everest's rock structures over time.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can match pictures and label factors (extreme weather, moving glaciers, earthquakes) showing Mt. Everest is constantly changing, using a word bank.	I can describe how freezing weather, moving ice, and tectonic forces make Mt. Everest a changing environment using sentence starters and graphic organizers.	I can explain in detail how interacting Earth systems (atmosphere, hydrosphere, geosphere) make Mt. Everest - a dynamic, continually changing environment.
LT2	I can sort pictures of Earth changes onto a timeline into "fast" (earthquakes, avalanches) or "slow" (mountain uplift, erosion) groups using visual cards.	I can use a geological timeline to describe how Earth processes occur over fast and slow time scales using structured templates and sentence frames.	I can analyze a geological timeline to evaluate and explain how Earth's systems change over varying time scales, from sudden events to millions of years.
LT3	I can match cause-and-effect picture cards showing Earth events (e.g., heavy snow -> avalanche; plate collision -> mountain building).	I can describe cause-and-effect relationships in Earth's systems to predict geological events using sentence frames ("If [cause] occurs, then [effect] will happen because...").	I can analyze cause-and-effect relationships across Earth's systems to predict and justify future geological phenomena in a written response.
LT4	I can label plate movements (crashing, pushing up) on diagrams and match them to visual features like mountain ranges using word banks.	I can describe how tectonic plate movement changes Earth's surface and builds mountains over time using graphic organizers and sentence starters.	I can construct a detailed explanation proving how plate tectonics and continental collisions reshape Earth's surface and uplift mountain ranges like Mt. Everest over time.
LT5	I can match plate boundary symbols (convergent, divergent, transform) on a world map to locations of earthquakes or volcanoes using a map key.	I can use patterns along plate boundaries to predict where future earthquakes or mountain growth will happen using map templates and sentence starters.	I can evaluate global plate boundary patterns to explain geological phenomena and predict future tectonic events and landform changes.
LT6	I can label how water and ice change rocks and soil (freezing, melting, carrying away) on diagrams using visual word cards.	I can describe how water and ice break down rocks (weathering) and move materials (erosion) on Mt. Everest using flowcharts and sentence frames.	I can explain in detail how water in liquid and solid states drives weathering, erosion, and glacial carving to reshape Earth's surface materials.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences [Grade 7 - MS Science Instructional Guide]
Learning Sequence 1: Introduction to the Anchor Phenomenon (7 Days)			
1-7	**Learning Target 1** I can explain what makes Mt. Everest a dynamic environment.	• I can differentiate between biotic and abiotic factors of Mount Everest • I can formulate questions that explain how fossils were found on the top of Everest. • I can develop an initial model to describe the changes to Mt Everest over time.	
Learning Sequence 2: Earth's Change Over Time (4 Days)			
8-11	**Learning Target 2** I can use a geological timeline to show how Earth's systems change quickly or slowly over time.	• I can differentiate between Earth's four major spheres; biosphere, hydrosphere, atmosphere, and geosphere and describe interactions among them. • I can identify an event (sphere interactions) in Earth's history as microscopic, global, fast, or slow. • I can create a model of how Earth has changed over time. • I can use size and scale to describe the formation and changes related to Mt Everest.	
Learning Sequence 3: Earth's Dynamic Continents (10 Days)			
12-21	**Learning Target 3** I can use cause and effect relationships to predict phenomena in Earth's systems.	• I can investigate how the continents were arranged. • I can observe and analyze scientific evidence used by Wegener. • I can read and interpret maps and map symbols. • I can use the evidence on the puzzle pieces (land shape, rock type, fossil type) to try to reconstruct the continents.	

		• I can interpret the evidence to formulate a hypothesis on why the continents were once together. • I can read an article on Alfred Wegener and his Continental Drift Theory and discuss the strengths and weaknesses of his theory. • I can predict how today's continents might shift millions of years from now.
Learning Sequence 4: Earth's Interior Layers (3 Days)		
22-24	**Learning Target 4** I can explain how Earth's surface changes over time and how plate movement affects the surface.	• I can investigate whether the same types of earth materials exist on the surface and deep below the top of Mt. Everest. • I can read about core samples, investigate and compare rock samples, and observe the surface and underground characteristics of various mountains. • I can investigate the Earth's layers and explain how convection contributes to plate tectonics. • I can construct and label a foldable model of the Earth's layers.
Learning Sequence 5: Plate Boundaries/Geological Events (9 Days)		
25-33	**Learning Target 5** I can use patterns of Earth's movement to predict future events and explain how plate boundaries relate to geological phenomena.	• I can identify types of plate boundaries and what forms at each type. • I can identify where earthquakes and volcanoes would occur on a map. • I can predict where and when a catastrophic event will occur. • I can use graphs, charts, and images to identify patterns in data. • I can identify cause and effect relationships used to predict phenomena in natural or designed systems.
Learning Sequence 5: Weathering and Erosion (11 Days)		
34-44	**Learning Target 6** I can explain how water affects Earth's materials and surface processes.	• I can define and identify examples of weathering and its types. • I can define and identify erosion and deposition and what causes it. • I can explain stability and change in natural or designed systems that are constructed by examining the changes over time and processes at different scales, including the atomic scale.
Culminating Performance Task (3 Days)		
45-47	Students create a virtual or physical animation on how Everest was formed	
48	**Flex Day**	
49	**End of Unit Assessment**	

Unit Title	
Unit 3: Rollercoasters	
Relevant Standards	
MS-PS2-1: Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. MS-PS2-2: Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. MS-PS2-3: Ask questions about data to determine the factors that affect the strength of electrical and magnetic forces. MS-PS2-4: Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. MS-PS2-5: Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. MS-PS3-1: Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object MS-PS3-2: Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system. MS ETS1-1: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	
Essential Question(s)	**Enduring Understanding(s)**
• What concepts of physics/force and motion contribute to a well engineered roller coaster? • What causes objects to change their motion? • How is energy conserved? • How does energy define a successful roller coaster? • How do forces act in pairs? • How do the masses of objects and their distance from each other impact their gravitational pull? • How can magnetic forces defeat the pull of gravity?	• Forces always come in equal and opposite pairs (Newton's third law). • An object's motion changes when unbalanced forces are applied. Heavier objects are harder to speed up or slow down than lighter ones. • To measure motion accurately, we must all agree on a shared starting point (reference frame) and units of measurement. • Gravity is an attractive force between all objects with mass. It is most noticeable between very large objects. • Energy of motion (kinetic energy) increases with an object's mass and speed. • Energy can be stored in a system (potential energy) depending on the positions of objects. • Forces like gravity, magnetism, and electricity act across distances through invisible "fields."
Demonstration of Learning	**Pacing for Unit**
3 Formative Assessments 1 End of Unit Assessment 1 PBL Assessment (Roller coaster build/presentation)	46 Days
Family Overview (link below)	**Integration of Technology:**
Grade 7 Science - Family Overview	OpenSci Ed Virtual Labs Gizmos Demonstration PhEt Simulators
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Conservation of momentum, energy transfer, transfer, force, balanced force, friction, direction of a force, impact, net force, inertia, action/reaction, gravity, acceleration, Newton, thrust, lift, applied force, balanced force, collision, force, unbalanced force, position over time, net force, attraction, conductor, electric current, electric field, electromagnetic field, electromagnet, frequency, induction, insulator, permanent magnet, polarity,	Non-Consumable • Balls that can be attached to a string (wiffle) • Basketball (could possibly be borrowed from gym) • Calculators • Coins (penny, dime, quarter) • Dropper poppers - enough for stations • Marbles • Matchbox cars/physics carts • Meter sticks/tapes/rulers • Newton's cradle - one for class • Ping pong balls • Some paper clips or other small magnetic objects

repulsion, resistance, voltage, orbit, magnitude, galaxy, solar system, satellite, force fields, ellipse, proportional, period, Conductor, electric charge, electric current, electric force, electromagnetic field, electromagnet, frequency, induction, insulator, magnetic field lines, magnetic force, permanent magnet, polarity, repulsion, resistance, voltage, direction, magnitude, ampere, charged particle, volts, gravity, Forms of energy, magnitude, motion energy, proportional, ratio, square root, potential energy, elastic collision, inelastic collision, Electron, proton, distribution of charged particles, electrical charge, negatively charged, positively charged, neutrally charged, magnetic polarity, conductor, insulator, electromagnet,	• Film canisters • Hockey pucks • Hole punch • Hand crank flashlight or radio • Iron filings • large iron nail (about 3 inches) • Launch tracks (2 per room) • Magnet sets (cube magnets, preferably strong, permanent magnets like neodymium) • Stop watches • string • Various balls and ramps - enough for stations • Recording device • Stuffed animals • Wooden blocks • Weights/ washers • White boards • Whiteboard erasers Consumable • About 3 feet of THIN COATED copper wire • Alka Seltzer • Balloons • Chart paper • Colored pencils • D size battery (new) • Graph paper • Highlighters • Index cards • Legal sized papers • Markers • notecards • Paper receipt tape • Pencils • Plastic cups • Plastic ziplock bags • Post-it notes • Student composition notebooks • White board markers • White lined paper

Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
• Calculating velocity reinforces precision and unit conversions. Via Math standards. • Rollercoaster design challenges integrate formulas for force, acceleration, and energy transfer, strengthening algebraic thinking. • Students craft lab reports, CER (Claim-Evidence-Reasoning) responses, and design proposals using clear structure and evidence. (ELA) • Group projects emphasize listening, discussion, and presentation skills aligned with speaking and listening standards. (ELA)	• That forces are only working when an object is moving • Gravity is due to mass between 2 objects • Balanced vs Unbalanced forces directions of movement • Mass and weight are the same concept

Connections to Prior Units	**Connections to Future Units**
N/A	When designing a medicine container in Unit 4, students may want to consider how fast the container will be falling.

Differentiation through *Universal Design for Learning*

	Engagement	**Representation**	**Action & Expression**
LT1	"Thrill Factor Challenge" analyzing POV videos of famous roller coasters to identify where riders feel weightless, pushed back, or pulled sideways.	Comprehensive force map labeling velocity vectors, normal force, friction, air resistance, and gravity throughout a coaster loop and drop.	Design a labeled schematic or present an analysis detailing how speed, direction, and forces interact to create a safe yet thrilling ride.
LT2	"Marble Acceleration Lab" launching marbles down tracks with varying slopes, surface textures, and obstacles to observe speed and direction changes.	Net force diagrams (Newton's 1st & 2nd Laws) illustrating how unbalanced forces cause acceleration, deceleration, or direction shifts.	Write a Claim-Evidence-Reasoning (CER) report or construct force diagrams explaining how unbalanced forces change a coaster car's motion.
LT3	"Energy Skate Park Simulation" tracking potential energy (PE) converting into kinetic energy (KE) and thermal energy loss via friction.	Energy transformation bar graphs (PE + KE + Thermal = Total Energy) mapped onto track heights (highest hill, loops, flat brakes).	Plot PE/KE values across key coaster track points and explain why initial hill height limits total energy available for the rest of the ride.
LT4	"Collision & Braking Lab" crashing	Newton's 3rd Law force pair diagrams	Draw labeled force-pair vectors for key

	sensors or carts together to observe equal and opposite reaction forces during impacts and stops.	highlighting interaction pairs (e.g., cart pushing track vs. track pushing cart, wheels on track, brakes on car).	coaster interactions and present a written or video explanation of equal and opposite forces.
LT5	"Magnetic Launch & Drop Challenge" testing magnetic braking systems vs. gravitational acceleration on different mass coaster carts.	Gravitational force models (mass and distance relationships) paired with magnetic field diagrams showing non-contact magnetic launch and braking mechanisms.	Create a comparative diagram or write an analysis detailing how cart mass affects gravity and how magnetic forces can launch or safely brake a coaster.

Supporting Multilingual/English Learners (CELP standards)

	Emerging	Expanding	Bridging
LT1	I can match picture cards and label basic forces (push, pull, gravity, friction) on a roller coaster diagram using a word bank.	I can describe how forces like gravity and friction affect a roller coaster's motion using graphic organizers and sentence starters.	I can explain in detail how force, mass, and motion principles work together to design a safe and well-engineered roller coaster.
LT2	I can select pictures showing balanced forces (no motion change) vs. unbalanced forces (speed up, slow down, turn) using visual cards.	I can describe how unbalanced forces cause objects to speed up, slow down, or change direction using cause-and-effect sentence frames.	I can explain and justify how net forces and mass affect an object's speed and direction of motion using scientific principles.
LT3	I can label high points as "potential energy" and moving points as "kinetic energy" on a roller coaster track diagram using visual icons.	I can describe how potential energy transforms into kinetic energy as a coaster moves using sentence frames and energy bar charts.	I can explain in detail how energy is conserved (potential converting to kinetic and thermal/friction) to allow a roller coaster to complete its track.
LT4	I can draw matching arrows to show opposite push and pull forces on picture cards (e.g., cart pushing on track, track pushing on cart).	I can describe how forces always act in equal and opposite pairs using sentence starters ("When Object A pushes on Object B…").	I can explain and evaluate how force pairs (action-reaction) act on interactive objects within a roller coaster system.
LT5	I can match cards to show that heavier or closer objects have more gravity, and label magnetic brakes stopping a coaster using a visual key.	I can describe how mass and distance change gravitational force, and how magnetic forces work against gravity to slow a coaster using sentence frames.	I can explain in detail how mass and distance affect gravitational pull and how magnetic fields interact with gravity to control coaster motion.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences Grade 7 - MS Science Instructional Guide
Learning Sequence 1: Introduction to the Anchor Phenomenon (1 Day)			
1	**Learning Target 1** I can explain the concepts of physics, force, and motion that contribute to a well-engineered roller coaster.	• I can develop an initial model to describe how a well designed roller coaster works. • I can formulate questions to explain how a roller coaster works?	
Learning Sequence 2: Inertia and Net Force (5 Days)			
2-6	**Learning Target 2** I can explain what causes objects to change their motion.	• I can model and identify the forces acting on a roller coaster. • I can differentiate between forces acting on an object at rest and an object in motion. • I can apply Newton's 1st law, the concept of inertia and net force, to describe the motion of an object.	
Learning Sequence 3: Energy (7 Days)			
7-13	**Learning Target 3** I can explain how energy is conserved and how it defines a successful roller coaster.	• I can define energy and identify different types of energy. • I can describe the relationship between potential and kinetic energy and apply that relationship to the Law of Conservation of Energy. • I can predict the success of a roller coaster design based on potential and kinetic energy.	
Learning Sequence 4: Force, Mass and Acceleration (9 Days)			
14-32	**Learning Target 4** I can explain how forces act in pairs.	• I can use Newton's 2nd Law to describe the relationship between force, mass, and acceleration.	

		• I can use Newton's 3rd Law to describe the relationship of an action force and a reaction force. • I can use Newton's Laws to redesign a model of a roller coaster..
Learning Sequence 5: Gravitational Pull (7 Days)		
33-39	**Learning Target 5** I can explain how the masses of objects and their distance impact gravitational pull and how magnetic forces can interact with gravity.	• I can design and conduct an investigation to collect data on how the masses of objects and their distance affects gravitational fields. • I can design and conduct an investigation to collect data on how the properties of a magnet affects the size of its magnetic field.
Culminating Performance Task (5 Days)		
40-44	Students design a rollercoaster to demonstrate their understanding of forces and energy.	
45	**Flex Day**	
46	**End of Unit Assessment**	

<table>
<tr><th colspan="2">Unit Title</th></tr>
<tr><td colspan="2">Unit 4: Congo Medicine Drop</td></tr>
<tr><th colspan="2">Relevant Standards</th></tr>
<tr><td colspan="2">MS PS3-3: Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.
MS-PS3-4 Plan an investigation to determine the relationships among energy transferred, type of matter, mass, and change in the average kinetic energy of particles, as measured by the temperature of a sample.
MS-PS3-5: Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.
MS ETS1-3: 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.
MS ETS1-4: Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.</td></tr>
<tr><th>Essential Question(s)</th><th>Enduring Understanding(s)</th></tr>
<tr><td>How does energy move between objects and through different types of matter?
Why is temperature not a measure of the total amount of energy in a system?
What scientific principles determine how effectively a design can minimize thermal energy transfer?
How do we evaluate the trade-offs between different design solutions to find an optimal result?
How can scientific reasoning and design thinking be applied to solve complex global humanitarian problems?</td><td>Energy naturally flows from warmer objects to cooler objects, a process that can be managed by selecting specific materials that act as conductors or insulators.
Temperature measures the average kinetic energy of particles, but total energy depends on both that average and the mass/amount of matter present in the system.
Minimizing heat transfer requires limiting the three methods of energy flow by selecting materials and configurations that resist these transfers.
Engineering involves balancing multiple constraints and testing iterative designs; comparing data from these tests reveals which features most effectively meet success criteria.
Designing solutions for real-world problems, like medicine delivery, requires applying core physics principles (like thermal energy) while strictly adhering to the specific environmental constraints of the problem.</td></tr>
<tr><th>Demonstration of Learning</th><th>Pacing for Unit</th></tr>
<tr><td>1 Mid Unit Assessment
1 End of Unit Assessment
1 Engineering Build</td><td>21 Days</td></tr>
<tr><th>Family Overview (link below)</th><th>Integration of Technology:</th></tr>
<tr><td>Grade 7 Science - Family Overview</td><td>OpenSci Ed Virtual Labs
Gizmos Demonstration
PhEt Simulators
Ck-12</td></tr>
<tr><th>Unit-specific Vocabulary</th><th>Aligned Unit Materials, Resources, and Technology (beyond core resources)</th></tr>
<tr><td>Temperature, kinetic energy, energy transfer, conductor, insulator, convection conduction and radiation, Volume, collide, collision, heat conduction, particle, stored energy, transfer, average, proportional, ratio, thermal energy, Potential energy, heat energy, closed system, open system, friction, joule, force, transformation of energy, thermometer, Fahrenheit, Celsius, pendulum, sound energy, conservation of energy,</td><td>Non-Consumable
glass beakers
Heat lamps
hot plate
Hot water maker (such as a hot pot or microwave)
Ice cube trays
Ice melting blocks (arbor)
Ice packs
Infrared Laser thermometers
Metal Flatware (spoons)
Thermometers
Thermoses, Lunch boxes, coolers (various, encourage students to bring in their own) Water/Ice Pitcher
Consumable</td></tr>
</table>

	• aluminum foil • black construction paper • Bubble wrap • Cardboard pieces • Chart paper • Cotton Balls • Craft Sticks • Dixie and plastic Cups • markers • Styrofoam pieces • Tape (masking, packing) • Multiple Colored construction paper squares • Mylar • Student Composition notebooks • Several materials (metal, cloth, plastic) • Sticky notes • Various colors of felt • Various materials for creating insulators. • various materials for investigation (choice)
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
• The Congo Medicine Drop project invites discussion on global health equity, humanitarian aid, and the role of technology in solving social problems. (Social Studies) • Students craft lab reports, CER (Claim-Evidence-Reasoning) responses, and design proposals using clear structure and evidence. (ELA)	• Objects that are stationary have no energy • The idea that heat moves towards cold, and not the other way around • Energy is not destroyed if used • Heat and temperature are the same
Connections to Prior Units	**Connections to Future Units**
Gravity from Unit 3	N/A

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Insulation Audit Lab" testing everyday materials (foam, bubble wrap, wool, foil) to see which keeps ice melted the slowest in high heat.	Material comparison matrix mapping structural features (trapped air pockets, reflective foils) to low thermal conductivity.	Write a material evaluation report or create a material selection guide rating insulators on their ability to maintain cold temperatures.
LT2	"Particle Speed Simulation" observing how adding thermal energy speeds up water molecules and causes liquid in thermometers to expand.	Visual diagrams contrasting thermal energy (total kinetic energy of particles) vs. temperature (average kinetic energy) with sensor data plots.	Graph temperature changes over time and write an explanation connecting temperature sensor readings directly to microscopic particle motion.
LT3	"Thermal Touch Mystery" touching room-temperature metal, plastic, and wood to investigate why metal feels colder despite being at identical temperatures.	Rate-of-transfer diagrams showing thermal conductors quickly pulling heat energy away from skin vs. thermal insulators doing so slowly.	Write a Claim-Evidence-Reasoning (CER) response explaining why human touch registers the rate of heat transfer rather than actual temperature.
LT4	"Heat Transfer Race" measuring how fast thermal energy moves through different material masses, surface areas, and temperature differences.	Flowcharts detailing conduction, convection, and radiation mechanisms driven by temperature differences until thermal equilibrium is reached.	Analyze experimental data and construct an explanation detailing how mass, surface area, and material type alter the rate of energy transfer.
LT5	"Thermos Dissection" taking apart insulated flasks to identify vacuum gaps, reflective coatings, and stoppers designed to block heat flow.	Annotated cross-section diagram showing how vacuum layers eliminate conduction/convection and shiny walls reflect radiative heat transfer.	Draw and label a system diagram of a thermal containment structure, detailing how each component blocks a specific heat transfer method.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can label materials as insulators or conductors using picture cards and a visual word bank.	I can describe how different materials trap or block heat to keep things warm or cool using sentence frames.	I can explain in detail how specific material structures and thermal properties are engineered to minimize heat transfer and maintain temperatures.
LT2	I can match thermometer readings to picture cards showing fast or slow	I can describe how temperature measurements show the thermal	I can explain in detail how temperature measures average kinetic energy and

	particle movement.	energy (particle motion) in an object using data charts and sentence starters.	how total thermal energy is observed and quantified in an object.
LT3	I can match hot/cold objects to arrow cards showing energy moving into or out of my hand.	I can describe why objects feel hot or cold based on whether thermal energy flows toward or away from my body using sentence frames.	I can explain in detail how human thermal sensation depends on the direction and rate of heat conduction between an object and skin.
LT4	I can draw arrows showing heat moving from warm to cold objects and sort picture cards of factors like mass or material type.	I can describe how thermal energy moves from warm to cool materials and identify factors (material type, mass, temperature difference) using cause-and-effect sentence starters.	I can explain in detail how thermal energy transfers between materials and analyze how factors like mass, temperature gradient, and surface area impact transfer rates.
LT5	I can select picture cards showing ways to trap heat (lids, foam layers) and sort them into "traps heat" or "lets heat escape" bins.	I can describe how insulation and closed barriers slow down heat loss using graphic organizers and sentence starters.	I can explain in detail how thermal energy transfer can be minimized using sealed systems, insulators, and reflective barriers to contain heat.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences [Grade 7 - MS Science Instructional Guide (](#)
Learning Sequence 1: Introduction to the Anchor Phenomenon (1 Day)			
1	**Learning Target 1** I can explain how materials are designed to maintain temperatures.	• I can ask questions to understand the design specifications for a cold medicine delivery to a desert climate. • I can understand the design criteria for an aerial medicine drop into a village in Sub-Saharan Africa. • I can create an initial model to describe how I might keep the medicine cold as it is dropped into a village in the Congo.	
Learning Sequence 2: States of Matter and Temperature (4 Days)			
2-5	**Learning Target 2** I can explain how the energy in an object is measured and observed.	• I can design and conduct investigations to understand the relationship between matter, state, and energy change. • I can make connections between temperature and molecular speed. • I can make connections between molecular speed and effectiveness of medicine.	
Learning Sequence 3: Energy Transfer (2 Days)			
6-7	**Learning Target 3** I can explain why objects feel hotter or colder.	• I can construct explanations about how energy is transferred out of hotter objects to colder ones. • I can gather and analyze data about the variables (types, states, and amounts of matter) that affect energy transfer through designed and natural systems. • I can investigate the thermal properties of different materials.	
Learning Sequence 4: Maintaining and controlling Temperature (3 Days)			
8-10	**Learning Target 4** I can explain how energy is transferred between materials and identify the factors that impact energy transfer.	• I can construct explanations about which types of materials allow for less heat transfer. • I can gather and analyze data about the variables (types, states, and amounts of matter) that affect energy transfer through designed and natural systems. • I can test materials and designs for keeping objects cold, and apply that information to designing a medicine drop container that will help keep the medicine at a controlled temperature.	
Learning Sequence 5: Designing a Temperature Controlled Container (3 Days)			
11-13	**Learning Target 5**	• I can construct explanations about which types of	

	I can explain whether and how heat can be contained.	materials allow for less heat transfer. • I can gather and analyze data about the variables (types, states, and amounts of matter) that affect energy transfer through designed and natural systems. • I can test materials and designs for keeping objects cold.
Culminating Performance Task (6 Days)		
14-19	Students building and test a temperature controlling container	
20	**Flex Day**	
21	**End of Unit Assessment**	