

	September	October	November	December	January	February	March	April	May	June
	Trimester 1			Trimester 2			Trimester 3			
6th Grade	Variables and Design - 3-Year Car Challenge			Weather and Water			Human Systems Interactions			
	Theme Connection - Connection between the course material 6-8th grade			Theme Connection: Impact of weather and climate on biodiversity			Theme Connection: Connections between the human body systems			
	Diversity of Life						Variables and Design			
	Theme Connection - Connections between organisms on Earth						Theme Connection - Connection to real world engineers			
	Variables and Design - 3 Year Car Challenge			Weather and Water			Human Systems Interactions			
	Investigation 1: Independent vs Dependent Variables			Homework Project - Long-term weather monitoring project			Major Class Project - Body System Poster			
	Part 1: Effect of ramp angle on the same car.									
	Part 2: Graphing scientific data			Investigation 1: What is Weather?			Investigation 1: Systems Connections			
	Part 3: Engineering design process - building a gravity powered car			Part 1: Intro to the Weather - What is weather?			Part 1: Human Body Structural Levels - What is a human body made of?			
	Part 4: Comparing designs by distance at the same ramp angle			Part 2: The Air Around Us - What is air?			Part 2: Systems Research - How do human organ systems interact?			
				Part 3: Earth's Atmosphere - What is the atmosphere?			System Spotlight: Digestive			
	Diversity of Life						System Spotlight: Circulatory			
	Homework Project - Cell Cake Model			Investigation 3: Air Pressure and Wind						
				Part 1: Air-Pressure Inquiry - How does pressure affect air?			Investigation 2: The Nervous System			
	Investigation 1: What is Life?						Part 1: The Sense of Touch - How does the sense of touch work in humans?			
	Part 1: Living or Nonliving - How do you know if something is living?						Part 2: Sending a Message - How do messages travel to and from the brain?			
	Part 2: Is Anything Alive in Here? - How do you know if something is living?			Part 2: Pressure Maps - What happens when to areas of air have different pressure?			Part 3: Other Senses - How are the senses alike and how are they different?			
							Part 4: Learning and memory - How do humans learn and form memories?			
	Investigation 2: The Microscope			Investigation 3: Convection						
	Part 1: Meet the Microscope - How do objects appear when they are viewed through a microscope?			Part 1: Density of Fluids - What is the relationship between layering of fluids and density?			Investigation 3: Supporting Cells			
	Part 2: Field of View - How can we estimate the size of an object by looking at it through the microscope?			Part 2: Convection in Water - How does heat affect density of fluids?			Part 1: Food and Oxygen - How do cells in the human body get the resources they need?			
	Part 3: Microscopic Life - What evidence can we fins that brine shrimp are a living organism?			Part 3: Convection in Air - How do gases flow in the atmosphere?			Part 2: Aerobic Cellular Respiration - How does the energy in food become energy that cells			
				Investigation 4: Radiation						
	Investigation 3: The Cell			Part 1: Latitude - How does the weather differ between locations?			Capstone: Designing a Prosthetic Hand			
	Part 1: Discovering Cells - What microscopic structures make up organisms such as elodea?			Part 2: Solar Angle - How does the sun affect the temperature of locations on Earth?			Part 1: Research and Design			
	Part 2: Paramecia - How are elodea and the paramecium alike, and how are they different?			Part 3: Heating Earth - What factors affect the surface temperature of Earth?			Part 2: Test and Iterate			
	Part 3: Microwords - Is there life in the minihabitats? If so, where did it come from?						Variables and Design			
	Part 4: Human Cheek Tissue - What microscopic structures make up organic humans (you)?			Investigation 5: Conduction			Investigation 1: Testing Variables			
				Part 1: Fluid Conduction - How does energy move through materials?			Part 1: Air Trolleys - How can we describe and measure motion in a system?			
	Investigation 4: Domains			Part 2: Insulation - Student-generated question about energy transfer.			Part 2: Controlled Experiment - What variables affect the operation of an air trolley?			
	Part 1: Comparing Living Things - What are the building blocks of cell structures?			Part 3: Home Design - How can we design a more efficient way to decrease energy			Part 3: Design an Experiment - Student-generated question regarding air trolley.			
	Part 2: Bacteria - What evidence is there that bacteria is a living organism?						Investigation 2: Testing Designs			
	Part 3: Fungi - What evidence is there that fungi are living organisms?			Investigation 6: Air Flow			Part 1: Air-Trolley Design Challenge - How do engineers decide what to change in a design?			
	Part 4: Archaea: The Three Domains - What are the characteristics of archaea?			Part 1: Atmospheric Heating - How does the atmosphere heat up?			Part 2: Engineering Design Cycle - What are the steps taken to solve a problem in engineering?			
				Part 2: Local Winds - How does the energy from the Sun affect wind on Earth?						
	Investigation 5: Plants: The Vascular System			Part 3: Global Winds - What affects the direction of global winds?			Investigation 3: Real-World Problems			
	Part 1: What Happened to the Water? - Student-created question, e.g., 'What happened to the water?'			Investigation 7: transfer between a model home and the environment?			Part 1: Define a Problem - How does understanding variables help us define a problem and			
	Part 2: Looking at Plant Structures - How does water travel through a plant?			Part 1: Is Water Really There? - Student-generated question about water vapor.			Part 2: Future Tech - How does technology help engineers solve problems?			
	Part 3: Transpiration and Photosynthesis - How do plants use water?			Part 2: Phase Change and Energy Transfer - How does energy transfer when water			Additional Engineering Projects if there's time.			
				Part 3: Clouds and Precipitation - What causes clouds to form?						
	Investigation 6: Lima Bean Dissection			Investigation 8: The Water Planet						
	Part 1: How do the structural adaptations of seeds help them survive?			Part 1: Water-Cycle Simulation - What is the water cycle?						
	Part 2: Environmental and Genetic Factors - How do environmental factors affect the germination and early growth of different food crops?			Part 2: Ocean Currents - What affects the direction that ocean water flows?						
	Part 3: Flowering-Plant Reproduction - What is the role of a flower?			Part 3: Ocean Climate - How does the ocean affect climate on land?						
	Part 4: Flowers and Pollinators - What adaptations do flowering plants have to accomplish pollination?			changes phases?						
				Investigation 9: Climate Over Time						
	Investigation 7: Variation of Traits			Part 1: Climate Change - How have climates changed over time?						
	Part 1: Inheriting Traits - Ho do traits pass from parents to offspring?			Part 2: The Role of Carbon Dioxide - How do greenhouse gasses in the atmosphere						
	Part 2: Modeling Heredity - How does sexual reproduction produce variation in offspring?			Part 3: Climate in the News - What are the effects of a slight rise in global temperature?						
	Investigation 8: Insects			Investigation 10: Meteorology						
	Part 1: Structure, Function, and Behavior - How do the structures and behaviors of the Madagascar hissing cockroach enable life's functions?			Part 1: Weather Maps - What information can you get from a weather map?						
				Part 2: Identify Key Ideas - What makes weather happen?						

	Part 2: Insect Systems - How is the insect transport system like plant and human transport systems and how is it different? Investigation 9: Diversity of Life Part 1: Bioblitz - What kind of plant and animal life exists in our schoolyard? Part 2: What is Life - How do you know if something is living?	Capstone: Designing a Wind Turbine Part 1: Research and Design Part 2: Test and Iterate				
7th Grade	Trimester 1 Variables and Design - 3-Year Car Challenge Theme Connection - Connection between the course material 6-8th grade Chemical Interactions Theme Connection - How atoms connect into molecules, molecules into substances	Trimester 2 Earth History Theme Connection - How our landscape influences our culture	Trimester 3 Populations and Ecosystems Theme Connection - The interconnected nature of all organisms in an ecosystem			
	Variables and Design - 3 Year Car Challenge Investigation 2: Materials Engineering Investigation Part 1: Engineering design process - building a balloon powered car Part 2: Effect of materials on distance traveled Part 3: Graphing scientific data Part 4: Comparing designs and analyzing data	Earth History Major Project TBD	Populations and Ecosystems Homework Project - Ecosystem Model			
	Chemical Interactions Major Class Project - Build a freezer	Investigation 1: Earth is Rock Part 1: What's the Story of This Place? - Which landforms occur at different locations on Earth? Part 2: Grand Canyon Rocks - Why do there appear to be stripes on the walls of the Grand Canyon? Part 3: Correlating Grand Canyon Rocks - Why do there appear to be stripes on the walls of the Grand Canyon?	Investigation 1: Milkweed Bugs Part 1: Introducing Milkweed Bugs - What does a population of milkweed bugs need to Part 2: Milkweed-Bug Habitat - What needs to be considered when building a habitat for Part 3: Observing Milkweed Bug Habitats - How do milkweed bugs reproduce and grow?			
	Investigation 1: Substances Part 1: Mystery Mixture - How can we find out what the two substances are in the mystery mixture? Part 2: Mixing Substances - How can we find out what two substances are in the mystery mixture?	Investigation 2: Weathering and Erosion Part 1: Stream Table - What happens to Earth materials when water flows over landforms? Part 2: Weathering - How did weathering and erosion contribute to the formation of the Grand Canyon? Part 3: Soils - How is soil related to rocks?	Investigation 2: Sorting out Life Part 1: Ecosystem Card Sort - What is the relationship between individuals, populations survive in a classroom? Part 2: Video Population Study - How is the milkweed-bug-habitat study similar to and milkweed bugs? Part 3: Ecoscenarios - Student-generated question about ecosystems.			
	Investigation 2: Elements Part 1: Periodic Table - What is the periodic table if the elements? Part 2: Elements in the World - What makes up all the substances on Earth?	Investigation 3: Deposition Part 1: Sandstone and Shale - What happens to sediments that get deposited in basins? Part 2: Limestone - How does limestone form? Part 3: Interpreting Sedimentary Layers - What do sedimentary layers reveal about ancient environments?	Investigation 3: Mono Lake Part 1: A visit to Mono Lake - What are the different biotic and abiotic components of the communities, and abiotic factors in an ecosystem? Part 2: Mono Lake Food Web - How do the organisms at Mono Lake interact? Part 3: Ecoscena different from Jane Goodall's population study?			
	Investigation 3: Particles Part 1: Capture the Gas - How can the gas produced in a chemical reaction be studied? Part 2: Air is Matter - Is air matter? Does air have mass and take up space? Part 3: Air as Particles - What is the relationship between particles in matter?	Investigation 4: Fossils and Past Environments Part 1: Fossils - How do fossils get in rocks? Part 2: A Long Time Ago - How old are fossils? Part 3: Index Fossils - When did the Grand Canyon Rocks form?	Investigation 4: Minihabitats Part 1: The Physical Environment - What abiotic factors should be considered when setting Part 2: Introducin Mono Lake ecosystem? Part 3: Observing Minihabitats - What interactions and changes have taken place in the			
	Investigation 4: Kinetic Energy Part 1: Gas Expansion/Contraction - What happens to particles in a sample of air when the air is heated or cooled? Part 2: Liquid Expansion/Contraction - What happens to particles in a sample of air when the air is heated and cooled? Part 3: Solid expansion/contraction - What happens to particles in a sample of solid when the solid is heated and cooled?	Investigation 5: Igneous Rock Part 1: Earth's Layers - How do igneous rocks form? Part 2: Salol Crystals - Student-generated question regarding crystals. Part 3: Types of Igneous Rocks - What can crystal size tell us about where an igneous rock formed?	Investigation 5: Producers Part 1: Growing Producers - What is the effect of light on producers? Part 2: Biomass i up terrestrial and aquatic habitats? Part 3: Ecoscenario Producers - What are the roles of specific producers in the ecosystem? Part 4: Energy Transfer From Food - How can we model and measure energy transfer terariums and aquariums?			
	Investigation 5: Energy Transfer Part 1: Mixing Hot and Cold - If two equal volumes of hot and cold water are mixed, what will the final temperature be? Part 2: Particle collisions - How does the energy transfer from one substance to another? Part 3: Heat - How is heat measured?	Investigation 6: Volcanoes and Earthquakes Part 1: Mapping Volcanoes and Earthquakes - Where do volcanoes occur on Earth? Where do earthquakes occur on Earth? Part 2: Moving Continents - Why do volcanoes and earthquakes occur where they do? Part 3: Plate Tectonics - What causes plates to move?	Investigation 6: Following the Energy Part 1: Using Energy - What are the kinds of work you do that require energy? Part 2: Food Chain Game - What is needed to sustain a food chain? Part 3: Trophic Levels - How do biomass and energy flow through an ecosystem? Part 4: Decomposers - What happens to the energy stored in the biomass of an from food?			
	Investigation 6: Thermos Engineering Part 1: Insulation - Student-generated question regarding energy transfer. Part 2: Thermos Design - What is the best thermos design?	Investigation 7: Mountains and Metamorphic Rocks Part 1: Plate Models - What happens to Earth's crust during plate interactions? Part 2: Metamorphic Rocks - How do metamorphic rocks form?	Investigation 7: Population Size Part 1: Reproductive Potential - What factors affect how many milkweed bugs could be in			
	Investigation 7: Solutions Part 1: Dissolve and Melt - What is the difference between dissolving and melting? Part 2: Solubility - Do all substances form solutions in water?	Investigation 8: Geoscenarios Part 1: Introduction to the Project - What do we need to know to tell the geologic story of a place? Part 2: Research and Writing - What do we need to know to tell the geographic story of a place? Part 3: Presentations - What do we need to know to tell the geographic story of a place?				
	Investigation 8: Phase Change	Investigation 9: What is Earth's Story? Part 1: Revisit the Grand Canyon - What is the geologic story of the Grand Canyon? Part 2: Review the Evidence - How do Earth materials cycle through constructive and destructive				

	Part 1 : Melting Temperature - What happens at the particle level when a substance melts? Part 2: Adding Thermal Energy - What is the relationship between melting and freezing? Part 3: Freezing Water - How can you freeze water in the classroom? Part 4: Changing Phase - What are all the ways that a substance can change phase? Investigation 9: Reaction Part 1: Substance Models - How do atoms combine to make new substances? Part 2: Limewater Reaction - What happens at the particle level during a chemical reaction? Part 3: Baking Soda and Acid - What is the chemical reaction between hydrochloric acid and sodium bicarbonate? Investigation 10: Limiting Factors Part 1: Citric Acid and Baking Soda - What is a limiting factor in a chemical reaction? Part 2: Identifying Key Ideas - What have I learned about chemical interactions?	processes?	Part 2: Limiting Factors - What limiting factors affect algae and brine shrimp populations Part 3: Population organism when it dies? Investigation 8 - Human Impact Part 1: Biodiversi your habitat at the end of the year? Part 2: Invasive Species - What can happen when a species is introduced to an at Mono Lake? Part 3: Mono Lake Revisited - What impact have people had on Mono Lake? actual population growth? Investigation 9: Ecoscenarios Part 1: Human Involvement - How have humans affected your ecoscenario, and what Part 2: Evaluating Solutions - How have humans affected your ecoscenario, and ecosystem? Part 3: Presentations - How have humans affected your ecoscenario, and what efforts have humans made to lessen this impact? Capstone: "Shark Tank" Part 1: Research and Design - Create a product to solve an environmental problem Part 2: Test and Iterate Part 3: Present
	Trimester 1 Variables and Design - 3-Year Car Challenge Theme Connection - Connection between the course material 6-8th grade Electromagnetic Force Theme Connection - Our reliance on electricity Waves Theme Connection - How wifi, radio, etc connect us to each other	Trimester 2 Waves Continued Theme Connection - How wifi, radio, etc connect us to each other Heredity and Adaptation Theme Connection - Connection to and impact of our ancestry Planetary Science Theme Conection - Influence of the moon and sun on Earth's systems	Trimester 3 Planetary Science Continued Theme Conection - Influence of the moon and sun on Earth's systems Gravity and Kinetic Energy Theme Connection - How do Newton's laws of motion combine to describe
8th Grade	Variables and Design - 3 Year Car Challenge Investigation 2: Velocity, Acceleration, and Forces Part 1: Speed, Velocity, and Acceleration Part 1: Engineering design process - building an electric motor-powered car Part 3: Graphing scientific data Part 4: Comparing designs and analyzing data Electromagnetic Force Major Project - Build a light-up pinball machine Investigation 1: What is Force? Part 1: Push and Pull - What makes things move? Part 2: Friction - How does friction affect the force needed to move an object? Part 3: Forces in Action - How do multiple forces affect motion? Investigation 2: The Force of Magnetism Part 1: Properties of Magnets - What happens when magnets interact? Part 2: Magnetic Fields - How can we detect a magnetic field? Part 3: Force over Distance - What factors affect the force of attraction between magnets? Investigation 3: Electromagnetism Part 1: Building a circuit - What is required to complete an electric circuit? Part 2: Building an Electromagnet - How does an electromagnet work? Part 3: Improving the Design - Student-generated-question, e.g. How does ____ affect the strength of an electromagnet?	Waves Continued Investigation 3: Light Waves Part 1: Mirrors - What happens when light waves interact with matter? Part 2: Spectra - What do spectra reveal about light? Part 3: Color - Student-generated question, e.g. 'What makes objects appear as different colors' Part 4: Refraction - What happens to light waves at the interface between different media? Investigation 4: Communication Waves Part 1: Optical Fibers - What are some design constraints in fiber-optic communications? Part 2: Sending Sound - How is sound sent through radio waves? Part 3: Sending Images - How are images sent through radio waves? colors? Heredity and Adaptation Investigation 1: The History of Life Part 1: The Fossil Record - What does the fossil record tell us about the history of life on Earth? Part 2: Transitions - What does the fossil record tell us about how life has changed over time? Investigation 2: Heredity Part 1: Lines of Descent - How can a model help us understand the relationships among organisms? Part 2: Inheriting Traits - What leads to variation in a population? Part 3: Modeling Heredity - How can we model how genetic information passes from generation to generation? Part 4: Punnett Squares: How can we predict the distribution of traits in a	Planetary Science Continued Investigation 3: Moon Study Part 1: A Close Look at the Moon - What is visible on the Moon? Part 2: How Big/Far? - What does an Earth/Moon scale model look like? Investigation 4: Phases of the Moon Part 1: Observed Patterns - What Moon-phase patterns can be observed? Part 2: Moon-Phase Models - What causes Moon phases? Part 3: Moon-Phase Simulation - How do models help us understand phases of the moon? Investigation 5: Craters Part 1: Moon Craters - Are moon craters the result of volcanoes or impacts? Part 2: Target Earth - Will Earth experience a major impact in the future? Investigation 6: Beyond the Moon Part 1: What's Out There? - What is in the solar system? Part 2: Origins - Where did the solar system come from? Investigation 7: The Solar System Part 1: Where are the Planets? - Where are the planets in the solar system? Part 2: Comparing Temperatures and Atmospheres - Which planet is most like Earth? Part 3: Where is the Water? - Where is the water in the solar system? Part 4: Changing Systems - What impact do humans have on Earth's Systems? Investigation 8: Space Exploration Part 1: Light Spectra - Why is light important in astronomy? Part 2: Exploration of the Solar System - What are the big questions that guide space explorati Investigation 9: Orbits and New Worlds Part 1: The Moons of Jupiter - What can be learned by studying the moons of Jupiter?

	Waves				future generation?		Part 2: Looking for Planets - How are exoplanets found?
	Investigation 1: Make Waves				Part 5: The Fox Experiment game		Part 3: What is our Cosmic Address - Where are you when you are in science class?
	Part 1: Pulse Rate - What is frequency						
	Part 2: Spring Waves - What defines a wave?				Investigation 3: Evolution		8th Grade Field Trip Evergreen and Beach (?)
					Part 1 - Adaptation - How do genetic mutations lead to variations in a population?		
	Investigation 2: Wave Energy				Part 2 - Natural Selection - How do populations change over time?		Gravity and Kinetic Energy + Paper Coasters
	Part 1: Energy in Waves - What is the relationship between wave properties and wave energy?				Part 3 - Genetic Technology - How are humans influencing inheritance?		Investigation 1: Acceleration
	Part 2: Bridge Collapse - How are engineering challenges solved?						Part 1: Speed Tracks - What is speed?
	Part 3: Energy in Sound Waves - What is the best way to insulate a recording studio from outside sounds?						Part 2: Acceleration Track - What is acceleration?
					Planetary Science		Part 3: Acceleration of Gravity - What is gravity?
					Homework Project: Solar System Model		
					Major Project: Bottle Rockets		
							Investigation 2: Force of gravity
					Investigation 1: Earth as a System		Part 1: Mass and Weight - What is the relationship between mass and weight?
					Part 1: School to Space - Where are you when you are in science class?		Part 2: How Heavy? - What is gravity like on other planets compared to Earth?
					Part 2: Earth's Systems - Why is Earth Described as a System?		
					Part 3 - Moon Watch - How does the moon change day by day?		Investigation 3 - Energy and Collisions
							Part 1: Potential and Kinetic Energy - How is potential energy related to kinetic energy?
					Investigation 2: Earth/Sun Relationship		Part 2: Stop or Crash - How does the kinetic energy of an object change when its speed
					Part 1: Day and Night - What causes day and night?		
					Part 2: Summer Heat - Why is it hotter in summer?		
					Part 3: Day Length - Why are there more hours of sunlight in the summer?		Part 3: Marble Collisions - How do Newton's laws help us explain marble billiards?
					Investigation 1: Earth as a System		Investigation 4: Collision Engineering
					Part 1: School to Space - Where are you when you are in science class?		Part 1: Helmet Design Challenge - Which Properties of physics can help us design
					Part 2: Earth's Systems - Why is Earth Described as a System?		
					Part 3 - Moon Watch - How does the moon change day by day?		Part 2: Big ideas - How can we explain the motion of objects?
							or mass changes?
					Investigation 2: Earth/Sun Relationship		Paper Roller Coasters - How can we use the principles of motion to create an exciting
					Part 1: Day and Night - What causes day and night?		roller coaster out of paper and tape?
					Part 2: Summer Heat - Why is it hotter in summer?		
					Part 3: Day Length - Why are there more hours of sunlight in the summer?		