	Scientific Method 6	Scientific Method 7	Structure of Matter 6	Structure of Matter 7	Structure of Matter 8	Changes of Matter 6	Changes of Matter 7	Changes of Matter 8
# of days	23	8	14	14	11	12	11	12
Key Learning	Scientific method follows a specific sequence.	Scientific method is a process used to detect and solve problems.	Atoms are the building blocks of matter.	Elements can combine through different bonds.	Matter is anything that has mass,takes up space and is composed of small particles.	Matter undergoes various physical and chemical changes.	Matter undegoes chemical changes.	Chemical reactions are impacted by catalyst.
Know	Students will know the steps of the scientific method and how it can be applied to everyday life.	Students will know how to apply the scientific method to a variety of scientific investigations.	Students will know that an atom is composed of subatomic particles. Students will know the proprerties of subatomic particles. Students will know that matter exists as elements, molecules and compounds.	Students will know how molecules and compounds are formed due to bonding. Students will know the general properties of an element on the periodic table.	Students will know that matter is composed of atoms. Students will know the parts of the atom. Students will calculate the number of protons, neutrons and electrons for various isotopes.	Students will know that matter undergoes changes.	Students will know the types of chemical change that matter undergoes.	Students will know how to determine the coefficients within a chemical equation. Students will know the factors that influence the action of catalysts on reaction rate.
Do	Students will be able to apply the scientific method in everyday situations.	Students will conduct a variety of scientific investigations.	Students will diagram an atom, including its subatomic particles. Students will identify an element on the periodic table based on its atomic number.	Student will construct a molecule based on ionic and covalent bonding using the periodic table.	Students will apply their knowledge of the atom to the elements of the periodic table.	Students will identify changes in matter.	Students will be able to identify the types of chemical change by equations.	Students will calculate the coefficients of chemical reactions. Students will indentify how changes in various factors will influence a catalyst's impact on reaction rate.

	Scientific Method 6	Scientific Method 7	Structure of Matter 6	Structure of Matter 7	Structure of Matter 8	Changes of Matter 6	Changes of Matter 7	Changes of Matter 8
Understand	Students will understand the steps of the scientific method and their sequence.	Students will understand how to solve a problem using the scientific method.	Students will understand that atoms are made of subatomic particles that determine the properties of the element.	Students will understand how ionic and covalent bonds form between atoms.	Students will understand that the atom is composed of subatomic particles; such as, protons, neutrons and electrons. Students will understand that the periodic table gives us information about the atom which affects its properties.	Students will understand physical and chemical changes of matter.	Students will know how matter undergoes chemical change.	Students will understand how to balance equations. Students will understand the impact of catalysts on reactions.
Unit EQ	What are the steps of the scientific method?	How does the scientific method help identify and solve problems?	What are the components of matter?	How do molecules combine to form new substances?	How is the periodic table used determine bonding properties?	How does matter change?	How does matter undergo chemical changes?	What are the factors of a chemical reaction?
Lesson EQ	What is Science? (3)	What are the common skills used by scientist?(1)	What is matter? (3)	How can the periodic table be used to determine valence electrons?	What are the subatomic particles and how are they calculated? (2)	What is a physical change of matter? (3)	What are the parts of a chemical reaction? (2)	How are chemical equations balanced? (4)
Concept	Science	Science Skills	matter, compounds, elements, mixtures	Period table & valence electrons	Subatomic Particles	Physical Changes, states of matter	Chemical Reactions, catalyst	Chemical Equations
1	1	1	1	1	1		1	1 /

	Scientific Method 6	Scientific Method 7	Structure of Matter 6	Structure of Matter 7	Structure of Matter 8	Changes of Matter 6	Changes of Matter 7	Changes of Matter 8
Lesson EQ	Why is the metric system easier to use than our standard system? (5)	How is the scientific method used to solve problems?	What is a physical property of matter? (3)	How are ionic bonds formed?(5)	What properties can be determined from the periodic table? (3)	What is a Chemical change of matter? (3)	What are synthesis and decomposition reactions?(4)	What are factors that impact a chemical reaction? (5)
Concept	Metric System	scientific method	Physical Property, states of matter, volume, luster, density, mass, texture, sound	Ionic Bonds	Periodic Table	Chemical Changes in Matter, conservation of mass	Synthesis, Decomposition	Factors of Chemical Reactions, Reaction Rate
Lesson EQ	What are the steps of the scientific method? (5)		What is a chemical property of matter? (2)	How are covalent bonds formed?(5)	What are the various types of bonds? (2)	How do atoms bond? (3)	What are single and double replacement reactions? (3)	How does a catalyst impact a chemical reaction? (2)
Concept	Steps of Scientific method		Chemical Properties, flammability, heat, reactions	Covalent bonds	Types of Bonds	Bonding, charges, sharing of electrons	replacement reactions	Catalyst
Lesson EQ	What is the purpose of the scientific method? (10)		What is the structure of matter? (1)		How does bonding affect the properties of water? (3)	What is a chemical reaction? (2)		
Concept	Scientific method		elements, atmoic structure, protons, neutrons, electrons		Effects of Bonding	forming of bonds, breaking of bonds, chemical equations		
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	Scientific Method 6	Scientific Method 7	Structure of Matter 6	Structure of Matter 7	Structure of Matter 8	Changes of Matter 6	Changes of Matter 7	Changes of Matter 8
Lesson EQ			What are subatomic particles and their charges? (2)					
Concept			subatomic particles, charges					
Lesson EQ			How is the periodic table used to identify elements? (2)					
Concept			Periodic table, atomic number, atomic mass					
Lesson EQ								
Concept								

	Scientific Method 6	Scientific Method 7	Structure of Matter 6	Structure of Matter 7	Structure of Matter 8	Changes of Matter 6	Changes of Matter 7	Changes of Matter 8
Vocabulary	Chemistry, Biology, Physics, Earth and Space, Scientific method, Purpose, Research, hypothesis, experiment, analysis, conclusion, variables, control, meter, liter, gram, milli, centi, kilo	Compare, contrast, observation, measurement, quantitative data, qualitative data, independent variable, dependent variable, theory, law, fact,subjective statement, objective statement, infrencing, experimental group, control group	Protons, neutrons, electrons, nucleus, atomic number, atomic mass, periodic table, elements, compounds, molecules, atom, matter, density, volume, mass, weight, mixture, physical property, chemical property, luster, liquid, gas, solid, plasma	metals, nonmetals, periodic table, covalent bond, ionic bond, cation, anion, ion, valence electrons	atom, proton, neutron, electron, polarity,cohesion,sol ubility, pH, acid, base, neutral, lonic bonds, covalent bonds, mass number, atomic number, mass, volume, metals, non- metals, metalliods	Physical Change, Chemical Change, chemical reaction, chemical equation, bonding, conservation of mass, conservation of matter,	reactant, product, synthesis, decomposition, single replacement (displacement), double replacement (displacement), catalyst, activation energy	coefficient, subscript, reactant, product, catalyst, enzyme, concentration, endothermic, exothermic, reaction rate, activation energy
Activities	Measurement lab	Descriptive research lab, experimental research lab	Atomic modeling	Dot Structures, bonding model		Demonstration of physical and chemical properties and changes. Law of Conversation of Mass lab or demonstration.	Teacher will demonstrate various chemical reactions and students will identify the types of chemical reactions.	Balancing equation activity, Catalyst activity, Reaction rate activity

	Energy Transfer 8	Forces and Motion 6	Forces and Motion 7	Forces and Motion 8	Earth System 6	Earth System 7	Earth System 8	Life: Structure and Function 6
# of days	13	12	15	18	16	19	18	19
Key Learning	Energy exists as different forms and can be transferred from one form to another.	Simple machines are related to work and power.	Simple machines provide mechanical advantage.	Forces cause motion.	Cycles involve parts and processes.	Factors that shape and change our Earth	Factors that influence the earth's atmosphere and resources.	Organisms share common characteristics, structures and processes of life.
Know	Students will know that energy can be transferred between objects and/or can be converted into different forms.	Students will know how work and power are related.	Students will know how force affects work and power.	Students will know that forces can act upon an object to change the position, direction, and/or speed of its motion.	Students will know the parts and processes of the water and rock cycles.	Students will know how the structure of the inner Earth effects the surface of the Earth. Students will know the impact the Earth's orbital position has on its tides and seasons.	Students will know how the structure of the atmosphere influences earth's weather.	Students will know the characteristics of living things, organization of living things,the basic cell types, internal structures and cell cycle.
Do	Students will give examples of energy transfer.	Students will demonstrate how a lever impacts work.	Students will demonstrate how incline planes and pulleys provide a mechanical advantage.	Students will apply Newton's laws to everyday situations.	Students will describe the parts and processes of the water and rock cycles.	Students will identify the geological structures that from with specific types of movement. Students will identify how the Earth's orbital position effect the seasons and tides.	Students will describe how earth's weather is influenced by solar radiation. Students will indentify the steps of the oxygen and carbon cycle. Students will distinguish between renewable and non- renewable resources.	Students will identify the six characteristics of life, organelles and phases of the cell cycle.

Energy Transfer 8	Forces and Motion 6	Forces and Motion 7	Forces and Motion 8	Earth System 6	Earth System 7	Earth System 8	Life: Structure and Function 6
The students will understand the Law of Conservation of Energy.	Students will understand how work and power are related in the use of a simple machine.	Students will understand how simple machines provide a mechanical advantage.	Students will understand that Newton's three laws of motion can be used to predict what happens to matter.	Students will understand the parts and processes of a cycle.	Students will understand how Plate Tectonics impacts various geological structures and what causes the Earth's tides and seasons.	Students will understand the impact of solar radiation of earth's atmosphere. Student will understand the difference between renewable and non- renewable resources.	Students will understand that there are six characteristics of life. Students will understand similarities and differences amongst Eukaryotic cells, prokaryotic cells, plant cells and animal cells.
How is energy transferred and converted into different forms?	How does a lever impact work and power?	How do incline planes and pullies impact mechanical adavantage?	In what ways do forces affect motion?	What are the parts and processes of a cycle?	What factors shape and change our Earth?	How does solar radiation impact earth's atmosphere and provide forms of renewable energy?	How do cells demonstrate life?
What is energy and it types? (3)	What is work and power? (2)	How does force affect work and power?(1)	What is motion? (2)	How does a cycle work? (1)	What are the layers of the Earth and how do they impact the surface of the Earth? (2)	What is a system? (1)	What are the characteristics of life? (4)
Energy, kenetic, potential, chemical, electromagnetic, radiation, thermal, mechanical	Work, power	Force	Motion	Cycles	Structure of the inner Earth	Input/Output	6 characteristics, organization of an organism
	Energy Transfer 8 The students will understand the Law of Conservation of Energy. How is energy transferred and converted into different forms? What is energy and it types? (3) Energy, kenetic, potential, chemical, electromagnetic, radiation, thermal, mechanical	Energy Transfer 8Forces and Motion 6The students will understand the Law of Conservation of Energy.Students will understand how work and power are related in the use of a simple machine.How is energy transferred and converted into different forms?How does a lever impact work and power?What is energy and it types? (3)What is work and power? (2)Energy, kenetic, potential, chemical, electromagnetic, radiation, thermal, mechanicalWork, power	Energy Transfer 8Forces and Motion 6Forces and Motion 7The students will understand the Law of Conservation of Energy.Students will understand how work and power are related in the use of a simple machine.Students will understand how simple machines provide a mechanical advantage.How is energy transferred and converted into different forms?How does a lever impact work and power?How do incline planes and pullies impact mechanical adavantage?What is energy and it types? (3)What is work and power? (2)How does force affect work and power?(1)Energy, kenetic, potential, chemical, electromagnetic, radiation, thermal, mechanicalWork, powerForce	Energy Transfer 8Forces and Motion 6Forces and Motion 7Forces and Motion 8The students will understand the Law of Conservation of Energy.Students will understand how work and power are related in the use of a simple machine.Students will understand how simple machines provide a mechanical advantage.Students will understand how simple machines provide a mechanical advantage.Students will understand that Newton's three laws of motion can be used to predict what happens to matter.How is energy transferred and converted into different forms?How does a lever impact work and power?How do incline planes and pullies impact advantage?In what ways do forces affect motion?What is energy and it types? (3)What is work and power? (2)How does force affect work and power?(1)What is motion? (2)Energy, kenetic, potential, chemical, electromagnetic, radiation, thermal, mechanicalWork, powerForceMotion	Energy Transfer 8Forces and Motion 6Forces and Motion 7Forces and Motion 8Earth System 6The students will understand the Law of Conservation of Energy.Students will understand how work and power are related in the use of a simple machine.Students will understand how simple machines provide a mechanical advantage.Students will understand that Newton's three laws of motion can be used to predict what 	Energy Transfer 8Forces and Motion 0Forces and Motion 7Forces and Motion 8Earth System 0Earth System 7The students will understand the Law of Conservation of Energy.Students will understand how work and power are related machine.Students will understand how provide a mechanical advantage.Students will understand that mechanical advantage?Students will understand that mechanical mechanicalStudents will understand how provide a mechanical mechanicalStudents will understand that mechanical mechanicalStudents will understand that mechanicalStudents will understand that mechanicalStudents will students will understand that mechanicalStudents will students will understand that mechanicalStudents will students will understand that mechanicalStudents will students will student	Energy Transfer 8 Forces and Motion 0 Forces and Motion 7 Forces and Motion 8 Earth System 0 Earth System 7 Earth System 8 The students will understand the Law of Conservation of Energy. Students will understand how work and power are related in the use of a simple machine. Students will understand how simple machines provide a mechanical dwantage. Students will understand that Newtor's three laws provide a mechanical advantage. Students will understand that Newtor's three laws provide a mechanical Students will understand that Newtor's three laws and processes of a structures and what causes the Earth's tides and seasons. Students will understand the understand the transferred and cores affect motion? What are the pars and processes of a structures of the cores affect motion? What are the pars and processes of a subclasses of a structures the provide forms of renewable energy? How does solar radiation forces affect motion? What are the pars and processes of a subclasses of a subclasses of a subclasses of a subclasses of a structures the pars and processes of a subclasses of a subc

	Energy Transfer 8	Forces and Motion 6	Forces and Motion 7	Forces and Motion 8	Earth System 6	Earth System 7	Earth System 8	Life: Structure and Function 6
Lesson EQ	What are the types of energy and heat transfer? (5)	What is a simple machine? (5)	How do incline planes affect work?(5)	What are the forces that impact motion? (6)	What are components of the water cycle? (5)	What previous theories lead to the concept of Plate Tectonics?(3)	What distinguishes the layers of the earth's atmosphere? (2)	What are the types of cells? (2)
Concept	Energy transfer (kenetic to potential) /Heat Transfer (conduction, convection, radiation)	simple machine, types of simple machines	incline planes	Forces, net force, friction, notation of force, gravity, acceleration, speed	Hydrosphere / water cycle	Continental Drift, Seafloor Spreading, & Plate Tectonic theories	Layers of the atmosphere, air pressure and density, greenhouse effect	Prokaryotic and Eukaryotic
Lesson EQ	What are the types of energy conversion? (2)	How does a lever work? (4)	How do pulleys affect work?(5)	What is Newton's First Law of Motion? (4)	What do cloud types indictate? (3)	What are the geological structures/events that are caused by the movement of the Earth? (7)	How does solar energy impact earth's winds? (4)	What are organelles and their functions? (6)
Concept	Energy Conversion	types of levers, force	pulleys	Newton's First Law of Motion	Cloud Formation/ Cloud types	Geological structures	High and low pressure, Coriolis effect, Wind, convection, Isobars, global winds	Organelles/Functions
Lesson EQ	What is the Law of Conservation of Energy? (2)		How do simple machines provide a mechanical advantage? (2)	What is Newton's Second Law of Motion? (4)	What are the components of the rock cycle? (3)	How does the Earth's orbital position impact the tides and the seasons?(5)	What are the factors that impact weather? (5)	How do plant and animal cells compare and contrast? (2)
Concept	Conservation of Energy		mechanical advantage	Newton's Second Law of Motion	Rock cycle	tides, seasons	Moisture, Air Mass, Weather Fronts, Cloud types, El Nino, La Nina, Ocean currents	Plant/Animal Cell
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	Energy Transfer 8	Forces and Motion 6	Forces and Motion 7	Forces and Motion 8	Earth System 6	Earth System 7	Earth System 8	Life: Structure and Function 6
Lesson EQ				What is Newton's Third Law of Motion? (3)	How do the water and rock cycles impact the environment? (3)		What are forms of severe weather? (4)	What is the life cycle of a cell? (4)
Concept				Newton's Third Law of Motion	erosion, island formation		Hurricanes, Tornadoes, thunderstorms	Cell Cycle
Lesson EQ							How is the atmosphere a part of the oxygen and carbon cycle? (1)	
Concept							Oxygen and carbon cycle	
							How can the atmosphere and solar radiation provide a renewable energy resource? (3)	
Lesson EQ							Solar energy, wind energy	
Concept								

	Energy Transfer 8	Forces and Motion 6	Forces and Motion 7	Forces and Motion 8	Earth System 6	Earth System 7	Earth System 8	Life: Structure and Function 6
Vocabulary	Energy, Kinetic energy, Potential energy, Mechanical energy, Chemical, Nuclear, Thermal, Electromagnetic Energy, Work, Conduction, Convection, Radiation, Specific Heat, Freezing Point	work, power, (machine)(not on word wall), simple machine, lever, fulcrum, arm, (3 classes of levers), force	force, mass, efficiency, load, inclined plan, wedge, screws, pulleys, output, input, mechanical advantage	force, motion, net force, speed (formula), acceleration (formula), velocity, total distance, displacement, inertia, momentum, friction, f=ma, Newton's Laws,	cycle, input, output, reactants, products, process, evaporation, precipitation, transpiration, condensation, reservoir, collection, hydrosphere, igneous, metamorphic, sedimentary, sedimentary, sedimentation, compaction, weathering, erosion, melting, cooling, pressure, heat, cementation, cirrus, stratus, cumulus, nimbus	geosphere, convection currents, lithosphere, asthenosphere,pangae a continental drift, seafloor spreading, plate tectonics, mid- ocean ridge, subduction zones, earthquakes P/S & surface waves, volcanoes, boundary types, mantel, core, seasons, spring and neap tides, gravity, orbits, rotation, revolution, axis	Convection Cells, Ocean Currents, atmospheric temperature, Pressure, Wind, parts of systems, input, output, Moisture, renewable resources, weather, oxygen cycle, carbon cycle, atmosphere, severe weather, hurricanes, tornadoes, air masses, weather fronts, cloud types, Coriolis effect, jet stream, El Nino, La Nina, Solar radiation, troposhere, exoshpere, ozone layer, mesophere, stratosphere, thermosphere, Westerlies, trade winds, polar easterlies, greenhouse effect, isobar, relative humidity	Respond to the environment (homeostasis), growth, reproduction, metabolism, organization, adaptation, cells, tissue, organs, organ systems, eukaryotic, prokaryotic, (bacteria), nucleus, cell membrane, cell wall, cytoplasm, vacuoles, mitochondria, chloroplast, ribosomes, Endoplasmic reticulum, Golgi Body, vesicles, organelle, Cell Cycle, G1 phase, S phase, G2 phase, M phase, cytokenesis
Activities		Match an example with a simple machine (walk arounds), hammer and nail demo, lever lab	Determine the mechanical advantage of pulleys versus inclines.	Motion labs, force activites	models of cycles, illustration of the water cycle, demonstration showing transpiration, evaporation, condensation		modeling atmosphere structure, weather activity	

	Life: Structure and Function 7	Life: Structure and Function 8	Structure of Life 7	Structure of Life 8	Cellular transport 6	Cellular transport 7	Cellular transport 8	Genetics 6
# of days	10	13	15	19	5	12	13	6 Hereditary information
Key Learning	Chromosome composition and stages of the cell cycle.	Chromosomal alterations will occur during the process of meiosis.	Biological macromolecules have specific functions	Enzyme formation and enzymes regulate specific chemical reactions.	Molecules move from high to low concentrations.	Materials move into, out of, and throughout the cell with the help of the cell membrane.	Osmotic pressure and cellular response	is contained in genes. Genes are composed of DNA that make up the chromosomes of cells.
Know	Students will know the composition of a chromosome. Students will know the stages of the cell cycle.	Students will know the methods of chromosomal alterations.	Students will know the structure of biological macromolecules.	Students will know how enzymes are formed and impacted by temperature.	Students will know that molecules can diffuse	Students will know how a selectivley permeable membrane regulates materials moving in and out of a cell. Students will know how molecules move in and out of cells through passive transport to maintain homeostasis.	Students will know that the processes of passive and active transport allow for homeostasis.	Students will know that the chromosomes, DNA, and genes are in a cell nucleus. Students will know that genes on the DNA create the different traits of an organism. Students will know that DNA varies between individuals of a species.
Do	Students will identify the parts of a chromosome. Students will be able to identify the different stages of the cell cycle focusing on the mitotic stage.	Students will identify the steps of meiosis and the methods of chromosomal alteration,	Students will identify the structure and function of biological macromolecules.	Students will demonstrate how enzymes are formed and regulate specific chemical reactions.	Students will identify that molecules can move across a gradient	Students will identify the structures of the plasma membrane that creates selective permeability. Students will be able to predict the effects of osmotic conditions on a cell.	Students will demonstrate the impact of passive transports on a cell. Students will identify forms of active transport.	Students will identify the location of traits on a chromosome.

	Life: Structure and Function 7	Life: Structure and Function 8	Structure of Life 7	Structure of Life 8	Cellular transport 6	Cellular transport 7	Cellular transport 8	Genetics 6
Understand	Students will understand the events of the life cycle of a cell.	Students will understand the formation of haploid cells by meiosis.	Students will understanding the function of biological macromolecules.	Student will understand the role of an enzyme in a specific chemical reaction.	Students will understand that molecules can move from high to low concentrations.	Students will understand how the structure of the selectively permeable membrane allows for materials to pass in and out of the cell.	Student will understand the impact of passive transport on cellular homeostasis.	Students will understand that genes on DNA create the traits of every organism.
Unit EQ	What is the life cycle of a cell?	What is meiosis and how does this lead to altered genetic composition?	How is matter organized to form life?	How does an enzyme form and what is the role of an enzyme in regulation of a chemical reaction?	How do molecules disperse?	How does the cell membrane allow molecules to move in and out of the cell?	How does passive and active transport impact cellular homeostasis?	How are the traits of organisms determined?
Lesson EQ	What is a chromosome?(2)	What can be determined by the chromosomes of a karyotype? (3)	What are the characteristics of carbon? (1))	How is RNA formed and what is its purpose? (3)	What is the difference between a solvent and solute?	What is the structure and function of the cell membrane?	How is osmosis a form of passive transport? (3)	Where is the genetic information located within the nucleus? (2)
Concept	chromosome, chromatid, centrimere, sister chromatid, homologous chromosomes and DNA	Haploid, diploid	Carbon Bonding	Transcription	Solvent / Solute	phospholipid bilayer	passive transport	Chromosomes, Genes, DNA

	Life: Structure and Function 7	Life: Structure and Function 8	Structure of Life 7	Structure of Life 8	Cellular transport 6	Cellular transport 7	Cellular transport 8	Genetics 6
Lesson EQ	What are the events of each of the phases of the cell cycle?(3)	What are the events of each of the phases of meiosis? (5)	How do biological macromolecules form polymers/monomers?(4)	How are proteins produced? (4)	How does concentration affect diffusion? (3	What is passive transport?(4)	What are the effects of various osmotic conditions on a cell? (5)	What is a genetic trait? (1)
Concept	interphase, mitosis, and cytokinesis	PMAT 1/PMAT 2	Condensation Reaction and Hydrolysis	translation/mutation	Diffusion, Equilibrium, Brownian motion,	diffusion, osmosis	Turgor Pressure, plasmolysis, cytolysis, wilting	Genetic trait
Lesson EQ	What occurs during each stage of mitosis?(3)	What chromosomal alterations can occur during meiosis? (3)	What are the structure and function of biological macromolecules? (8)	What is the structure of an enzyme? (1)		How do various solute concentrations determine osomotic balance within a cell?(4)	How is facilitated diffusion a form of passive transport? (2)	What is the relationship between genes and genetic traits? (2)
Concept	prophase, anaphase, metaphase, and telophase	Chromosomal Alterations	Structure and Function of carbohydrates, proteins (enzymes), lipids, & nucleic acids?	Enzyme as a Protein		hypotonic, hypertonic, isotonic, dynamic equilibrium, homeostasis	Facilitated Diffusion	Genes determine genetic traits
Lesson EQ				What are the properties of an enzymes? (2)			What are forms of active transport? (2)	
Concept				Enzyme specificity			Active Transport, pumps, exocytosis, endocytosis	

	Life: Structure and Function 7	Life: Structure and Function 8	Structure of Life 7	Structure of Life 8	Cellular transport 6	Cellular transport 7	Cellular transport 8	Genetics 6
Lesson EQ				What is the role of an enzyme in a chemical reaction? (2)				
Concept				Active site/Activation energy				
Lesson EQ				How does an enzyme regulate a chemical reaction? (3)				
Concept				Enzyme/Substrate concentration				
Lesson EQ				What is the effect of temperature on enzyme activity? (3)				
Concept				Enzyme Denaturation				

	Life: Structure and Function 7	Life: Structure and Function 8	Structure of Life 7	Structure of Life 8	Cellular transport 6	Cellular transport 7	Cellular transport 8	Genetics 6
Vocabulary	diploid, cytokinesis, mitosis, prophase, anaphase, metaphase, telophase, chromosomes, chromatids, chromatin, DNA, protein, centromere, spindle fibers	karyotype, diploid, haploid, chromosome, PMAT 1, PMAT 2, crossing over, deletion, addition, nondisjunction, duplication, translocation, insertion, inversion, centromere, meiosis	Biological macromolecules, Carbohydrate, protein,peptide bond, enzyme, lipid nucleic acid, amino acids, fatty acids, nucleotides, monosaccharide, dissaccharide, polysaccharide, Double Helix, replication, adenine, guanine, cytosine, thymine, nitrogen bases, base pairing, RNA, Uracil, DNA	Amino Acid, protein, enzyme, active site, denaturation, concentration, substrate, activation energy, transcription, translation, mRNA, genetic code, ribosome, mutation, tRNA	Brownian motion, concentration, solvent,solute, concentration gradient,spontaneou s diffusion, solutions Equilibrium	osmosis, diffusion, passive transport, hydrophobic, hydrophillic, fluid mosaic model, hypotonic, hypertonic, isotonic, dynamic equilibrium, concentration gradient, phosopholipid, solute, solvent, homeostasis	active transport, endocytosis, exocytosis,osmotic pressure, plasmolysis, turgor pressure, cytolysis, facilitated diffusion, homeostasis, pumps, hypotonic, hypertonic, isotonic	Ancestors, Chromosomes, Dominant, DNA, Genes, Genetics, Heredity, Inheritance, Nucleus, Trait
Activities	Modeling mitosis							

	Genetics 7	Genetics 8	Ecological Energy Transfer 6	Ecological Energy Transfer 7	Ecological Energy Transfer 8	Ecological Biomes 6	Ecological Population 7	Ecological selection 8
# of days	20	13	16	12	11	33	20	14
Key Learning	Mendel's Law of Dominance	The application of genetic crosses to various patterns of genetics	Organisms obtain and transfer energy through complex interactions.	Organisms obtain and transfer energy from their environment through various cellular processes.	Variables that influence photosynthesis and respiration	Biomes of the world	Population dynamics	The impact of natural selection on a population.
Know	Students will know that three levels of dominance exist in genetics	Students will know various patterns of inheritance and predict their outcomes.	Students will know how organisms obtain and transfer energy.	Students will know where photosynthesis and cellular respiration occur in an organism. Students will know the inputs and outputs for each process and how they are interelated.	Students will know that various factors influence the use of inputs and production of ouputs.	Stundents will know the abiotic and biotic factors of world's biomes.	Students will know that limiting factors affect the carrying capacity of a population.	Students will know that natural selection can lead to the formation of a new species.
Do	Students will be able to identify different phenotypes/genotypes based on punnett square outcomes.	Students will calculate genetic outcomes from various forms of dominance and patterns of inheritance.	Students will identify the transfer of energy through a food web.	Using the chemical equation, students will be able to explain how energy is obtained from the enviroment and transformed from light energy to chemical ATP energy.	Students will construct evidence of variation of input use and output production.	Students will identify the abiotic and biotic factors of world's biomes.	Students will analyze and interpret data and graphs of various dynamic populations.	Students will determine how a mutation allows for the survival of the species and possible creation f a new species.

	Genetics 7	Genetics 8	Ecological Energy Transfer 6	Ecological Energy Transfer 7	Ecological Energy Transfer 8	Ecological Biomes 6	Ecological Population 7	Ecological selection 8
Understand	Students will be able to distinguish between dominant and recessive traits based on genotypic ratios.	Students will understand the relationship between forms of genetic dominance, being able to predict phenotypic outcomes and parental genotypes.	Students will understand the transfer of energy in food webs.	Students will understand the inputs and outputs of photosynthesis and cellular respiration reactions and how these processes are interrelated .	Students will identify the impacts of temperature, light and glucose on the processes of aerobic/anaerobic cellular respiration and photosynthesis.	Students will understand how various factors define a biome.	Students will understand that various factors impact population growth.	Students will understand that mutations drive the process of natural selection.
Unit EQ	What are the methods in which traits are inherited?	How are genetic outcomes determined by different patterns of inheritance?	How do organisms obtain and transfer energy?	How do photosynthesis and cellular respiration transfer energy through the ecosystem?	What are the factors that influence on photosynthesis and aerobic/anaerobic cellular respiration?	How do various factors define a biome?	How do abiotic and biotic factors impact the dynamics of a population?	How does natural selection impact a population?
Lesson EQ	How do Mendelan principles explain how traits are inherited?(7)	How is genetic segregation and assortment demonstrated in patterns of inheritance? (3)	What is the purpose of photosynthesis and cell respiration? (2)	How does photosynthesis use its inputs to generate outputs. (5)	What are the inputs and outputs of photosynthesis and cellular respiration? (1)	What is the difference between abiotic and biotic factors? (1)	What are the impacts of a predator/prey relationship?(6)	What is evolution and natural selection? (2)
Concept	allele, dominant recessive traits, mendelan prinicples	law of segregation, law of independent assortment	To use light energy to produce glucose, ATP (energy)	chloroplast structure & light/dark reactions	Circle of Life input and outputs	abiotic/biotic	Predator/prey relationships (terrestrial & aquatic)	Darwin's finches/evolution/ad aptation

	Genetics 7	Genetics 8	Ecological Energy Transfer 6	Ecological Energy Transfer 7	Ecological Energy Transfer 8	Ecological Biomes 6	Ecological Population 7	Ecological selection 8
Lesson EQ	How is a punnett square used to determine trait inheritance?(7)	What is the difference between the forms of dominance? (5)	What is the job (niche) of an organism in an ecosystem? (3)	How does cellular respiration use inputs to generate outputs?(4)	How do factors influence photosysnthesis? (4)	What are the abiotic factors of a terrestrial biome? (2)	How do limiting factors impact the dynamics of a population? (5)	How does a changing environment influence a population? (2)
Concept	genotypic and phenotypic ratios	codominance, incomplete dominance, complete dominance	herbivore, carnivore, ominivore, producers, consumers, decomposers	mitochondrial structure & ATP energy production	photosynthesis (light intensity/Temperatur e)	temperature, ellivation, climate, precipitation, soil types	Competition including terrestrial & aquatic ecosystems (invasive species)	changing environment/ Environmental impact on population
Lesson EQ	What are incomplete and codominant inheritance?(4)	What are a multiple allele, polygenic and sex-linked trait? (4)	How is energy transferred and converted through an ecosystem? (4)	How are the inputs and outputs of photosyntheis and cellular respiration interrelated?(1)	How do factors influence cellular respiration? (5)	What are the abiotic factors of an aquatic biome? (2)	How do humans impact populations? (5)	What is the importance of genetic variation? (2)
Concept	incomplete and codominance	multiple allele, polygenic and sex- linked trait	Food Chains/Webs	input/output of energy in organims	aerobic and anaerobic respiration	salinity, temperature, oxygen concentration, pH	Human disturbance on a population	Mutation/ Alleles/ genetic variation
Lesson EQ			What relationships can occur within an ecosystem? (4)			How do abiotic factors influence structural and behavoiral adaptations? (4)		How does natural selection influence a population? (4)
Concept			symbiotic relationships (mutualism, commensalism, parasitism), predation, competition			Migration, hibernation, body coverings, feeding, movement		Natural Selection/ Artificial Selection

	Genetics 7	Genetics 8	Ecological Energy Transfer 6	Ecological Energy Transfer 7	Ecological Energy Transfer 8	Ecological Biomes 6	Ecological Population 7	Ecological selection 8
Lesson EQ			How could limiting factors affect an ecosytem? (2)			What are non- renewable resources? (5)		How can natural selection produce a new species? (3)
Concept			limiting factors			fossil fuels, nuclear power		species formation/ extinction
Lesson EQ						What are renewable resources? (5)		
Concept						solar, wind, geothermal, ethanol, biodesiel, hydo- electric		
Lesson EQ						What are the characteristics of the aquatic and terrestrial biomes? (14)		
Concept						Biomes		

	Genetics 7	Genetics 8	Ecological Energy Transfer 6	Ecological Energy Transfer 7	Ecological Energy Transfer 8	Ecological Biomes 6	Ecological Population 7	Ecological selection 8
Vocabulary	alleles, dominant, recessive, codominance, incomplete dominance, genotype, phenotype, heterozygous, homozygous, hybrid, trait, gene, punnnett square, monohybrid cross	law of segregation, law of independent assortment, sex- linked, polygenic, multiple alleles, codominance, dominance, incomplete dominance,	autotrophs, heterotrophs,	photosynthesis, chloroplast, chlorophyll, light dependent/independ ent, ATP, aerobic cellular respiration, mitochondria, glycolysis, reactant/input, product/output	photosynthesis, aerobic, anaerobic, cellular respiration, input, output, variable, ATP, glucose, carbon dioxide, oxygen, reactant, product, oxygen concentration, temperature, light intensity, glucose concentration, fate of pyruvate, glycolysis, light dependent reaction (light reaction), light independent reaction (dark reaction)	Tundra, tiaga, desert, deciduous forest, grasslands, tropical rainforest, temperate rainforest, estuary, marshlands, swamps, open ocean, rivers, abiotic, biotic, salinity, temperature, climate, precipitation, aquatic, terristrial, structural adaptation, biome, behavoiral adaptation	population,community, limiting factors (biotic potential/environmental resistence), carrying capacity, competition, predation, birth/death rate, exponential growth, density dependent/independent factors, extinction, growth curves	natural selection, adaptation, evolution, Darwin's finches, artificial selection, breeding, populations, mutations, alleles, genetic variation, isolation, species formation, extinction,
Activities						biome project		

	6th grade total days	7th grade total days	8th grade Total Days	6th Life Science Total Days	7th Life Science Total Days	8th Life Science Total Days	6th Earth Science Total Days	7th Earth Science Total Days	8th Earth Science Total Days
# of days	156	156	155	79	89	89	16	19	18
Key Learning									
Know									
Do									

	6th grade total days	7th grade total days	8th grade Total Days	6th Life Science Total Days	7th Life Science Total Days	8th Life Science Total Days	6th Earth Science Total Days	7th Earth Science Total Days	8th Earth Science Total Days
Understand									
Unit EQ									
Lesson EQ									
Concept									

	6th grade total days	7th grade total days	8th grade Total Days	6th Life Science Total Days	7th Life Science Total Days	8th Life Science Total Days	6th Earth Science Total Days	7th Earth Science Total Days	8th Earth Science Total Days
Lesson EQ									
Concept									
Lesson EQ									
Concept									
Lesson EQ									
Concept									

	6th grade total days	7th grade total days	8th grade Total Days	6th Life Science Total Days	7th Life Science Total Days	8th Life Science Total Days	6th Earth Science Total Days	7th Earth Science Total Days	8th Earth Science Total Days
Lesson EQ									
Concept									
Lesson EQ									
Concept									
Lesson EQ									
Concept									

	6th grade total days	7th grade total days	8th grade Total Days	6th Life Science Total Days	7th Life Science Total Days	8th Life Science Total Days	6th Earth Science Total Days	7th Earth Science Total Days	8th Earth Science Total Days
Vocabulary									
Activities									

	6th Physical Science Total Days	7th Physical Science Total Days	8th Physical Science Total Days	6th Scientific Method	7th Scientific Method
# of days	38	40	54	23	8
Key Learning					
Know					
Do					

	6th Physical Science Total Days	7th Physical Science Total Days	8th Physical Science Total Days	6th Scientific Method	7th Scientific Method
Understand					
Unit EQ					
Lesson EQ					
Concept					

	6th Physical Science Total Days	7th Physical Science Total Days	8th Physical Science Total Days	6th Scientific Method	7th Scientific Method
Lesson EQ					
Concept					
Lesson EQ					
Concept					
Lesson EQ					
Concept					

	6th Physical Science Total Days	7th Physical Science Total Days	8th Physical Science Total Days	6th Scientific Method	7th Scientific Method
Lesson EQ					
Concept					
Lesson EQ					
Concept					
Lesson EQ					
Concept					

6th Physical Science Total Days	7th Physical Science Total Days	8th Physical Science Total Days	6th Scientific Method	7th Scientific Method
	6th Physical Days	6th Physical ScienceScience Total DaysImage: Science Total	Oth Physical DaysTth Physical Science8th Physical ScienceColorC	Oth Physical Science8th Physical Science6th Scientific MethodScience Total Days </td