

	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 to 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





	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, solubility, pH, acid, base, neutral, Ionic bonds, covalent bonds, mass number, atomic number, mass, volume, metals, non-metals, metalloids	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 form 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 identify 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
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, sediment, 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, troposphere, exoshpere, ozone layer, mesosphere, 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, cytokinesis
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
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	Hereditary information 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 selectively 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
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, disaccharide, 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, spontaneous diffusion, solutions Equilibrium	osmosis, diffusion, passive transport, hydrophobic, hydrophilic, fluid mosaic model, hypotonic, hypertonic, isotonic, dynamic equilibrium, concentration gradient, phospholipid, 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 interrelated.	Students will know that various factors influence the use of inputs and production of outputs.	Students 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 environment 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 of 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
Vocabulary	alleles, dominant, recessive, codominance, incomplete dominance, genotype, phenotype, heterozygous, homozygous, hybrid, trait, gene, punnett 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/independent, 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, taiga, desert, deciduous forest, grasslands, tropical rainforest, temperate rainforest, estuary, marshlands, swamps, open ocean, rivers, abiotic, biotic, salinity, temperature, climate, precipitation, aquatic, terrestrial, structural adaptation, biome, behavioural adaptation	population, community, limiting factors (biotic potential/environmental resistance), 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 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
Vocabulary					
Activities					