


Ganado Unified School District #20 PACING GUIDE (SCIENCE/GRADE 8TH)

QUARTER 1

Timeline & Resources	AZ College and Career Readiness Standard	Essential Question (HESS Matrix)	Learning Goal	Vocabulary (Content/Academic)
<p>First Quarter Week 1</p> <ul style="list-style-type: none"> Science Introduction <p>Resources:</p> <ul style="list-style-type: none"> Textbook Syllabus Science Careers (library) Videos Interest Survey 	<p>STRAND 2. History and Nature of Science Concept 2: Nature of Scientific Knowledge PO 1. Apply the following scientific processes to other problem solving or decision making situations:</p> <ul style="list-style-type: none"> Observing Questioning Communicating Comparing Measuring 	<ul style="list-style-type: none"> What is Science? How Science improve people's lives? What are the different scientific processes? How scientific processes help to solve problem or in decision making? 	<p>I will be able to:</p> <ul style="list-style-type: none"> Define Science. Explain the importance of science in improving people's lives Identify the different scientific processes Relate the use of scientific processes in solving problems and decision making 	<ul style="list-style-type: none"> SCIENCE PURE SCIENCE APPLIED SCIENCE OBSERVING QUESTIONING COMMUNICATING COMPARIN MEASURING
<p>First Quarter Week 2</p> <ul style="list-style-type: none"> Scientific Inquiry <p>Resources:</p> <ul style="list-style-type: none"> Textbook 	<p>STRAND 2. History and Nature of Science Concept 2: Nature of Scientific Knowledge PO 1. Apply the following scientific processes to other problem solving or</p>	<ul style="list-style-type: none"> What are the different scientific processes? How scientific processes help to solve 	<p>I will be able to:</p> <ul style="list-style-type: none"> Identify the different scientific processes Relate the use of scientific processes 	<ul style="list-style-type: none"> CLASSIFYING PREDICTING DATA INFERRING HYPOTHESIS

<ul style="list-style-type: none"> • <i>Worksheet</i> • <i>Computer</i> 	<p>decision making situations:</p> <ul style="list-style-type: none"> • Classifying • Predicting • Organizing data • Inferring • Generating hypotheses • Identifying variables 	<p>problem or in decision making?</p> 	<p>in solving problems and decision making</p>	<ul style="list-style-type: none"> • DEPENDENT VARIABLES • INDEPENDENT VARIABLES • CONSTANT VARIABLES
<p>First Quarter Week 3</p> <ul style="list-style-type: none"> • <i>Scientific Inquiry</i> <p>Resources:</p> <ul style="list-style-type: none"> • <i>Textbook</i> • <i>Worksheet</i> • <i>Computer</i> 	<p>STRAND 1: Inquiry Process Concept 1. Observations, Questions, and Hypotheses PO 1. Formulate questions based on observations that lead to the development of hypotheses PO 2. Use appropriate research information, not limited to a single source, to use in the development of a testable hypothesis. PO 3. Generate a hypothesis that can be</p>	<ul style="list-style-type: none"> • What are some steps used during scientific inquiry? • What are the results of scientific inquiry? • What is critical thinking? • What makes a theory a law? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Create a question to be explored • Use a variety of information to gather research • Formulate and test a hypothesis • Create a lab book • Created a well formulated lab report 	<ul style="list-style-type: none"> • PROBLEM • RESEARCH • HYPOTHESIS • EXPERIMENT • MATERIALS • PROCEDURE

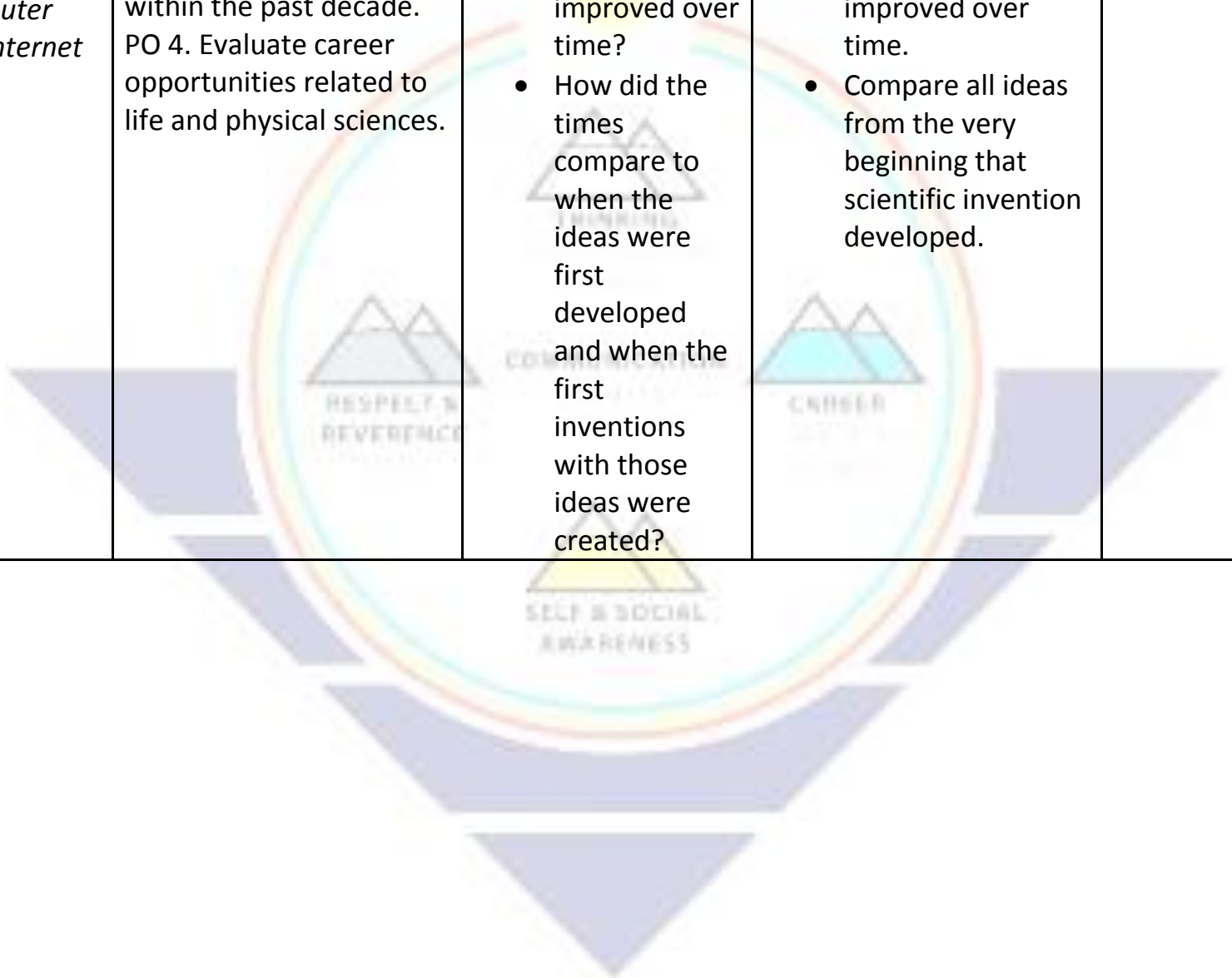
	tested			
First Quarter Week 4 <ul style="list-style-type: none"> Scientific Inquiry Resources: <ul style="list-style-type: none"> Textbook Worksheet Computer 	STRAND 1. Inquiry Process Concept 2. Scientific Testing (investigating and modeling). PO 2. Design a controlled investigation to support or reject a hypothesis PO 3. Conduct a controlled investigation to support or reject a hypothesis PO 4. Perform measurements using appropriate scientific tools PO 5. Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs	<ul style="list-style-type: none"> How to design a controlled investigation to support or reject a hypothesis? How to formulate a good hypothesis? What is the importance of measurement and data using appropriate scientific tools in scientific investigation? 	I will be able to: <ul style="list-style-type: none"> Collect qualitative or quantitative data Create graphic representation of the collected data Make inferences Analyze data and make conclusions about the collected data Distinguish between theory and law 	<ul style="list-style-type: none"> QUALITATIVE QUANTITATIVE INFERENCE CONCLUSION ANALYZE SCIENTIFIC THEORY SCIENTIFIC LAW CRITICAL THINKING VARIABLE CONSTANT INDEPENDENT VARIABLE DEPENDENT VARIABLE CONTROL GROUP EXPERIMENTAL GROUP
First Quarter Week 5 <ul style="list-style-type: none"> Lab Safety Resources: <ul style="list-style-type: none"> Textbook 	STRAND 1: Inquiry Process Concept 2: Scientific Testing (Investigating and Modeling):	<ul style="list-style-type: none"> Why are Safety Rules important in a laboratory setting? 	I will be able to: <ul style="list-style-type: none"> List the safety equipment Explain how to use equipment safely 	<ul style="list-style-type: none"> APRON BIOLOGICAL HAZARD EQUIPMENT EYEWASH

<ul style="list-style-type: none"> • <i>Computer and internet Worksheet</i> 	<p>PO 1. Demonstrate safe behavior and appropriate procedures in all science inquiry.</p>	<ul style="list-style-type: none"> • What do I do if I have an emergency in the lab? 	<ul style="list-style-type: none"> • Demonstrate how to safely use the equipment • State the consequences of breaking rules in the lab 	<ul style="list-style-type: none"> • FIRE ALARM • FIRST-AID KIT • GOGGLES • GRADUATED CYLINDER • HAND LENS • HAZARD • HOT PLATE • INVESTIGATION • LABORATORY • MATERIALS • RISK • WASTE DISPOSAL
<p>First Quarter Week 6</p> <ul style="list-style-type: none"> • <i>Measuring</i> <p>Resources:</p> <ul style="list-style-type: none"> • <i>Textbook</i> • <i>Computer and internet</i> • <i>Worksheet</i> 	<p>STRAND 1: Inquiry process Concept 2: Scientific Testing (investigating and Modeling): PO 4. Perform measurements using appropriate scientific tools PO 5. Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs</p>	<ul style="list-style-type: none"> • Why did scientists create the international system of units? • How can tools assist physicist? • Why is the scientific notation a useful tool for scientists? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Accurately take measurement • Accurately record measurement • Accurately convert measurement • Accurately choose the label of the object 	<ul style="list-style-type: none"> • METER • LITER • CENTI • MILI • DECI • DEKA • GRAM • VOLUME • AREA • WEIGHT • TRIPLE BEAM BALANCE • METER STICK • GRADUATED CYLINDER • MASS • SCIENTIFIC NOTATION • SI UNIT

				<ul style="list-style-type: none"> • LENGTH • TEMPERATURE • HECTO • KILO
<p>First Quarter Week 7</p> <ul style="list-style-type: none"> • <i>Graphing</i> <p>Resources:</p> <ul style="list-style-type: none"> • <i>Textbook</i> • <i>Computer and internet</i> • <i>Worksheet</i> 	<p>STRAND 1: Inquiry process</p> <p>Concept 3: Analysis and Conclusions</p> <p>PO 3. Interpret data that show a variety of possible relationships between two variables, including:</p> <ul style="list-style-type: none"> • Positive relationship • Negative relationship • No relationship <p>Concept</p> <p>4.Communication</p> <p>PO 2. Choose an appropriate graphic representation for collected data</p> <ul style="list-style-type: none"> • Line graph • Double bar graph • Stem and leaf plot 	<ul style="list-style-type: none"> • Why do we use different types of graphs to show information? • How do you decide the best graph to use to show your data? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Accurately create a graph that depict a data • Accurately analyze data and interpret relationships between data 	<ul style="list-style-type: none"> • BAR GRAPH • CIRCLE GRAPH • HISTOGRAM • STEM AND LEAF PLOT • HORIZONTAL AXIS • VERTICAL AXIS • SCALE • INDEPENDENT • DEPENDENT • TITLE • KEY

	<ul style="list-style-type: none"> Histogram <p>PO 5. Communicate the results and conclusions of the investigation</p>			
<p>First Quarter Week 8</p> <ul style="list-style-type: none"> <i>History of Science</i> <p>Resources:</p> <ul style="list-style-type: none"> <i>Textbook</i> <i>Computer and internet</i> <i>Worksheet</i> 	<p>STRAND 2. History and Nature of Science</p> <p>Concept 1. History of Science as a Human Endeavor</p> <p>PO 1. Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations.</p> <p>PO 2. Evaluate the effects of the following major scientific milestones on society:</p> <ul style="list-style-type: none"> Mendelian Genetics Newton's Laws 	<ul style="list-style-type: none"> Who were the major contributors to science? How did their ideas get improved overtime? What were the people's interests and ideas of science throughout history? 	<p>I will be able to:</p> <ul style="list-style-type: none"> Name major contributors to science Explain how scientists' ideas get improved overtime. Describe the people's interests and ideas of science throughout history. 	<ul style="list-style-type: none"> INVENTION INNOVATOR ADDITIONS CORRECTIONS GADGET TECHNOLOGY
<p>First Quarter Week 9</p> <ul style="list-style-type: none"> <i>History of Science</i> <i>Inventors and inventions</i> 	<p>STRAND 2. History and Nature of Science</p> <p>Concept 1. History of Science as a Human Endeavor</p> <p>PO 3. Evaluate the impact</p>	<ul style="list-style-type: none"> What were the most impactful inventions of all time? 	<p>I will be able to:</p> <ul style="list-style-type: none"> Identify the most impactful inventions of all time. 	<ul style="list-style-type: none"> CAREER PHYSICAL SCIENCE LIFE SCIENCE IMPACT DEVELOPMENT

<p>Resources:</p> <ul style="list-style-type: none"> • <i>Textbook</i> • <i>Computer and internet</i> <p><i>Worksheet</i></p>	<p>of a major scientific development occurring within the past decade. PO 4. Evaluate career opportunities related to life and physical sciences.</p>	<ul style="list-style-type: none"> • How do inventions get improved over time? • How did the times compare to when the ideas were first developed and when the first inventions with those ideas were created? 	<ul style="list-style-type: none"> • Explain how inventions get improved over time. • Compare all ideas from the very beginning that scientific invention developed. 	
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QUARTER 2

Timeline & Resources	AZ College and Career Readiness Standard	Essential Question (HESS Matrix)	Learning Goal	Vocabulary (Content/Academic)
<p>Second Quarter <i>Week 1</i></p> <ul style="list-style-type: none"> <i>Physical properties of Matter</i> <p>Resources:</p> <ul style="list-style-type: none"> <i>Textbook</i> <i>Syllabus</i> <i>Worksheet</i> <i>computer</i> 	<p>STRAND 5: Physical Science</p> <p>Concept 1. Properties and changes of Properties in Matter.</p> <p>PO 1. Identify different kinds of matter based on the following physical properties:</p> <ul style="list-style-type: none"> states density boiling point melting point solubility 	<ul style="list-style-type: none"> How does kinetic molecular theory describe the behavior of a gas? How are temperature, pressure, and volume related in Boyle’s Law? How is Boyle’s Law different from Charles’ Law? 	<p>I will be able to:</p> <ul style="list-style-type: none"> Characterize matter using its physical and chemical properties Explain, compare and contrast the gas laws Accurately match the state of matter with the description of what phase change it is in. 	<ul style="list-style-type: none"> VISCOSITY SURFACE TENSION KINETIC MOLECULAR THEORY PRESSURE MALLEABILITY LUSTER DUCTILITY VAPORIZATION EVAPORATION CONDENSATION SUBLIMATION DEPOSITION BOILING POINT FREEZING MELTING POINT OXIDATION
<p>Second Quarter <i>Week 2</i></p>	<p>STRAND 5. Physical Science</p> <p>Concept 1. Properties</p>	<ul style="list-style-type: none"> How do particles move 	<p>I will be able to:</p> <ul style="list-style-type: none"> List 5 states of matter. 	<ul style="list-style-type: none"> SOLID CRYSTALLINE AMORPHOUS

<ul style="list-style-type: none"> • <i>Chemical Properties of Matter</i> <p>Resources:</p> <ul style="list-style-type: none"> • <i>Textbook</i> • <i>Worksheet</i> • <i>Computer</i> 	<p>and Changes of Properties in Matter</p> <p>PO 2. Identify different kinds of matter based on the following chemical properties:</p> <ul style="list-style-type: none"> • Reactivity • pH • oxidation 	<p>in states of matter?</p> <ul style="list-style-type: none"> • How are the forces between particles different in states of matter? • What are the five states of matter? • What is the cycle of the state of matter? 	<ul style="list-style-type: none"> • Determine if a solid is crystalline or amorphous • Explain the 5 states of matter • Create and explain the state of matter cycle of the 3 common states of matter 	<ul style="list-style-type: none"> • LIQUID • GAS • VAPOR • BOSE EINSTIEN CONDENSATES • PALSMA • BOYLE'S LAW • CHARLES' LAW • CONSERVATION OF MASS AND ENERGY • ACID • BASE
<p>Second Quarter <i>Week 3 and Week 4</i></p> <ul style="list-style-type: none"> • <i>Chemical and Physical changes</i> <p>Resources:</p> <ul style="list-style-type: none"> • <i>Textbook</i> • <i>Worksheet</i> • <i>Computer</i> 	<p>STRAND 5. Physical Science</p> <p>Concept 1. Properties and Changes of Properties in Matter</p> <p>PO 3. Identify the following types of evidence that a chemical reaction has occurred:</p> <ul style="list-style-type: none"> • Formulation of a precipitate • Generation of gas • Color change • Absorption or 	<ul style="list-style-type: none"> • How is temperature related to particle movement? • How are temperature and thermal energy different? • What happens to thermal energy when matter changes 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Explain and give examples of chemical and physical changes • Explain the Law of conservation of mass • Accurately write out chemical equations using a variety of changes 	<ul style="list-style-type: none"> • CHEMICAL CHANGE • PHYSICAL CHANGE • CHEMICAL REACTION • REACTANT • PRODUCT • LAW OF CONSERAVTION OF MASS • COEFFICENT • SYNTHESIS • DECOMPOSITION

	<p>release of heat</p> <p>PO 7. Investigate how the transfer of energy can affect the physical and chemical properties of matter</p>	<p>from one state to another?</p>		<ul style="list-style-type: none"> • SINGLE REPLACEMENT • DOUBLE REPLACEMENT • COMBUSTION • ENDOTHERMIC • EXOTHERMIC • ACTIVATION ENERGY • CATALYST • ENZYME • INHIBITOR
<p>Second Quarter Week 5</p> <ul style="list-style-type: none"> • <i>Atoms</i> <p>Resources:</p> <ul style="list-style-type: none"> • <i>Textbook</i> • <i>Worksheet</i> • <i>Computer</i> 	<p>STRAND 5. Physical Science</p> <p>Concept 1. Properties and Changes of Properties in Matter</p> <p>PO 4. Classify matter in terms of elements, compounds or mixture</p>	<ul style="list-style-type: none"> • What is atom? • How has the atomic model changed over time? • What happens during nuclear decay? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Explain the timeline of the atom, the people behind the discovery of atom and how atom has changed over time • Explain and illustrate atomic diagrams/models 	<ul style="list-style-type: none"> • PROTON • NEUTRON • ELECTRON • NUCLEUS • ISOTOPE • ATOMIC NUMBER • MASS NUMBER • ION • ELECTRON CLOUD • DALTON • DEMOCRITUS • RUTHERFORD
<p>Second Quarter Week 6</p> <ul style="list-style-type: none"> • <i>Elements</i> 	<p>STRAND 5. Physical Science</p> <p>Concept 1. Properties</p>	<ul style="list-style-type: none"> • What are elements? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Define element 	<ul style="list-style-type: none"> • ELEMENT • PERIODIC TABLE • FAMILY

<p>Resources:</p> <ul style="list-style-type: none"> • <i>Textbook</i> • <i>Worksheet</i> • <i>Computer</i> 	<p>and Changes of Properties in Matter PO 4. Classify matter in terms of elements, compounds or mixture PO 6. Explain the systematic organization of the periodic table</p>	<ul style="list-style-type: none"> • How are they different and similar to each other? • What is Periodic Table? • How it is constructed? 	<ul style="list-style-type: none"> • Describe the properties of an element • Accurately find and give protons, neutrons, electrons, atomic number, atomic mass, electron dot diagram, and valence electrons of a given element. 	<ul style="list-style-type: none"> • PERIOD • ELECTRON DOT DIAGRAM • VALENCE ELECTRON
<p>Second Quarter Week 7</p> <ul style="list-style-type: none"> • <i>Periodic Table</i> <p>Resources:</p> <ul style="list-style-type: none"> • <i>Textbook</i> • <i>Worksheet</i> • <i>Computer</i> 	<p>STRAND 5. Physical Science Concept 1. Properties and Changes of Properties in Matter PO 4. Classify matter in terms of elements, compounds or mixture PO 6. Explain the systematic organization of the periodic table</p>	<ul style="list-style-type: none"> • What things to do row and column tell us in Periodic Table? • What do the families tell us about all those elements? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Accurately find and give protons, neutrons, electrons, atomic number, atomic mass, electron dot diagram, and valence electrons of a given element. 	<ul style="list-style-type: none"> • METAL • NON-METAL • METALLOIDS
<p>Second Quarter Week 8</p> <ul style="list-style-type: none"> • <i>Compounds</i> <p>Resources:</p>	<p>STRAND 5. Physical Science Concept 1. Properties and Changes of</p>	<ul style="list-style-type: none"> • What is a compound? • How are compounds and 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Define compound 	<ul style="list-style-type: none"> • IONIC • COVALENT • POLAR • NON-POLAR

<ul style="list-style-type: none"> • Textbook • Worksheet • Computer 	Properties in Matter PO 4. Classify matter in terms of elements, compounds or mixture	elements different? <ul style="list-style-type: none"> • How do compounds form? 	<ul style="list-style-type: none"> • Differentiate element and compound • Explain how compound form 	<ul style="list-style-type: none"> • BOND • STABLE
<p>Second Quarter Week 9</p> <ul style="list-style-type: none"> • Compounds <p>Resources:</p> <ul style="list-style-type: none"> • Textbook • Worksheet • Computer 	<p>STRAND 5. Physical Science Concept 1. Properties and Changes of Properties in Matter PO 4. Classify matter in terms of elements, compounds or mixture PO 5. Classify mixtures as being homogeneous or heterogeneous.</p>	<ul style="list-style-type: none"> • What is a mixture? • Are all compounds mixtures? • Are all mixtures compounds? 	I will be able to: <ul style="list-style-type: none"> • Define mixture • Explain and identify the solute and solvent • Determine if an illustration is a compound, element or mixture: homogeneous or heterogeneous 	<ul style="list-style-type: none"> • SOLVENT • SOLUTE • HOMOGENEOUS • HETEROGENEOUS
<p>Second Quarter Week 10</p> <ul style="list-style-type: none"> • End of Chemistry Unit <p>Resources:</p> <ul style="list-style-type: none"> • Textbook • Worksheet • Computer 	<p>STRAND 5. Physical Science ALL POs</p>	<ul style="list-style-type: none"> • How to identify ideas related to atoms, elements, compounds and mixtures? 	I will be able to: <ul style="list-style-type: none"> • Evaluate all concepts and ideas related to chemistry 	Review the Academic vocabulary from Week 1 to Week 9.

QUARTER 3


Timeline & Resources	AZ College and Career Readiness Standard	Essential Question (HESS Matrix)	Learning Goal	Vocabulary (Content/Academic)
<p>Third Quarter <i>Week 1</i></p> <ul style="list-style-type: none"> • <i>Science Fair</i> <p>Resources:</p> <ul style="list-style-type: none"> • <i>Textbook</i> • <i>Worksheet</i> • <i>Computer</i> 	<p>STRAND 1. Inquiry Process (Listed in 1st Quarter)</p> <p>All POs</p>	<ul style="list-style-type: none"> • What category and subject interests you? • How are you going to experiment with this idea in a new and creative way? • How are you going to share this information and an interesting and captivating manner? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • State my problem • Show my research and explain what background information I learned to help me with the creation of my question and site it appropriately. • Create and conduct my experiment • List and explain my control, independent and dependent variables and procedure. • Create visuals to show my multiple trial data 	<ul style="list-style-type: none"> • INTERVIEW • JUSTIFY • SCIENTIFIC METHOD • SCIENCE RESEARCH

			<ul style="list-style-type: none"> • Explain my qualitative and quantitative observations and make conclusion about my experiment 	
<p>Third Quarter Week 2</p> <ul style="list-style-type: none"> • <i>Mitosis</i> <p>Resources:</p> <ul style="list-style-type: none"> • <i>Textbook</i> • <i>Worksheet</i> • <i>Computer</i> 	<p>STRAND 4. Life Science Concept 2. Reproduction and Heredity PO 1. Explain the purposes of cell division</p> <ul style="list-style-type: none"> • Growth and repair • Reproduction 	<ul style="list-style-type: none"> • How is daughter cell and mother cell alike? • What types of cell go through mitosis? • What stages does the cell spend most of its time in and why? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • List the stages of mitosis in the correct order • Explain in details what happens during each stage of the cycle • List reasons that cells go through mitosis • Accurately match/create the visual representation of the stage to the stage name 	<ul style="list-style-type: none"> • INTERPHASE • PROPHASE • METAPHASE • ANAPHASE • TELOPHASE • CYTOKINESIS • DAUGHTER CELL • DIPLOID • SOAMTIC CELL • REPAIR • GROWTH
<p>Third Quarter Week 3</p> <ul style="list-style-type: none"> • <i>Meiosis</i> <p>Resources:</p>	<p>STRAND 4. Life Science Concept 2. Reproduction and Heredity PO 1. Explain the purposes</p>	<ul style="list-style-type: none"> • What type of division do sex cells go through? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • List stages of meiosis in the correct order 	<ul style="list-style-type: none"> • SPERM • EGG • ZYGOTE • HAPLOID

<ul style="list-style-type: none"> • Textbook • Worksheet • Computer 	of cell division <ul style="list-style-type: none"> • Growth and repair Reproduction	<ul style="list-style-type: none"> • Why do sex cells only have half the amount of genetic material that their parents do? • What does the second PMAT do to the cell? 	<ul style="list-style-type: none"> • Explain in detail what happens during each stage of the cycle • Compare and contrast mitosis and meiosis 	<ul style="list-style-type: none"> • GAMETE
Third Quarter Week 4 <ul style="list-style-type: none"> • DNA-Genetics Intro. Resources: <ul style="list-style-type: none"> • Textbook • Worksheet • Computer 	STRAND 4. Life Science Concept 2. Reproduction and Heredity PO 1. Explain the purposes of cell division <ul style="list-style-type: none"> • Growth and repair Reproduction	<ul style="list-style-type: none"> • How does DNA line up? • What does DNA do? • What bases make up DNA? 	I will be able to: <ul style="list-style-type: none"> • List the chemicals found in DNA • Accurately pair up the chemicals to their counter part • Explain how DNA works and is replicated 	<ul style="list-style-type: none"> • DEOXYRIBONUCLEIC ACID • ADENINE • CYTOSINE • GUANINE • THYMINE
Third Quarter Week 5 and Week 6 <ul style="list-style-type: none"> • Heredity Resources: <ul style="list-style-type: none"> • Textbook • Worksheet • Computer 	STRAND 3. Science in Personal and Social Perspectives Concept 2. Science and Technology in Society PO 4. Compare risks and benefits of technological advances: <ul style="list-style-type: none"> • Genetic engineering 	<ul style="list-style-type: none"> • How do traits get passed on? • What does it mean to be a carrier? • How are phenotype and genotype the same but 	I will be able to: <ul style="list-style-type: none"> • Explain how traits get passed on from parent to offspring • Explain the process that Gregor Mendel used to made 	<ul style="list-style-type: none"> • HEREDITY • GENETICS • GREGOR MENDEL • SELECTIVE BREEDING • DOMINANT TRAIT • RECESSIVE TRAIT • GENOTYPE • PHENOTYPE

	<p>STRAND 4. Life Science Concept 2. Reproduction and Heredity PO 2. Explain the basic principles of heredity using the human examples of:</p> <ul style="list-style-type: none"> ○ Eye color ○ Widow’s peak ○ Blood type <p>PO 3. Distinguish between the nature of dominant and recessive traits in humans Concept 4. Diversity, Adaptation, and Behavior PO 2. Describe how organism can maintain a stable internal environment while living in a constantly changing external environment. PO 3. Determine characteristics of organisms that could change over several generations</p>	<p>different at the same time?</p> <ul style="list-style-type: none"> ● What is the importance of Gregor Mendel to Genetics? ● What makes something dominant or recessive? 	<p>him become the “Father of Genetics”</p> <ul style="list-style-type: none"> ● Accurately depict something as dominant or recessive ● Correctly state the genotype and phenotype of objects ● Explain the idea of selective breeding. 	<ul style="list-style-type: none"> ● HETEROZYGOUS ● HOMOZYGOUS ● TRAITS ● ALLELE ● CARRIER
<p>Third Quarter Week 7</p>	<p>Strand 4. Life Science Concept 2. Reproduction and Heredity</p>	<ul style="list-style-type: none"> ● What is the probability of a child getting a 	<p>I will be able to:</p> <ul style="list-style-type: none"> ● Define Punnett Square 	<ul style="list-style-type: none"> ● MONOHYBRID CROSS ● PUNNETT SQUARE

<ul style="list-style-type: none"> • Punnett Square <p>Resources:</p> <ul style="list-style-type: none"> • Textbook • Worksheet • Computer 	<p>PO 2. Explain the basic principles of heredity using the human examples of:</p> <ul style="list-style-type: none"> ○ Eye color ○ Widow's peak ○ Blood type <p>PO 3. Distinguish between the nature of dominant and recessive traits in humans</p>	<p>trait the parents have?</p> <ul style="list-style-type: none"> • Does the probability change with the number of children the parents have? • Does it matter what parent the gene comes from? 	<ul style="list-style-type: none"> • Accurately complete Punnett Squares • Complete multiple allele using Punnett Squares • Explain co-dominance and incomplete dominance • Accurately complete a monohybrid cross 	<ul style="list-style-type: none"> • INCOMPLETE DOMINANCE • CO-DOMINANCE • MULTIPLE ALLELE • CARRIER
<p>Third Quarter Week 8</p> <ul style="list-style-type: none"> • Animal Behaviors and animal life cycles <p>Resources:</p> <ul style="list-style-type: none"> • Textbook • Worksheet • Computer 	<p>Strand 4. Life Science Concept 4. Diversity, Adaptation, and Behavior</p> <p>PO 5. Analyze the following behavioral cycles of organisms:</p> <ul style="list-style-type: none"> ○ Hibernation ○ Migration ○ Dormancy (plants) 	<ul style="list-style-type: none"> • Why do animals exhibit particular behaviors and cycles? • What about animal population can affect the surroundings? • How have things evolved over time? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Explain animal behavioral cycles • Explain plant cycles • Explain diversity in communities and niches • Analyze the effect of population based upon animal 	<ul style="list-style-type: none"> • HABITAT • POPULATION • COMMUNITY • NICHE • ABIOTIC • BIOTIC • PRODUCER • CONSUMER • FOOD WEB • FOOD ENERGY FLOW • ENERGY PYRAMID • DORMANCY

		<ul style="list-style-type: none"> Why does diversity in populations matter? 	behavioral changes <ul style="list-style-type: none"> Explain natural selection Create conservation ideas and debate them Explain the idea of evolution 	<ul style="list-style-type: none"> HIBERNATION VARIATION NATURAL SELECTION ADAPTATION EVOLUTION EXTINCTION CONSERVATION BIOLOGY
Third Quarter Week 9 <ul style="list-style-type: none"> <i>Diversity and Adaptations</i> Resources: <ul style="list-style-type: none"> Textbook Worksheet Computer 	Strand 4. Life Science Concept 2. Reproduction and Heredity PO 1. Explain how an organism's behavior allows it to survive in an environment PO 4. Compare the symbiotic and competitive relationships in organisms within an ecosystem. PO 6. Describe the following factors that allow for the survival of living organisms <ul style="list-style-type: none"> Protective coloration Beak design Seed dispersal Pollination 	<ul style="list-style-type: none"> What makes species more prone to a specific type of behavior over another one? Can the event make the animal change the type of relationship that they have? What effect do these relationships have on the energy pyramid and food web? 	I will be able to: <ul style="list-style-type: none"> State the different types of animal relationships Explain each type of animal relationship Correctly match the animal relationships to the name 	<ul style="list-style-type: none"> PREDATION SYMBIOSIS COMPETITION PARASITISM CARNIVORE HERBIVORE OMNIVORE DETRITIVORE



QUARTER 4

Timeline & Resources	AZ College and Career Readiness Standard	Essential Question (HESS Matrix)	Learning Goal	Vocabulary (Content/Academic)
<p>Fourth Quarter <i>Week 1</i></p> <ul style="list-style-type: none"> Science Inquiry <p>Resources:</p> <ul style="list-style-type: none"> Textbook Worksheet Computer 	<p>STRAND 2. History and Nature of Science Concept 2: Nature of Scientific Knowledge PO 1. Apply the following scientific processes to other problem solving or decision making situations:</p> <ul style="list-style-type: none"> Observing Questioning Communicating Comparing Measuring 	<ul style="list-style-type: none"> What are the different scientific processes? How scientific processes help to solve problem or in decision making? 	<p>I will be able to:</p> <ul style="list-style-type: none"> Review the concept of Scientific Method Identify the different scientific processes involved in solving problems and decision making 	<ul style="list-style-type: none"> SCIENTIFIC METHOD
<p>Fourth Quarter <i>Week 2 and Week 3</i></p> <ul style="list-style-type: none"> Force, Motion and Newton's 1st Law of Motion <p>Resources:</p> <ul style="list-style-type: none"> Textbook Worksheet Computer 	<p>Strand 5. Physical Science Concept 2. Motion and Force PO 2. Identify the conditions under which an object will continue in its state of motion (Newton's 1st Law of Motion?) PO 4. Describe forces as interactions between bodies (Newton's 3rd Law of Motion) PO 5. Create a graph devised from measurements of moving</p>	<ul style="list-style-type: none"> How does the description of an object's position depend on reference point? How can you describe the position of an 	<p>I will be able to:</p> <ul style="list-style-type: none"> Define force Explain how to tell if something is in motion Create output and input diagrams Explain the demonstrate 	<ul style="list-style-type: none"> FORCE MOTION POSITION REFERENCE POINT DISPLACEMENT CONTACT FORCE NONCONTACT FORCE GRAVITY AIR RESISTANCE

	<p>objects and their interaction, including:</p> <ul style="list-style-type: none"> ○ Position-time graphs ○ Velocity-time graphs 	<p>object in two dimensions?</p> <ul style="list-style-type: none"> ● What is the difference between displacement and distance? 	<p>the different types of friction</p>	<ul style="list-style-type: none"> ● OUTPUT FORCE ● INPUT FORCE ● FRICTION
<p>Fourth Quarter Week 4</p> <ul style="list-style-type: none"> ● <i>Speed and Newton's 2nd Law</i> <p>Resources:</p> <ul style="list-style-type: none"> ● <i>Textbook</i> ● <i>Worksheet</i> ● <i>Computer</i> 	<p>Strand 5. Physical Science Concept 2. Motion and Forces PO 4. Describe the forces as interactions between bodies (Newton's 3rd Law of Motion) PO 5. Create a graph devised from measurements of moving objects and their interaction, including:</p> <ul style="list-style-type: none"> ● Position-time graphs ● Velocity-time graphs 	<ul style="list-style-type: none"> ● What is speed? ● How can you use a distance-time graph to calculate average speed? 	<p>I will be able to:</p> <ul style="list-style-type: none"> ● Define speed ● Define and calculate constant speed, instantaneous speed, and average speed ● Create distance-time graphs and be able to answer questions using the graph 	<ul style="list-style-type: none"> ● SPEED ● CONSTANT SPEED ● INSTANTANEOUS SPEED ● AVERAGE SPEED ● TOTAL DISTANCE ● TOTAL TIME ● DISTANCE-TIME GRAPH
<p>Fourth Quarter Week 4 and Week 5</p> <ul style="list-style-type: none"> ● <i>Newton's 3rd Law</i> <p>Resources:</p> <ul style="list-style-type: none"> ● <i>Textbook</i> 	<p>Strand 5. Physical Science Concept 2. Motion and Forces PO 4. Describe the forces as interactions between bodies (Newton's 3rd Law of Motion) PO 5. Create a graph devised from measurements of moving</p>	<ul style="list-style-type: none"> ● What are velocity can change? ● How will you calculate for velocity? 	<p>I will be able to:</p> <ul style="list-style-type: none"> ● Define and calculate velocity ● Explain how and why 	<ul style="list-style-type: none"> ● VELOCITY ● VELOCITY-TIME GRAPH ● ACCELERATION ● FINAL SPEED ● INITIAL SPEED ● TOTAL TIME

<ul style="list-style-type: none"> • <i>Worksheet</i> • <i>Computer</i> 	<p>objects and their interaction, including:</p> <ul style="list-style-type: none"> • Position-time graphs • Velocity-time graphs 	<ul style="list-style-type: none"> • What are the three ways an object can accelerate? • What does a speed-time graph indicate about object's motion? 	<p>velocity changes</p> <ul style="list-style-type: none"> • Create velocity-time graphs and be able to answers questions using the graph. 	<ul style="list-style-type: none"> • SPEED-TIME GRAPH • HORIZONTAL • VERTICAL
<p>Fourth Quarter Week 6 and Week 7</p> <ul style="list-style-type: none"> • <i>Environmental Science</i> <p>Resources:</p> <ul style="list-style-type: none"> • <i>Textbook</i> • <i>Worksheet</i> • <i>Computer</i> 	<p>Strand 3. Science in Personal and Social Perspectives Concept 2. Science and Technology in Society PO 1. Propose viable methods of responding to an identified need or problem PO 2. Compare solutions to best address an identified need or problem PO 3. Design and construct a solution to an identified need or problem using simple classroom materials.</p>	<ul style="list-style-type: none"> • How can machines make work easier? • What is an environmental issue that could be worked on? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Explain my design process when creating a simple machine to take care of an environmental problem • Choose an environmental issue to address • Research the problem and come up with possible solutions 	<ul style="list-style-type: none"> • SIMPLE MACHINE • INCLINED PLANE • SCREW • WEDGE • LEVER • WHEEL AND AXLE • PULLEY • COMPLEX MACHINE • EFFICIENCY
<p>Fourth Quarter</p>	<p>STRAND 3: Science in Personal and Social Perspectives.</p>	<ul style="list-style-type: none"> • What is Newton's 1st 	<p>I will be able to:</p>	<ul style="list-style-type: none"> • ISAAC NEWTON • FORCE

**Week 8 and
Week 9**

- *Science and Technology*

Resources:

- *Textbook*
- *Worksheet*
- *Computer*

Concept 2: Science and Technology in Society.
PO 1. Propose viable methods of responding to an identified need or problem.

Law of Motion?

- How is motion related to balanced and unbalanced forces?
- What is Newton's 2nd Law of Motion?
- What is Newton's 3rd Law of Motion?

- State and explain Newton's Three Law of Motions
- Calculate net force of an object
- Explain centripetal and circular motion
- Explain the idea of action reaction
- Create graphs and depict what parts show which law

- MASS
- ACCELERATION
- INERTIA
- GRAVITATIONAL FORCE