

GANADO UNIFIED SCHOOL DISTRICT #20

GANADO MIDDLE SCHOOL

Navajo Route 1, Highway 264, Ganado, AZ 86505

PACING GUIDE FOR 6th GRADE SCIENCE

S.Y. 2022-2023

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6th Grade SCIENCE Teacher

Resources	AZ College and Career Readiness Standards	Essential Question (HESS Matrix)	Learning Goal	Vocabulary (Content/Academic)
Physical Science Students will explore how cause and effect take place within and between a wide variety of force and motion systems from forces on individual objects to the forces that shape our Earth.				
Integrated Science, Glencoe PhetColorado.edu	6.P1U1.1 Analyze and interpret data to show that changes in states of matter are caused by different rates of movement of atoms in solids, liquids, and gases (Kinetic Theory).	What is a matter? What are the properties of matter? What are the phases of matter?	Students will be able to: a. define matter b. classify the properties of matter c. describe the phases of matter d. give examples of each phase of matter	Matter Phases of Matter Atom Molecule Mixture Element Compound Solid Phase Liquid Phase Gas Phase

	<p>6.P1U1.2 Plan and carry out an investigation to demonstrate that variations in temperature and/or pressure affect changes in state of matter.</p> <p>6.P1U1.3 Develop and use models to represent that matter is made up of smaller particles called atoms.</p> <p>6.P2U1.4 Develop and use a model to predict how forces act on objects at a distance.</p>	<p>What happens to the particles of solid, liquid and gas in different temperatures and pressure?</p> <p>What is Bohr's Model of atom?</p> <p>What is force?</p> <p>How does distance affect forces in an object?</p> <p>What are the factors that affect force?</p>	<p>e. create an investigation showing changes in state of matter when the temperature change</p> <p>e. Explain what happens to the particles of solid, liquid and gas when there is a change in temperature</p> <p>d. Identify the number of proton, electron, and neutron in an atom</p> <p>f. Determine the valence electron in an atom using Bohr's model</p> <p>g. Create a model of atom</p> <p>h. identify the type of force</p> <p>i. Determine the factors that affects the force of an object</p> <p>j. Define potential energy</p> <p>k. Describe kinetic energy</p>	<p>Intrinsic/Extrinsic property Intensive/Extensive property Proton Electron Neutron Atomic Number Mass Number Valence Electron Bohr's Model Periodic Table of Elements Group Period Evaporation Condensation Freezing Melting Boiling point Sublimation Solidification Force Contact Force Non-contact Force (Normal, Applied, Friction, Tension, Spring, Gravity, Strong and Weak Nuclear Force) Electromagnetic Force Electrostatic Force Force of Gravity Mass Volume Gravity Energy Potential energy Kinetic Energy</p>
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	6.P4U2.5 Analyze how humans use technology to store (potential) and/or use (kinetic) energy.	What is potential energy? What is kinetic energy? How does energy transfer from one form to another?	I. Explain how energy transfer from one form to another	Light energy Chemical energy Electrical energy Thermal energy
<div>Earth and Space Science</div> <div>Students develop an understanding of the patterns of energy flow along with matter cycling within and among Earth's systems.</div>				
Integrated Science, Glencoe McGrawHill-Inspire Science, Earth and Space-Exploring Space (Student Edition) Unit 1 McGrawHill-Inspire Science, Earth and Space-Water and Climate, Unit 2	6.E1U1.6 Investigate and construct an explanation demonstrating that radiation from the Sun provides energy and is absorbed to warm the Earth's surface and atmosphere. 6.E2U1.7 Use ratios and proportions to analyze and interpret data	What is radiation? What is the importance of the sun to the existence of life on Earth? What is solar system? What are the planets in the solar system?	Students will be able to: a. Define radiation b. Explain the importance of the sun to the living things on Earth c. describe the solar system	Radiation Sun Earth Gravity Solar system Galaxy Constellation Planet Moon Waxing Crescent Waning crescent Half Moon First quarter Full Moon

<p>Science Fusion- Space Science, Holt McDougal</p> <p>PhetColorado.edu</p> <p>Cavu.org</p>	<p>related to scale, properties, and relationships among objects in our solar system.</p> <p>6.E2U1.8 Develop and use models to explain how constellations and other night sky patterns appear to move due to Earth's rotation and revolution.</p> <p>6.E2U1.9 Develop and use models to construct an explanation of how eclipses, moon phases, and tides occur within the Sun-Earth-Moon system.</p> <p>6.E2U1.10 Use a model to show how the tilt of Earth's axis causes variations in the length of the day and gives rise to seasons.</p>	<p>How are the planets in the solar system differ from each other?</p> <p>What is constellation?</p> <p>What is the difference between rotation and revolution?</p> <p>What are the names of the constellation?</p> <p>What is moon?</p> <p>What are the phases of the moon?</p> <p>How does eclipse happen?</p> <p>What is season?</p> <p>What are the seasons of the Earth?</p>	<p>d. name the planets in the solar system</p> <p>e. Compare and contrast planets in the solar system in terms of their size, composition and properties</p> <p>f. Define constellation</p> <p>g. Describe the difference between rotation and revolution</p> <p>h. Name the constellations</p> <p>i. Describe moon</p> <p>j. Name the phases of the moon</p> <p>k. Explain how eclipse happen</p> <p>l. Describe season</p> <p>m. Name the seasons on Earth in different places</p>	<p>Waxing gibbous Waning gibbous Eclipse Lunar Eclipse Solar Eclipse Season Tide Near Earth Object (NEO) Rotation Revolution</p>
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Life Science

Students develop an understanding of the structure and function of cells.

<p>McGrawHill-Inspire Science, Life-Life Structure and Function, Unit 2</p> <p>McGrawHill-Inspire Science, Earth and Space- Impacts on the Environment, Unit 3</p> <p>McGrawHill-Inspire Science, Life-Change Over Time, Unit 4</p> <p>PhetColorado.edu</p> <p>Globe.org</p>	<p>6.L2U3.11 Use evidence to construct an argument regarding the impact of human activities on the environment and how they positively and negatively affect the competition for energy and resources in ecosystems.</p> <p>6.L2U3.12 Engage in argument from evidence to support a claim about the factors that cause species to change and how humans can impact those factors.</p> <p>6.L2U1.13 Develop and use models to demonstrate</p>	<p>How do human activities created negative impacts on the environment and living organism?</p> <p>What is symbiosis?</p> <p>What is evolution?</p> <p>What factors can cause species to change?</p> <p>What are the key mechanisms on how species evolve?</p> <p>What is biotic factor?</p> <p>What is abiotic factor?</p> <p>What is the relationship between biotic and abiotic factors?</p> <p>What is food chain?</p>	<p>Students will be able to:</p> <p>a. Discuss how human activities affects the environment and the living things in the ecosystem</p> <p>b. Identify symbiotic relationship in the ecosystem</p> <p>c. Define evolution</p> <p>d. Explain how living things evolve</p> <p>e. Discuss the key mechanisms on how species evolve</p> <p>f. Identify the biotic and abiotic factors in the environment</p> <p>g. Discuss the relationship between abiotic and biotic factors in the environment</p> <p>h. Explain how the cycling of matter happens in the ecosystem</p>	<p>Cell</p> <p>Tissue</p> <p>Organ</p> <p>Organism</p> <p>Population</p> <p>Community</p> <p>Ecosystem</p> <p>Biosphere</p> <p>Symbiosis</p> <p>Ecosystem</p> <p>Niche</p> <p>Adaptation</p> <p>Commensalism</p> <p>Parasitism</p> <p>Mutualism</p> <p>Competition</p> <p>Evolution</p> <p>Genetic drift</p> <p>Mutation</p> <p>Gene flow</p> <p>Non-random mating</p> <p>Natural selection</p> <p>Biotic factor</p> <p>Abiotic factor</p> <p>Food chain</p> <p>Food web</p> <p>Producer</p> <p>Consumer</p> <p>Decomposer</p> <p>Herbivore</p> <p>Carnivore</p>
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	<p>the interdependence of organisms and their environment including biotic and abiotic factors.</p> <p>6.L2U1.14 Construct a model that shows the cycling of matter and flow of energy in ecosystems.</p>	<p>What is food web?</p> <p>What will happen to the living things if there is no sun?</p> <p>What are the types of consumer?</p> <p>Why decomposer is important in food chain and food web?</p> <p>How is carbon dioxide and oxygen cycle take place?</p>	<p>i. Compare and contrast food chain and food web</p> <p>h. Explain the importance of the sunlight in the ecosystem and survival of the living organism</p> <p>k. Classify organism based on the food they eat</p> <p>l. Give examples of producer</p> <p>m. Explain the importance of the decomposer in the cycling of nutrients in the environment</p>	<p>Detritivore</p> <p>Tropic level</p> <p>Energy pyramid</p> <p>Carbon Dioxide-Oxygen cycle</p> <p>Nitrogen Cycle</p>
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