7th Grade Science Curriculum

(1st 9 Weeks- 1st 4.5 9 Weeks)

Date		Hobbs Science Standards 7th Grade EoC Standards for 8th Grade EoC Standards for 7th Grade	NM Standards & Benchmarks	Resources Basic text is Glencoe-Level Green
		By being embedded throughout the curriculum, these Processing Skills will be addressed throughout the year.		
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Supplemental books, labs, videos, projects, digital curriculum
		Overarching Questions: 1. What are different ways scientists learn about the world? 2. How do we use tools to make better observations? 3. How do scientists create a scientific explanation to explain something they have been studying?		
_____ _____ _____ _____ _____ _____	**1**	**Reading Standards for Literacy** I. Key Ideas and Details A. Cite specific textual evidence to support analysis of science and technical texts. B. Determine the central ideas or conclusion of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. C. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. II. Craft and Structure A. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics. B. Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic. C. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.		**See Google Docs for resources**

_______ _______ _______		III. Integration of Knowledge and Ideas A. Integrate quantitative or technical information expressed in words in a text with a version of that information, expressed visually (e.g., in a flowchart, diagram, model, graph, or table). B. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. C. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.		
_______ _______	**2**	**Writing Standards for Literacy** I. Text Types and Purposes A. Write arguments focused on discipline-specific content 1. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. 2. Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. 3. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence 4. Establish and maintain a formal style. 5. Provide a concluding statement or section that follows from and supports the argument presented. B. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. 1. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. 2. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. 3. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. 4. Use precise language and domain-specific vocabulary to inform about or explain the topic. 5. Establish and maintain a formal style and objective tone.		**See Google Docs for resources**

_____ _____ _____ _____ _____ _____		6. Provide a concluding statement or section that follows form and supports the information or explanation presented. II. Production and Distribution of Writing A. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. B. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. C. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. III. Research to Build and Present Knowledge A. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. B. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source, and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. C. Draw evidence from informational texts to support analysis reflection and research. IV. Range of Writing A. Write routinely over extended timeframes (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.		
	3	**Scientific Thinking and Practice** Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting and validating to think critically. I. Use scientific methods to develop questions, design and conduct experiments using appropriate technologies, analyze and evaluate results, make predictions and communicate findings.		**See Google Docs for resources** Bugs-a-copter Lab Sponge Bob Activity
_____ _____		A. Use a variety of print and web resources to collect information, inform investigations and answer a scientific question or hypothesis. B. Use models to explain the relationships between variables being investigated.	I, I, I, 1 I, I, I, 2	Penny Prediction Lab
	4	**Scientific Thinking and Practice** Understand the processes of scientific investigations and use inquiry and scientific		**See Google Docs for resources**

		ways of observing, experimenting, predicting and validating to think critically. II. Understand the processes of scientific investigation and how scientific inquiry results in scientific knowledge.		Fortune Fish Lab
_____		A. Describe how bias can affect scientific investigation and conclusions.	I, I, II, 1	
_____		B. Critique procedures used to investigate a hypothesis.	I, I, II, 2	
_____		C. Analyze and evaluate scientific explanation.	I, I, II, 3	
	5	**Scientific Thinking and Practice** Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting and validating to think critically. III. Use mathematical ideas, tools and techniques to understand scientific knowledge.		**See Google Docs for resources** Measuring Density Lab
_____		A. Understand that the number of data (sample size) influences the reliability of a prediction.	I, I, III, 1	
_____		B. Use mathematical expressions to represent data and observations collected in scientific investigations.	I, I, III, 2	
_____		C. Select and use an appropriate model to examine a phenomenon.	I, I, III, 3	
	6	**Basic Laboratory Skills**		**See Google Docs for resources**
_____		A. Identify a variety of laboratory equipment (e.g., balance, glassware, measuring devices).		
_____		B. Identify why certain laboratory equipment is used (e.g., using different sized graduate cylinders).		Measuring Liquid Volume Lab
_____		C. Correctly use a variety of laboratory equipment (e.g., balance, glassware, measuring devices).		
_____		D. Use appropriate strategy to solve linear, mass, temperature and volume measurements in the metric system.		
	7	**Science and Society** Understand how scientific discoveries, inventions, practices and knowledge influence, and are influenced by, individuals and societies. I. Explain how scientific discoveries and inventions have changed individuals and societies.		**See Google Docs for resources** Disease Project Glow Germ Lab
_____		A. Analyze the contributions of science to health as they relate to personal decisions about smoking, drugs, alcohol and sexual activity.	III, I, I, 1	"Viruses" Video
_____		B. Analyze how technologies have been responsible for advances in medicine (e.g., vaccines, antibiotics, microscopes, DNA technologies).	III, I, I, 2	
_____		C. Describe how scientific information can help individuals and communities respond to health emergencies (e.g., CPR, epidemics, HIV, bio-terrorism).	III, I, I, 3	

7th Grade Science Curriculum

(1st 9 Weeks- 2nd 4.5 Weeks)

Date		Hobbs Science Standards 7th Grade	NM Standards & Benchmarks	Resources Basic text is Glencoe-Level Green
		Processing Skills will continue to be addressed.		
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Supplemental books, labs, videos, projects, digital curriculum
		Overarching Question Sequencing: 1. How do we know if something is living (characteristics of living things)? • Movement, respiration, sensitivity, growth, respiration, excretion, nutrition, cells 2. How are unicellular organisms organized? • Basic cell structures 3. How are multicellular organisms organized? • Plant vs. animal cell • Organisms composed of tissues composed of cells 4. How do the principals of energy, simple machines and motion relate to living things at the various levels of organization? • Principal of a lever and how organs and tissues may work together as a simple machine • Describe forces in specific systems 5. What functions of living things are carried out at the cell level? • Specialized functions of cells (how would the hear cells look different than a nerve cell) • How can cells respond to stimuli? (Connect back to characteristics of living things) 6. How can living things be hurt (damaged) at a cellular level? • Include radioactivity to damage cells 7. How do we organize (classify) living things so it is easier to study them? • Be sure to include Viruses, domains, kingdoms		

		• Introduce homologous structures between organisms • Use Dichotomous Keys to classify organisms		
	8	**Life Science- Biological Evolution** Understand the properties, structures and processes of living things and the interdependence of living things and their environments. III. Understand the structure of organisms and the function of cells in living systems.		**See Google Docs for resources** Cell Project
_____		A. Understand that organisms are composed of cells and identify unicellular and multicellular organisms.	II, II, III, 1	Mitosis/ Meiosis Lab
_____		B. Explain how organs are composed of tissues of different types of cells (e.g., skin, bone, muscle, heart, intestines).	II, II, III, 2	Microscope Lab
_____		C. Understand that many basic functions of organisms are carried out in cells, including: • Growth and division to produce more cells (mitosis). • Specialized functions of cells (e.g., reproduction, nerve-signal transmission, digestion, excretion, movement, transport of oxygen).	II, II, III, 3	Cells Alive Web-site "Pushing the Limits" Video
_____		D. Compare the structure and processes of plant cells and animal cells.	II, II, III, 4	
_____		E. Describe how some cells respond to stimuli (e.g., light, heat, pressure, gravity).	II, II, III, 5	
_____		F. Describe how factors (radiation, UV light, drugs) can damage cellular structure or function.	II, II, III, 6	
	9	**Life Science- Reproduction and Heredity** Understand the properties, structures and processes of living things and the interdependence of living things and their environments. II. Understand how traits are passed from one generation to the next and how species evolve.		**See Google Docs for resources**
_____		A. Know that reproduction is a characteristic of all living things and is essential to the continuation of a species.	II, II, II, 1	
	10	**Life Science- Populations, Ecosystems and Biodiversity** Understand the properties, structures and processes of living things and the interdependence of living things and their environments. I. Explain the diverse structures and functions of living things and the complex relationships between living things and their environments.		**See Google Docs for resources** Dichotomous Key Activity
_____		G. Know how to classify organisms: domain, kingdom, phylum, class, order, family, genus, species. A. Viruses	II, II, I, 7	

		• Structure • Active and latent cycles		
_____	**11**	**Physical Science- Motion** Understand the structure and properties of matter, the characteristics of energy and the interactions between matter and energy. III. Describe and explain forces that produce motion in objects. A. Know that forces cause motion in living systems, including: • The principle of a lever and how it gives mechanical advantage to a muscular/skeletal system to lift objects. • Forces in specific systems in the human body (e.g., how the heart generated blood pressure, how muscles contract and expand to produce motion).	I, I, III, 1	**See Google Docs for resources**
_____	**12**	**Physical Science- Energy** Understand the structure and properties of matter, the characteristics of energy and the interactions between matter and energy. II. Explain the physical processes involved in the transfer, change and conservation of energy. A. Know how various forms of energy are transformed through organisms and ecosystems, including: • Energy transformation in living systems (e.g., cellular processes changing chemical energy to heat and motion).	II, I, II, 1	**See Google Docs for resources**
_____ _____	**13**	**Physical Science- Matter** Understand the structure and properties of matter, the characteristics of energy and the interactions between matter and energy. I. Know the forms and properties of matter and how matter interacts. C. Identify characteristics of radioactivity, including: • Decay in time of some elements to others. • Release of energy. • Damage to cells. E. Know that chemical reactions are essential to life processes.	II, I, I, 3 II, I, I, 5	**See Google Docs for resources**

7th Grade Science Curriculum

(2nd 9 Weeks- 3rd and 4th 4.5 Weeks)

Date		Hobbs Science Standards 7th Grade	NM Standards & Benchmarks	Resources Basic text is Glencoe- Level Green
		Processing Skills will continue to be addressed.		
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Supplemental books, labs, videos, projects, digital curriculum
		Overarching Question Sequencing: 1. Do all living things reproduce the same way? • Restate reproduction is a characteristic of all living things • Describe asexual reproduction and connect back to Unit 1 • Describe sexual reproduction • Identify differences between sexual and asexual reproduction 2. Why do babies generally look like their parents? • Know that organisms that sexually reproduce fertile offspring are members of the same species and connect back to Unit 1 • Understand some characteristics are passed from parent to offspring as inherited traits and others are acquired 3. How are these traits passed to offspring? • If time is available, create models of DNA and extract DNA from strawberries to give a visual. • Know hereditary info is in the genes located in chromosomes an connect back to Unit 1 • Understand that traits are determined by one or many genes • Use Punnett Squares to predict traits that might be exhibited.		
	14	**Life Science- Reproduction and Heredity** Understand the properties, structures and processes of living things and the interdependence of living things and their environments. I. Understand how traits are passed from one generation to the next and how species evolve.		**See Google Docs for resources** Microscope Activity

_____		A. Know that reproduction is a characteristic of all living things and is essential to the continuation of a species.	II, II, II, 1	DNA Foldable
_____		B. Identify the differences between sexual and asexual reproduction.	II, II, II, 2	DNA Extraction Lab
_____		C. Know that in sexual reproduction, an egg and sperm unite to begin the development of a new individual.	II, II, II, 3	"Dogs" Activity
_____		D. Know that organisms that sexually reproduce fertile offspring are members of the same species.	II, II, II, 4	Punnett Square Activity
_____		E. Understand that some characteristics are passed from parent to offspring as inherited traits and others are acquired from interactions with the environment.	II, II, II, 5	Hybrid Activity
_____		F. Know that hereditary information is contained in genes that are located in chromosomes, including: • Determination of traits by genes. • Traits determined by one or many genes. • More than one trait sometimes influenced by a single gene.	II, II, II, 6	Genetic Tree Activity Crime Scene Lab
_____		G. *Models of DNA (replication*)		

7th Grade Science Curriculum

(3rd 9 Weeks- 5th and 6th 4.5 Weeks)

Date		Hobbs Science Standards 7th Grade	NM Standards & Benchmarks	Resources Basic text is Glencoe-Level Green
		Processing Skills will continue to be addressed.		
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Supplemental books, labs, videos, projects, digital curriculum
		Overarching Question Sequencing: 1. How do traits that are passed from one generation to the next change or evolve over time? • Describe how typical traits may change due to environmental influences • Explain that diversity within a species is developed by gradual changes over many generations o Make sure students know what a generation is • Know that organisms acquire unique characteristics through naturally occurring genetic variations and connect back to Unit 2 on heredity. 2. How do these genetic variations help a species… or go extinct? • Identify adaptations that favor the survival of organisms in their environment • Understand the process of natural selection. • Explain how species adapt to changes in the environment or become extinct • Know that extinction of a species is common in the history of living things 3. What evidence do we have that organisms have evolved over time? • Discuss homologous structures and connect back to Unit 1 and body structures. • Fossil record evidence o Layers of sedimentary rock- Law of Superposition o Radioactive dating- describe characteristics of radioactivity		

	15	**Life Science- Biological Evolution** Understand the properties, structures and processes of living things and the interdependence of living things and their environments. II. Understand how traits are passed from one generation to the next and how species evolve.		**See Google Docs for resources** Darwin "Galapagos Island" Video
_____		G. Describe how typical traits may change from generation to generation due to environmental influences (e.g. color of skin, shape of eyes, camouflage, shape of beak).	II, II, II, 7	Relative Dating Lab
_____		H. Explain that diversity within a species is developed by gradual changes over many generations.	II, II, II, 8	
_____		I. Know that organisms can acquire unique characteristics through naturally occurring genetic variations.	II, II, II, 9	
_____		J. Identify adaptations that favor the survival of organisms in their environments (e.g., camouflage, shape of beak).	II, II, II, 10	
_____		K. Understand the process of natural selection.	II, II, II, 11	
_____		L. Explain how species adapt to changes in the environment or become extinct and that extinction of species is common in the history of living things.	II, II, II, 12	
_____		M. Know that the fossil record documents the appearance, diversification and extinction of many life forms.	II, II, II, 13	
	16	**Earth and Space Science- Structure** Understand the structure of Earth, the solar system and the universe; the interconnections among them; and the processes and interactions of Earth's systems. II. Describe the structure of Earth and its atmosphere and explain how energy, matter and forces shape Earth's systems.		**See Google Docs for resources** Planet Project Planet Foldable
_____		A. Understand how the remains of living things give us information about the history of Earth, including: • Layers of sedimentary rock, the fossil record and radioactive dating showing that life has been present on Earth for more than 3.5 billion years.	II, III, II, 1	Atmosphere Layer Foldable Weather Video
_____		B. Understand how living organisms have played many roles in changes of Earth's systems through time (e.g., atmospheric composition, creation of soil, impact on Earth's surface).	II, III, II, 2	
_____		C. Know that changes to ecosystems sometimes decrease the capacity of the environment to support some life forms and are difficult and/or costly to remediate.	II, III, II, 3	

_____	**17**	**Physical Science- Matter** Understand the structure and properties of matter, the characteristics of energy and the interactions between matter and energy. I. Know the forms and properties of matter and how matter interacts. A. Identify characteristics of radioactivity, including: • Decay in time of some elements to others. • Release of energy. • Damage to cells.	II, I, I, 3	**See Google Docs for resources**

7th Grade Science Curriculum

(4th 9 Weeks- 7th an 8th 4.5 Weeks)

Date		Hobbs Science Standards 7th Grade	**NM Standards & Benchmarks**	**Resources** Basic text is Glencoe-Level Green
		Processing Skills will continue to be addressed.		
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Supplemental books, labs, videos, projects, digital curriculum
		Overarching Question Sequencing: 1. Last unit we learned how species adapt to changes in the environment. What are the components of an environment that living things need in order to survive? • Identify the living and nonliving parts of an ecosystem and describe the relationships among these components o Biotic and abiotic factors • Explain why Earth is unique in our solar system in its ability to support life (biosphere) • Describe how the availability of resources and physical factors limit growth o Quantity of light and water o Range of temperature o Composition of soil 2. How do the nonliving things here on Earth cycle through to support the living systems? • Students will describe how matter is cycled through the water, carbon and nitrogen cycles and how these contribute to the availability of these resources to support living systems o Explain how the energy from the sun supports life on Earth with each cycle o Explain how energy is transformed during photosynthesis beginning with sunlight		

		▪ Describe the effect of mankind's use of energy on global warming and how this is affecting the carbon cycle o Describe how substances react chemically in characteristic ways to form new substances (compounds) with different properties when learning about photosynthesis and respiration in the carbon cycle (e.g., carbon and oxygen combine to form carbon dioxide in respiration) ▪ Be sure to connect back to Unit 1 and cellular processes in plant and animal cells ▪ Connect photosynthesis and respiration as chemical reactions that are essential to life processes to refer to characteristics of living things from Unit 1. 3. How do the living and nonliving parts of an ecosystem interact with each other? • Explain biomes and New Mexico's biome • Explain the conditions and resources needed to sustain life in specific ecosystems o Describe food webs and energy pyramids ▪ Know that the total amount of matter (mass) remains constant although its form, location and properties may change ▪ Know and explain the energy transformation in a food web (connect to the carbon and nitrogen cycle) • Explain how individuals of species that exist together interact with their environment to create an ecosystem o Describe populations, communities, niches and habitats o Understand how diverse species fill all niches in an ecosystem 4. How have living things (like humans) played a role in changing Earth's systems through time? • Describe how living things have changed the atmospheric composition, creation of soil, and have impacted Earth's surface. Connect this back to evolution and extinction of species. • Know that changes to ecosystems sometimes decrease the capacity of the environment to support some life forms and are difficult and/or costly to remediate		

		• Know the effect of mankind's use of energy and activities on living systems o Refer back to global warming and water quality o Connect these to the Artic biome and drastic changes being observed in the living and nonliving systems there		
	18	**Life Science- Populations, Ecosystems and Biodiversity** Understand the properties, structures and processes of living things and the interdependence of living things and their environments. I. Explain the diverse structures and functions of living things and the complex relationships between living things and their environments.		**See Google Docs for resources** Alien Activity
_____		A. Identify the living and nonliving parts of an ecosystem and describe the relationships among these components *(biotic and abiotic factors*).	II, II, I, 1	Dichotomous Key Activity
_____		B. Explain biomes (i.e., aquatic, desert, rainforest, grasslands, tundra) and describe the New Mexico biome.	II, II, I, 2	Population Activity
_____		C. Explain how individuals of species that exist together interact with their environment to create an ecosystem (e.g., populations, communities niches, habitats, food webs).	II, II, I, 3	"Planet Earth" Videos
_____		D. Explain the conditions and resources needed to sustain life in specific ecosystems.	II, II, I, 4	
_____		E. Describe how the availability of resources and physical factors limit growth (e.g., quantity of light and water, range of temperature, composition of soil) and how the water, carbon and nitrogen cycles contribute to the availability of those resources to support living systems.	II, II, I, 5	
_____		F. Understand how diverse species fill all niches in an ecosystem.	II, II, I, 6	
	19	**Earth and Space Science** Understand the structure of Earth, the solar system and the universe; the interconnections among them; and the processes and interactions of Earth's systems. I. Describe how the concepts of energy, matter and force can be used to explain the observed behavior of the solar system, the universe and their structures.		**See Google Docs for resources** Mystery Bead Lab
_____		A. Explain why earth is unique in our solar system in its ability to support life.	II, III, I, 1	
_____		B. Explain how energy from the sun supports life on Earth.	II, III, I, 2	

	20	**Physical Science- Matter** Understand the structure and properties of matter, the characteristics of energy and the interactions between matter and energy. I. Know the forms and properties of matter and how matter interacts. _____ A. Explain how matter is transferred from one organism to another and between organisms and their environment (e.g., consumption, the water cycle, the carbon cycle, the nitrogen cycle) _____ B. Know that the total amount of matter (mass) remains constant although its form, location, and properties may change (e.g., matter in the food web) _____ D. Describe how substances react chemically in characteristic ways to form new substances (compounds) with different properties (e.g., carbon and oxygen combine to form carbon dioxide in respiration) _____ E. Know that chemical reactions are essential to life processes.	II, I, I, 1 II, I, I, 2 II, I, I, 4 II, I, I, 5	**See Google Docs for resources**
	21	**Physical Science- Energy** Understand the structure and properties of matter, the characteristics of energy and the interactions between matter and energy. II. Explain the physical processes involved in the transfer, change and conservation of energy. _____ A. Know how various forms of energy are transformed through organisms and ecosystems, including: • Sunlight and photosynthesis. • Effect of mankind's use of energy and other activities on living systems (e.g., global warming, water quality).	II, I, II, 1	**See Google Docs for resources**

7th Grade Science Curriculum

(4th 9 Weeks- 8th 4.5 Weeks)

Date		Hobbs Science Standards 7th Grade	**NM Standards & Benchmarks**	**Resources** Basic text is Glencoe-Level Green
		Processing Skills will continue to be addressed.		
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Supplemental books, labs, videos, projects, digital curriculum
	22	**Sex Ed**		It's Your Game