CURRICULUM FRAMEWORK

CONTENT AREA: Science ***GRADE LEVEL/COURSE: 4th***

What is to be taught	TIME PERIOD 1	TIME PERIOD 2	TIME PERIOD 3	TIME PERIOD 4
STANDARDS/BENCHMARKS 1. Enduring understandings Derived from standards/ expectations Answered through: 2. Essential questions (*What should students understand by the end of a unit(s) in this time period?)*	**Unit/Topic: Scientific Method** ***Students will understand:*** There has to be a constant method for us to understand the world. ***Derived from:*** **Standards/Expectations:** Sc St 1: Scientific Process 1.1plan design, predict, and conduct an experiment, collect data, and communicate reasonable explanations 1.4organize data into appropriate format 1.9use facts to support and evaluate the fairness of conclusions 1.12use appropriate units to add meaning to numbers **Answered through:** Essential Question(s): 1.Why does the method have to be constant? 2.What are the role of questions in learning about the world? 3.What is the relationship between scientific method and questions? 4.How do we know data is true and useful? **Unit/Topic: Electricity and Magnetism** ***Students will understand:*** 1. The design of circuits allows electricity to flow 2. Properties of magnets interact with properties of other matter ***Derived from:*** **Standards/Expectations:** Sc St 2 Matter and Energy 2.6 apply knowledge of simple circuits to create a new circuit that involves more components	**Unit/Topic: Light** ***Students will understand:*** Light displays different properties depending on different materials light interacts with. ***Derived from:*** **Standards/Expectations:** Sc St 2 Energy and Matter 2.4 investigate the properties of light as it travels in a straight line until it strikes an object: reflected by a mirror, refracted by a lens or absorbed by an object. 1.5select and use mathematical tools to measure, count, sort, identify, describe, label and communicate information from observations 1.14 use geometric figures, graphs, diagrams, sketches etc. to represent objects, events and processes **Answered through:** Essential Question(s): 1. Why do the properties differ depending on the material? 2. How do we know? **Unit/Topic: Sound** ***Students will understand:*** Sound is produced by different vibrations through matter ***Derived from:*** **Standards/Expectations:** Sc St 2 Energy and Matter 2.3 produce sound with vibrating objects and understand that the pitch of the sound can be varied by changing the rate of vibration 1.check explanations against scientific knowledge, experiences, and observations of others **Answered through:**	**Unit/Topic: Plants** ***Students will understand:*** 1. Plants produce their own energy 2. Plants provide the food and oxygen that all life need for survival ***Derived from:*** **Standards/Expectations:** Sc St 3 Life science and interactions 3.5 conduct investigations to gather data, information and ideas related to energy and nutrients organisms need from their environment in order to survive 3.6 explore a simple natural system and generate questions about the transfer of energy and use of nutrients 3.7 know that all organisms need energy and matter to live and grow 3.8 know that many plants depend on animals for pollination and seed dispersal while animals depend on plants for food and shelter **Answered through:** Essential Question(s): 1. How do living things interact with their environment? 2. How do living things adapt for survival? 3.How do we know? **Unit/Topic: Food chains and ecosystems** ***Students will understand:*** 1. Plants are the base of a food chain 2. All organisms need energy and matter to live and grow and are a	**Unit/Topic: Space** ***Students will understand:*** Movement in the solar system affect life on earth through seasons and day/night cycles. ***Derived from:*** **Standards/Expectations:** Sc St 4 Earth/Space Science 4.1 identify the basic components of the solar system 4.2 describe the motion of Earth in relation tot he sun 4.3 compare Earth to other plants (size, distance from sun and each other, temperature, length of day) 4.4 know that the Earth is one of nine planets that orbit the sun and that as the earth orbits the sun, different patterns of stars can be seen in different seasons 4.5 explore objects associated with the universe 1.3 conduct a systematic observation over time 1.develop and evaluate explanations based on experimental evidence and experience of others **Answered through:** Essential Question(s): 1. How do components of the universe interact? 2.How do those interactions affect the earth? 3. How do we know?

	(demonstrate the requirements for a complete circuit) 2. Identify properties of magnets 1.12 plan, design, predict and conduct an experiment, collect data, and communicate reasonable explanations **Answered through:** Essential Question(s): 1. Why does electricity travel through some materials better than others? 2. How do we know? 3. How do magnets interact?	Essential Question(s): 1. What is sound and how is it produced? 2. How do we know? **Unit/Topic:** ***Students will understand:*** ***Derived from:*** **Standards/Expectations:** **Answered through:** Essential Question(s):	part of the food chain 3. Food chains are part of the ecosystem in Colorado ***Derived from:*** **Standards/Expectations:** Sc St 3 Life science and interactions 3.2 give examples of food chains/webs in Colorado ecosystems (mountains, plains, plateaus) 3.3 describe animal and plant characteristics that allow them to survive and adapt in different life zones in the Rocky Mountains 3.4 give examples of how organisms interact with each other and with other nonliving parts of the environment 3.5 conduct investigations to gather data, information and ideas related to energy and nutrients organisms need from their environment in order to survive 3.6 explore a simple natural system and generate questions about the transfer of energy and use of nutrients **Answered through:** Essential Question(s): 1. How do living things interact with their environment? 2. How do living things adapt for survival? 3.How do we know?	

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CURRICULUM ALIGNMENT 1. Key knowledge and skills 2. Materials	***Learned Through:*** ***Unit/Topic: Scientific Method*** Key Knowledge: Key Skills: Materials ***Unit/Topic: Electricity and Magnetism*** Key Knowledge: 1. series circuit 2. parallel circuit 3. opened 4. closed 5. conductor 6. insulator 7. magnetic field 8. insulator Key Skills: Materials	***Learned Through:*** ***Unit/Topic: Light*** Key Knowledge: 1. reflect 2. refract 3. absorb 4. properties Key Skills: Materials: ***Unit/Topic: Sound*** Key Knowledge: 1. volume 2. pitch 3. vibrations 4. matter Key Skills: Materials	***Learned Through:*** ***Unit/Topic: Plants*** Key Knowledge: 1. plant parts 2. pollination 3. seed dispersal 4. energy 5. energy transfer 6. nutrients 7. natural system Key Skills: Materials ***Unit/Topic: Food Chains and Ecosystems*** Key Knowledge: 1. predator 2. prey 3. adaptations 4. producers 5. decomposers 6. carnivore 7. herbivore 8. omnivore 9. food chain Key Skills: 1. system diagramming Materials	***Learned Through:*** ***Unit/Topic: Plants*** Key Knowledge: 1. orbit 2. rotation 3. revolution 4. rotation 5. tilt 6. axis 7. phases 8. eclipse 9. planets 10. galaxies 11. comets 12. stars 13. asteroids 14. seasons Key Skills: 1. comparison Materials
COMPETENCIES (What lifelong competencies can be integrated to help develop these? Literacy (reading, writing frameworks should be supported)Problem solving, communication, technology	Literacy Skills/ Strategies:	Literacy Skills/ Strategies:	Literacy Skills/ Strategies:	Literacy Skills/ Strategies:
ASSESMENT/EVIDENCE OF UNDERSTANDING 1. Performance tasks (High IQ)	Performance Task			

2. Quizzes, tests, prompts	Quizzes, tests, prompts			