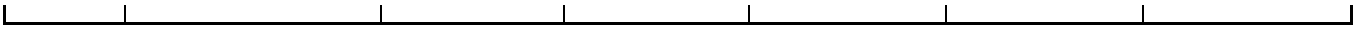


Timeline	Themes/Enduring Understandings/Essential Questions for the Unit	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
1st Quarter	<p><b>Physical Science:</b>  <b>Properties of Earth Materials:</b>  <b>Enduring Understanding-</b>            Students will be able to group and classify objects by their properties.  <b>Essential Questions-</b>            Why is it important to be able to classify objects?</p> <p><b>Life and Environmental Science:</b>  <b>Organisms:</b>  <b>Enduring Understanding-</b>            Students will be able to visualize how organisms grow and change.  <b>Essential Questions-</b>            Why is it important to observe changes in organisms?</p>	D.4.1-D.4.5	Observation	Classify objects based on their properties.	Whole Group- Observing Changes Small Group- Blind touch activity Independent Work- Journal Work	Kids and Science: Water and Ice by: Joan Westley
2nd Quarter	<p><b>Life and Environmental Science:</b>  <b>Organisms:</b>  <b>Enduring Understanding-</b>            Students will be able to visualize how organisms grow and change.  <b>Essential Questions-</b>            Why is it important to observe changes in organisms?</p>	F.4.1-F.4.4	Sequencing	Observe and Describe changes in organisms.	Whole Group- Stages of Butterfly Kit Small Group- Growing Plants Independent Work- Put in order the Life Cycle of a Frog	Different Life Cycle Kits
	<p><b>Earth and Space Science:</b>  <b>Properties of Earth Materials:</b>  <b>Enduring Understanding-</b>            Students will be able to investigate and describe materials that are composed of rocks, minerals, and soil.  <b>Essential Questions-</b>            Why is it important to know the difference between rocks, minerals, and soil?</p>	E.4.1-E.4.3	Observing	Analyze materials made of rocks, minerals, and soil.	Whole Group- Outside investigations Small Group- Blind touch of findings Independent Work- Draw pictures of different materials	Kids and Science: Rocks, Sand, and Soil by: Joan Westley
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3rd Quarter	<p><b>Physical Science:</b>  <b>Position and Motion of Objects:</b>  <b>Enduring Understanding-</b>            Students will be able to differentiate between objects in rest and motion.  <b>Essential Questions-</b>            Why is it important to notice differences between things that are resting and things in motion?</p>	D.4.6-D.4.7	Group Discussion	Note the differences between objects at rest and in motion.	Whole Group- Discussion Small Group- Identify things in classroom at rest and in motion Independent Work- Draw different objects resting and in motion	Scott Foresman Science
	<p><b>Science Connections:</b>  <b>Enduring Understanding-</b>            Students will be able to conduct investigations to solve science- related problems.  <b>Essential Questions-</b>            Why is it important to investigate science related problems?</p> <p><b>Science Inquiry:</b>  <b>Enduring Understanding-</b>            Students will be able to use the Scientific Method when doing experiments.  <b>Essential Questions-</b>            Why is it important to use experiments to investigate?</p>	A.4.1-A.4.5	Science Experiments	Investigate different situations using data found.	Whole Group- Discussion Small Group- Collect Data from various sources Independent Work- Draw charts of data collected	Wonderplay, Too! By: Fretta Reitzes and Beth Teitelman
	<p><b>Earth and Space Science:</b>  <b>Earth and Sky:</b>  <b>Enduring Understanding-</b>            Students will be able to identify celestial objects and seasonal changes.  <b>Essential Questions-</b>            Why is it important to notice different changes in seasons and of the sky?</p>	C.4.1-C.4.8	Science Experiments Scientific Method	Investigate different situations using experiments.	Whole Group- Science Fair Projects Small Group- Experiments, (oobleck) Independent Work- Draw pictures of experiment findings	Science Experiments in a Bag by: Sandra Markle The Ultimate Book of Kid Concoctions 2 by: John E. & Danita Thomas
		E.4.4-E.4.8	Observation Discussion	Describe different seasonal changes in the sky.	Whole Group- Seasonal Class Book Small Group- Season Changes Game Independent Work- Organize planets and Develop Constellations	Magic School Bus Videos
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	<p><b>Science in Social and Personal Perspectives:</b>  <b>Enduring Understanding-</b>            Students will be able to acknowledge healthy habits and how they have changed over time.  <b>Essential Questions-</b>            Why is it important to practice healthy behaviors?</p> <p><b>Physical Science:</b></p>	H.4.1-H.4.4	Food Pyramid Healthy Lifestyle Charts	Develop ways to show how healthy habits can benefit you.	Whole Group-Slim Goodbody Field Trip Small Group- Construct a Food Pyramid Independent Work- Make a log of daily healthy habits	Magic School Bus Video Slim Goodbody CD

4th Quarter	<p><b>Light, Heat, Electricity and Magnetism:</b>  <b>Enduring Understanding-</b>  <i>Students will be able to decipher between things that can/cannot be touched.</i>  <b>Essential Questions-</b>  <i>Why is it important to notice different forms of matter and sources?</i></p> <p><b>Science Applications:</b>  <b>Enduring Understanding-</b>  <i>Students will be able to identify various technological discoveries in simple machines.</i>  <b>Essential Questions-</b>  <i>Why is it important to note and describe technological advances?</i></p> <p><b>Nature of Science:</b>  <b>Enduring Understanding-</b>  <i>Students will be able to research scientific developments using various media.</i>  <b>Essential Questions-</b>  <i>Why is it important to understand how science has changed over time?</i></p>	<p>D.4.8</p> <p>G.4.1-G.4.5</p> <p>B.4.1-B.4.3</p>	<p>Experiment Modeling</p> <p>Use computers and internet to research</p> <p>Texts Information about Scientists and their findings</p>	<p>Acknowledge that there are different form of matter and sources that can and cannot be touched.</p> <p>Notice technological advances in simple machines.</p> <p>Use various resources to discover how science has changed over time including scientists contributions.</p>	<p>Whole Group-Observations Small Group- Classroom Investigations Independent Work- Journal Discoveries</p> <p>Whole Group- Discussion Small Group- Internet research Independent Work- Use classroom materials to construct a simple machine</p> <p>Whole Group- Scientist Study Small Group- Research fun facts in encyclopedias Independent Work- Computer games</p>	<p>Magnetic Game</p> <p>Kids in Science: Construction by: Joan Westley</p> <p>Computers Encyclopedias</p>
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Quarter 1	<p><b>Behavioral Sciences:</b> Enduring Understanding: Students will be able to describe how families are alike and different.</p> <p>Essential Questions: How are families similar and different?</p>	E.4.1	Compare/Contrast different families Research different families and customs around the world. Find the country on a globe or map	People have the same needs, even though they have different lifestyles.	Whole: Compare and contrast drawn pictures of their homes from the homes from another country. Write sentences describing both. Small: Design a travel brochure for a country. Independent: Draw a child from a different part of the world.	Internet: Johnson Space Centers website Children Just Like Me
Quarter 1	<p><b>Life and Environmental Sciences</b> Enduring Understanding: Describe how various organisms meet their basic needs for water, protection and energy and the habitat they live in.</p> <p>Essential Questions: What are the basic needs for an animal to survive? Where do animals live?</p>	F.4.1	Life Cycle Chart Habitat Diarama Animal Research Reports Animal Posters	Animals have basic needs to survive.	Whole- Pick an animal research its habitat/life cycle. Small- Pick a habitat and state different animals that live there. Independent-Match animal to picture of habitat.	Interent Trade Books Games
***	<p><b>Scientific Method-Science</b> Enduring Understanding Students will make science connections to the world, research, and themselves. Essential Questions Why are science connections important to understanding the world? How do you think like a scientist?</p>	A.4.1 B.4.1	Using prior knowledge to predict outcomes Conduct Science methods Make Observations Record Data	Science is all around us	Whole-Concrete Observations by using hands-on activities Small Group- Make hypothesises to predict outcome Independent- Make inferences to outcomes	Resources/Texts Used Science Made Easy Hands-On Learning with Science Materials
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***	<p><b>Physical Science</b> Enduring Understanding- Students will classify matter according to its state.</p> <p>Essential Questions- Where can you find matter? How does matter change over time? How does it affect our lives?</p>	D.4.2 D.4.3	Scientific Experiments Inferencing by asking open ended questions	Matter is all around us and is consistently changing its properties.	Whole- Create a model of states of matter and its changes. Small- Teacher Preparation to allow children to observe a make conclusions of an experiment. Independent-Sequencing the states of matter.	Scientific Experiments Books Internet
Quarter 2	<p><b>Changes in Earth and Sky</b> Enduring Understanding: Students will be able to describe the weather we have in our state and seasonal changes.</p> <p>Essential Questions: What is weather? How does Wisconsin weather change?</p>	E.4.5	Observations of the weather Science Journal Scientific Experiements Pictures of the Weather	Weather changes with the seasons and location.	Whole- Create a weather forecast and report it to the class. Small-Summarize a weather forecast that was broadcasted. Independant-Draw pictures of the weather in different seasons.	Internet Trade Books Vocaulary Building Games

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Quarter 2	<p><b>Life and Environmental Sciences</b></p> <p><b>Enduring Understanding:</b> Describe how various organisms meet their basic needs for water, protection and energy and the habitat they live in.</p> <p><b>Essential Questions:</b> What are the basic needs for an animal to survive? Where do animals live?</p>	F.4.1	Life Cycle Chart Habitat Diorama Animal Research Reports Animal Posters	Animals have basic needs to survive.	Whole- Pick an animal research its habitat/life cycle. Small- Pick a habitat and state different animals that live there. Independent-Match animal to picture of habitat.	Internet Trade Books Games
Quarter 3	<p><b>Science Inquiry</b></p> <p><b>Enduring Understanding</b></p> <p>Students will link the scientific method to vocabulary building through scientific experiments and research.</p> <p><b>Essential Questions</b> How can vocabulary be connected to the scientific method?</p>	C.4.1	Science Jeopardy Tic Tac Toe Vocabulary Matching vocab to pictures	Understand that there is a process in doing an experiment and that vocabulary is an essential part of it.	Whole-Given vocabulary words students will be able to demonstrate the meaning using the scientific procedures. Small-Students will match vocabulary words with their definition. Independent- Students will draw pictures of the vocabulary words.	Internet Trade Books Games
Quarter 3	<p><b>Objects in the Sky</b></p> <p><b>Enduring Understanding:</b> Students will identify celestial objects and understand how their positions change.</p> <p><b>Essential Questions:</b> What are celestial objects? Why do they move?</p>	E.4.4	Science Journal Scientific Experiments	Identify celestial objects in the sky and know they are constantly moving.	Whole- Create a weather forecast and report it to the class. Small-Summarize a weather forecast that was broadcasted. Independent-Draw pictures of the weather in different seasons.	Internet Trade Books Vocabulary Building Game

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Quarter 4	<p><b>Nature of Science</b> Enduring Understanding Students will use research material to investigate the world around them. Essential Questions Why is research important to understanding the world around them? Where can we look to find the answers to our research?</p> <p><b>Physical Science</b> Enduring Understanding- Students will be able to observe and describe what is happening to objects moving and still. Essential Questions- What causes an object to move? What is force?</p> <p><b>Life and Environmental Science</b> Enduring Understanding Illustrate the different life stages of animals. Essential Questions What are animal life stages?</p> <p>Science and Applications Enduring Understanding Ask questions to find answers about how machines were made. Essential Questions What are simple machines? Where can we find them?</p>	B.4.1	Conduct Research Gather Data Write research reports	Research supports theories/conclusions Locate established information from previous researchers	Whole- Research on their own and present orally Small-Given a topic find important information Independent- Draw steps of research	Internet Trade Books Games
Quarter 4		D.4.6	Scientific Experiments Pictures showing force being used. Inferencing by asking open ended questions	Friction and Gravity determine the force and pull of an object.	Whole- Create a model of friction and its changes through different surfaces. Small- Teacher Preparation to allow children to observe and make conclusions of an experiment. Independent-Draw how a car goes down different surfaces.	Scientific Experiments Books Internet
Quarter 4		F.4.3	Life Cycle Chart Habitat Diarama Animal Research Reports Animal Posters	Animals change as they grow.	Whole- Pick an animal research its habitat/life cycle. Small- Pick an animal and make a life cycle chart. Independent-Match animal to picture of habitat.	Interent Trade Books Games
Quarter 4		G.4.5	Provide Examples Posters	Simple machines makes jobs easier.	Whole Groups- Demonstrate how a simple machine can make a job easy. Small Groups-Match vobaulary words to pictures. Independant- Go on a scavenger hunt to find simple machines.	Pictures Trade Books Real Examples of different Machines

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Quarter 1	<p><b>ORGANISMS AND THEIR ENVIRONMENT</b>  <b>Enduring Understanding-</b>  Most plants and animals need air, food, water, and light and suitable environments to survive. Living things are dependent on both living and non-living parts of their environments for survival.  Animals use living and non-living resources in their environment to provide shelter.  Environments can be changed by both natural and human forces.  Specific plants and animals have features that allow them to survive in specific environments.  <b>Essential Questions-</b>  What do living things need?  How do living things use their habitats?  How do body parts help an animal?  Why do animals change their habitats?  What lives in a desert habitat?  (a polar habitat, a woodland, a river habitat, etc.)</p>	F.4.4, B.4.7, F.4.3, A.4.5	<ol style="list-style-type: none"> <li>Describe connections among living and non-living things in various environments.</li> <li>Classify objects into two groups: living and once living, and nonliving.</li> <li>Sequence the steps that beavers build a beaver dam and lodge.</li> <li>Sort animals according to the habitats they live in.</li> <li>Explain why a particular animal body part helps them to survive in their habitat (or keeps them from being able to live in a certain habitat.)</li> </ol>	<ol style="list-style-type: none"> <li>Sort objects from nature and nonliving things into two groups.</li> <li>Diagram the main parts of a green plant such as the dandelion and also the cactus.</li> <li>Use kitchen utensils to replicate bird's beaks to pick up styrofoam pieces (fish) and rice on a log (bugs). Record your findings.</li> <li>Build a beaver dam and lodge with playdoh (mud), stones, and sticks.</li> <li>Using Modgepodge, select a picture of a living thing to attach it to a rock (non-living) thing for a paperweight.</li> <li>Paint and decorate in 3D a particular habitat including plants and animals that live there.</li> <li>Sing to the tune "Head and shoulders, knees, and toes" --- Water, sunlight, air, and soil,....These are the things that plants all need. etc.</li> </ol>	<p>Whole group:</p> <ol style="list-style-type: none"> <li>Sing "Habitat" by David Stokes from his CD.</li> <li>Discuss their life experiences in different habitats either from a vacation trip or previous home.</li> </ol> <p>Small Group:</p> <ol style="list-style-type: none"> <li>Research together about animals and plants that live in the environment you selected.</li> <li>List changes made by nature and changes made by humans.</li> </ol> <p>Independent Work:</p> <ol style="list-style-type: none"> <li>Paint the inside of a shoebox to look like a particular habitat. Draw (on card stock or manilla folder) animals and plants that can stand up in your shoeboxes. Add plants in 3D using paper, styrofoam, or toilet paper rolls, etc. (Cacti can be made with sponges and broken toothpicks stuck in them.)</li> <li>Give an oral report about what a habitat is like and plant and animal life that survive there.</li> </ol>	<p>Eyes on Nature: <a href="#">Backward Animals</a>  Animal Homes by Joyce Pope <a href="#">Busy Beavers</a> by Barbara Brownell <a href="#">Animals that Build their homes</a> by Robert M. McClung <a href="#">A House is a House for Me</a> by Mary Ann Hoberman by Kerry Acker  Deserts by Holly Cefrey  The Sahara: <a href="#">World's Largest Desert</a> by Jill Fine  Biomes: <a href="#">Coniferous Forests</a> by Holly Cefrey  Animals of the High Mountains by Judith E. Rinard  Rainforest Wildlife by Antonia Cunningham  The Great Kapok Tree by Lynne Cherry  Biomes: <a href="#">Deciduous Forests</a> by Holly Cefrey  <a href="#">Mousekin's Lost Woodland</a> by Edna Miller  Desert Giant by Barbara Bash  Life in the Polar Lands by Monica Byles  Fading Forests: <a href="#">The Destruction of our Rainforests</a> by August Greeley  All About Owls by Jim Arnosky  Angel Falls: <a href="#">World's Highest Waterfall</a> by Joanne Mattern  Playdoh, stones, platforms for beaver dams and many small sticks</p>
Timeline	Themes/Enduring Understandings/Essential Questions for the Unit	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Frogs and Toads by Ellen Schultz
	<p><b>Science, Life and Environmental:</b>  <b>THE CHARACTERISTICS OF ORGANISMS</b>  <b>Enduring Understanding-</b>  Plants and animals respond to changes in the environment in order to survive.  <b>Essential Questions-</b>  How do plants and animals respond to changes in their environment? What happens when plants or animals don't respond to changes?</p> <p><b>LIFE CYCLES OF ORGANISMS</b>  <b>Enduring Understanding-</b>  Animals go through life cycles and produce new members of their type.  <b>Essential Questions-</b>  Why are life cycles important?</p>	F.4.1-F.4.2 F.4.3	<ol style="list-style-type: none"> <li>Define extinct, dinosaur, carnivore, herbivore, skull, skeleton, trace fossil, and fossil remains.</li> <li>Tell how body parts of animals help them survive.</li> <li>Draw an animal diagram with labels.</li> <li>Compare plants and animals on a Venn diagram.</li> </ol>	<p>Discover how each organism meets its basic needs to survive.  Investigate how plants and animals respond to their need for water, and changes in the environment.</p>	<p>Whole Group:</p> <ol style="list-style-type: none"> <li>Discuss characteristics of various dinosaurs noting what kind of teeth they have and what they probably ate. Compare their sizes.</li> <li>Sort the dinosaurs into carnivores and herbivores.</li> </ol> <p>Small Group:</p> <ol style="list-style-type: none"> <li>Compare two dinosaurs on a Venn diagram as a group.</li> <li>On black paper use chalk to draw a skeleton of a particular dinosaur.</li> </ol> <p>Individual Work:</p> <ol style="list-style-type: none"> <li>Give an oral report on a dinosaur, telling what it ate, body parts that helped it defend itself, and paint that dinosaur in its habitat.</li> </ol> <p>Whole Group: Mini lesson on the life cycle of a plant (SmartBoard-Brain Pop Jr.)</p> <p>Small Group: 1. Categorize the animals into different groups. (mammals, reptiles, etc.) 2. Illustrate the life cycle of a particular animal. (such as a frog or butterfly.)</p> <p>Independent: Using multiple library books or websites, research a particular animal and report on the life stages.</p>	<p>I Can Read About Prehistoric Animals by David Eastman  Dinamation's <a href="#">Dinosaurs Alive</a>  Dinosaur Bob by William Joyce  Dinosaur Detectives by Peter Chrisp  Amazing Dinosaur Facts by Robert Bell  Eyewitness Books : <a href="#">Dinosaurs</a> by David Norman  Library books</p> <p>Insects by Deborah Merriars  Frogs by Gail Gibbons  Monarch Butterfly by Gail Gibbons  Smartboard-Brain Pop Jr.  The Magic Schoolhouse Inside a Beehive by Joanna Cole &amp; Bruce Degen  Butterflies (a dial nature notebook pop-up)  From Tadpole to Frog by Kathleen Weidner Zoehfeld  Reptiles and Amphibians by Mary Scott  Snakes Long Longer Longest by Jerry Pallotta and Van Wallach</p> <p>Outside and Inside Alligators by Sandra Markle  Frogs and</p>
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Quarter 2	<p><b>LIGHT, HEAT, ELECTRICITY, AND MAGNETISM</b>  <b>Enduring Understanding-</b>  We use different types of energy in our daily lives.  <b>Essential Questions-</b>  How do the different types of energy make our lives easier?</p>	D.4.8, B.4.1	<ol style="list-style-type: none"> <li>Light project: identify whether a substance was opaque, translucent, or transparent.</li> <li>Observation-demonstration using a tuning fork.</li> <li>Experiments</li> <li>Class discussions</li> </ol>	<p>Ask questions and make observations to discover the differences between matter and forms of energy such as light, heat, and sound.</p>	<p>Whole Group: Teacher-led mini lessons and whole class experiments.</p> <p>Small Group:</p> <ol style="list-style-type: none"> <li>Life Saver Activity-showing friction making sparks.</li> <li>Partner activities</li> <li>Whip Game: I have a lightbulb-I have light, etc.</li> </ol> <p>Independent Work:</p> <ol style="list-style-type: none"> <li>Close activities</li> <li>Experiment Writeups.</li> </ol>	<p>Junior Science Book of Sound by Dorothy S. Anderson  Forms and Uses of Energy by Mary Atwater  Experiments with Heat by Salvatore Tocci  Keep the Lights Burning, Abbie by Peter and Connie Roop  Using Energy by Julian Rowe and Molly Perham  It's Science : Full of Energy by Sally Hweitt</p>

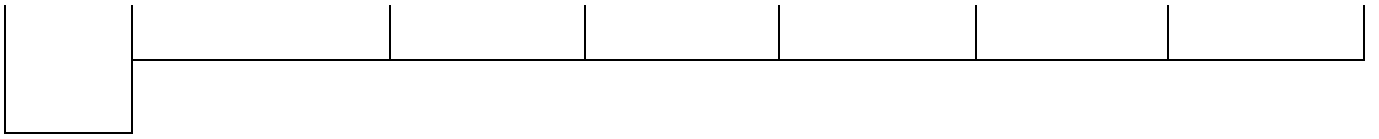


					3. Center work 4. Enchanted Learning puzzles and booklets to make.	What Makes a Shadow? by Clyde Robert Bulla EnchantedLearning.com
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	<p><b>Earth and Space Science</b> <b>OBJECTS IN THE SKY</b> <b>Enduring Understanding-</b> Identify the stars, sun, moon, and planets in the sky. <b>Essential Questions-</b> What changes cause the sun to rise and set? How does the night sky change? What are constellations? Why is the North Star important? What is the difference between a star and a planet?</p>	E.4.4, A.4.4, B.4.3	Use a model to observe the changes that cause sunrises and sunsets. Conclude that it takes the earth 24 hours to spin on its' axis. Observe that the appearance of the moon changes. Conclude that the moon's phases makes a pattern that repeats every 28 days.	The earth spins on its axis, making the sun appear to move slowly across the sky from sunrise to sunset; one day is the time it takes for the earth to make one complete rotation. The moon reflects the light of the sun, the phases of the moon form a pattern that repeats every 28 days	<p><b>Whole class:</b> Do an activity which shows that the Earth rotates on its axis giving us day and night. <b>Individual work:</b> Describe in writing and drawings a sunrise or sunset they have observed in the past. Children can make comparisons between different sunrises and sunsets by cutting out pictures of them from magazines and writing descriptions of them. <b>Activity for Small Groups: Making a Model of Moon Phases</b> Distribute a calendar in which the children can make new observations as they record the phases of the moon over the period of 28 days. Do an activity book dealing with the stars and the planets.</p>	<p>Extraordinary Solar System Wonder Why Stars Twinkle and Other Questions About Space What is the Sun? by Reeve Lindbergh Discovering the Stars By Laurence Santrey The Sun and Other Stars The Big Little Golden Book of Planets The Sun: our Nearest Star by Franklyn M. Branley The Magic School Bus: Lost in the Solar System By Joanna Cole and Bruce Degen When the Earth Wakes by Ani Rucki 1000 Facts About Space</p>
Timeline	Themes/Enduring Understandings/Essential Questions for the Unit	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
Quarter 3	<p><b>Science Connections:</b> <b>Enduring Understanding-</b> When conducting science investigations, ask and answer questions that will help decide the general areas of science being addressed. When faced with a science related problem, decide what evidence or models previously studies can be used to better understand it. Decide what data should be collected in the investigation. <b>Essential Questions-</b> What is the scientific method? <b>Nature of Science:</b> <b>Enduring Understanding-</b> Scientists use a wide variety of sources to investigate their world. <b>Essential Questions-</b> Why do scientists use a wide variety of sources? <b>Science Inquiry:</b> <b>Enduring Understanding-</b> Select sources of information to help answer questions selected for classroom investigations. Use simple science equipment safely and effectively including rulers, ces,thermometers, and computers. Communicate the results of their investigations using charts, graphs, drawings, journals, etc. to display their answers. <b>Essential Questions-</b> 1. Why is safety important in science experiments? 2. How can we best report our findings of our experiments?</p>	<p>A.4.1-A.4.5, B.4.1, B.4.2  B.4.1-B.4.6, A.4.2, A.4.4  B.4.1-B.4.3, A.4.1-A.4.4, C.4.1-C.4.7</p>	<p>1. Class discussions 2. Write about the steps of the scientific method. 3. Ask specific questions about what they have observed when the teacher demonstrates an experiment.  1. Given some information, show how to take notes. 2. Show how to google information. 3. Take notes from teacher presentations.  1. Demonstrate safe procedures for using the thermometers, rulers, scales, wafting the smell of liquids, etc. 2. Keep a journal to write up experiments and illustrate them.</p>	<p>The scientific method involves asking questions, collecting data and evidence, and drawing conclusions.  1. Using textbooks, reference books, computers, teachers, and parents,help answer science related questions and plan investigations. 2. Take notes in journals. 3. Show how science knowledge has changed over time.</p>	<p><b>Whole Group:</b> 1. Class demonstrations of experiments 2. Sequence the steps of an experiment. <b>Small Group:</b> 1. Partner work doing an experiment. 2. Research experiments that you can deomstrate. <b>Individual Work:</b> 1. Science Fair Project using the scientific method. <b>Whole Group:</b> 1. Using the Smart Board, demonstrate how to access different resources on line. <b>Small Group:</b> 1. Summarize paragraphs into one sentence while doing research. Do it together in a small group. <b>Individual Work:</b> 1. Construct report and present it to the class.</p>	<p>Houghton Mifflin Science Series Discovery Works  Library books, BrainPop.com, Brain PopJr.com, Smart Board  Rulers, scales, thermometers, hand lenses, various charts or graphic organizers, notebook for experiment write ups.</p>

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Quarter 4	<p><b>Physical Science:</b>  <b>PROPERTIES OF EARTH MATERIALS</b>  <b>Enduring Understanding-</b>  <i>Matter exists in three different states and each has its own properties. All objects occupy space.</i>  <b>Essential Questions-</b>  <i>What is a solid? What is a liquid? What is a gas? What is matter? What is a rock? What are the forms of water? What is a mineral?</i></p> <p><b>POSITION AND MOTIONS OF OBJECTS</b>  <b>Enduring Understanding-</b>  Observe and describe physical evidence in object at rest or in motion. Observe physical events involving objects, describing changes in position relative to another object and motion over time.  <b>Essential Questions-</b>  How do you know when something moves? What causes changes in motion?</p>	D.4.1-D.4.5, A.4.2,  D.4.7, B.4.5, D.4.8	<p>1. Describe the properties of solids, liquids, and gases.  2. Classify objects and substances as a solid, liquid, or gas.  3. Illustrate and label the water cycle.</p> <p>1. Observe and identify objects in motion.  2. Describe ways to measure objects that are in motion.  3. Observe that forces can change the direction of motion of an object. Identify some forces as pushes and some forces as pulls.</p>	<p>1. The Earth is composed of rocks, minerals, and soils.  2. Investigate and compare the properties of soils in Wisconsin.  3. Describe the land and water masses located in Wisconsin.</p> <p>1. Objects move in many different ways and their motion can be observed, measured, compared, and described.  2. Pushes and pulls can change the direction of motion of an object; the size of the change in the motion of the object is related to the strength of the push or pull exerted on it.</p>	<p><b>Whole group:</b>  1. 1. Gather and record data comparing 10 different liquids as to texture, color, and smell.  2. Trap air with various plastic bags.  <b>Small Group:</b>  1. Make bubbles with Dawn detergent noting that they have air inside that takes up space.  2. Experiment with how to change ice into a different form.  3. Make rain using an aluminum pie pan, ice, and very warm water.  4. Make goo to discover if its properties change over time.  <b>Independent Work:</b>  1. Illustrate how a type of rock was formed using a diagram.  2. List examples of solids, liquids, and gases in your daily life.</p> <p>Whole Group:</p>	<p><i>Air is All Around You</i> by Franklyn M. Branley  <i>The Water Cycle</i> by Helen Frost  <i>Sedimentary Rocks</i> by Holly Cefrey  <i>Igneous Rocks</i> by Holly Cefrey  <i>Metamorphic Rocks</i> by Holly Cefrey  <i>A Drop Around the World</i> By Barbara Shaw McKinney  <i>The Magic School Bus: Inside the Earth</i> by Joanna Cole.  Discovery Works Houghton Mifflin Science Unit B  <i>Awesome, Magical, Bizarre, and Incredible Experiments</i> by Janice VanCleave</p>
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	<p><b>Science Applications:</b>  <b>Enduring Understanding-</b>  Identify the technology used in science-related jobs. Identify simple machines used in the home, school, and workplace.  <b>Essential Questions-</b>  What is technology? What are some science careers? What are simple machines?  <b>Science in Personal and Social Perspectives</b>  <b>Enduring Understanding-</b>  Develop a list of those health and safety issues related to science. Science and technology have helped society with better food, transportation, personal needs, and healthcare. Science and technology have caused problems such as pollution.  <b>Essential Questions-</b>  What are germs? How can you stay healthy? How can you stay safe during a science experiment?</p>	G.4.1-G.4.5, B.4.1, B.4.2  H.4.1-H.4.4	<p>Find examples of simple machines throughout their houses.  Lever  Wheel and axle  Pulley  Inclined plane  Wedge  Screw</p>	<p>1. Individuals have responsibility for their own health. They should engage in personal care - dental hygiene, cleanliness, and exercise.  2. Safety and security are basic needs of humans. Student understandings include following safety rules for home and school, preventing abuse and neglect, avoiding injury, knowing whom to ask for help, and when and how to say no.  3. Tools such as thermometers, magnifiers, rulers, or balances often give more information about things than can be obtained by just observing things without their help.  4. Some diseases are caused by germs and others are not.</p>	<p>Do activities involving using a hand lens, a thermometer, a ruler, a calculator, and a balance to show that these objects can make science and experimentation easier.  Science has helped make weather prediction easier with the use of weather balloons, satellites, among others.</p>	<p><i>Play and Find Out about the Human Body</i> by Janice VanCleave  <i>Body Battles</i> by Rita Golden Gelman  <i>Houghton Mifflin Science Discovery Works Unit E What Makes Me Sick</i></p>
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	<p><b>Earth and Space Science:</b>  <b>Properties of Earth Materials</b>  <b>Enduring Understanding-</b>  Introduce materials that the earth is</p>	E.4.1-E.4.4, A.4.2, B.4.3	<p>1. Show samples of various rocks and see if students can identify them.</p>	<p>1. The Earth is composed of rocks, minerals, and soils.  2. Investigate and compare the properties of soils in Wisconsin.</p>	<p><b>Whole Group:</b>  1. Go on a scavenger hunt to collect various rocks.  2. Discuss how rocks are formed.</p>	<p><i>Sedimentary Rocks</i> by Holly Cefrey  <i>Igneous Rocks</i> by Holly Cefrey  <i>Metamorphic Rocks</i> by Holly Cefrey  <i>Astronomy For Every Kid: 101 Easy</i></p>

	<p>composed of, including rocks, minerals, and soils. Describe land and water masses found in Wisconsin.</p> <p><b>Essential Questions-</b> What is soil composed of? What is a rock? What is a mineral?</p> <p><b>CHANGES IN THE EARTH AND SKY</b></p> <p><b>Enduring Understanding-</b> Describe the weather found in Wisconsin in terms of clouds, temperature, precipitation, and seasons. Find patterns in the earth's daily, yearly, and long-term changes.</p> <p><b>Essential Questions-</b> How does the weather change over seasons? How does the weather change over a day? How does the weather affect farmers in Wisconsin? How does weather affect people and animals?</p>	<p>E.4.5-E.4.8, A.4.2-A.4.4</p>	<p>2. Show pictures of lakes, rivers.</p> <ol style="list-style-type: none"> <li>1. Weather chart.</li> <li>2. Reading thermometers worksheets</li> <li>3. Researching weather patterns in Wisconsin</li> </ol>	<p>3. Describe the land and water masses located in Wisconsin.</p> <ol style="list-style-type: none"> <li>1. Observe changes in air temperature and other types of weather conditions.</li> <li>2. Collect and record air temperature data.</li> <li>3. Conclude that the data shows a pattern in air temperature.</li> <li>4. Observe changes in the environment from season to season.</li> <li>5. Describe the repeating pattern of seasons from year to year.</li> </ol>	<p><b>Small Group:</b></p> <ol style="list-style-type: none"> <li>1. Sort rocks according to their types.</li> <li>2. Conduct experiments to note the hardness, appearance, whether it floats, etc.</li> </ol> <p>Independent Work:</p> <ol style="list-style-type: none"> <li>1. Illustrate how a type of rock was formed using a diagram.</li> <li>2. Look at physical maps of Wisconsin that show water and elevation.</li> <li>3. Have students research minerals found in Wisconsin.</li> <li>4. Make a rock paperweight using modeling clay and magazine pictures on a rock.</li> </ol> <p>Have the students do an activity which compares the seasons.</p> <ol style="list-style-type: none"> <li>1. Observe the trees and other plants. Draw a picture to show what a tree would look like in the various seasons.</li> <li>2. Record temperature in the morning and the afternoon and then compare.</li> <li>3. Record and observe the weather conditions each day for a month then write a summary of the changes in the weather.</li> </ol>	<p><b>Experiments That Really Work</b> By Janice VanCleave  <u><a href="#">Thunder and Lightning</a></u> by Wendy Pfeffer  <u><a href="#">Wild Weather</a></u> by Seymour Simon  <u><a href="#">Weather and Climate</a></u> by Barbara Taylor  <u><a href="#">When the Earth Wakes</a></u> by Ani Rucki  <u><a href="#">Wind</a></u> Susan Canizares and Betsey Chesson.  <u><a href="#">The Cloud Book</a></u> by Tomie de Paola  <u><a href="#">Exploring Weather</a></u></p>
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Quarter 1	<p><b>THEME:</b> Space</p> <p><b>ENDURING UNDERSTANDING:</b> What is the Universe Comprised of?</p> <p><b>ESSENTIAL QUESTIONS:</b> What is the Solar System? What is a Celestial Body? How do Celestial Bodies Affect One Another?</p>	Wisconsin Model Academic Science Standard B.4.1 through 3; WMASS C.4.1-3 and C.4.5-8 E.4.4 and E.4.6	<p>Create an informative report and accompanying 3-D Model of a chosen planet; Recreate the phases of the moon using Oreo cookies; Develop a constellation and its own creation myth;</p> <p><b>FORMATIVE ASSESSMENTS:</b> Concept quizzes; vocabulary quizzes</p> <p><b>SUMMATIVE ASSESSMENT:</b> Unit Test</p>	Compare and Contrast Asteroids, Comets, and Meteors; Analyze characteristics of planets (includes Pluto); Identify phases of the moon; Explain importance of the Sun; Describe the sun's attributes; Identify constellations and develop an understanding of the myths devised to explain their origins; Differentiate between rotation and revolution	Mnemonic device to memorize order of planets; Create study guide to differentiate among asteroids, comets, meteors, stars, and planets; Create a study guide for the phases of the moon; Create a study guide for the constellations; Read and analyze various myths behind the constellations; Students act out the difference between revolution and rotation; Watch video presentations about the various celestial bodies; Trip to Milwaukee Public Museum or to a local planetarium	Various texts on solar system/planets; TLC Learning Videos; Teacher Resource Book; Houghton Mifflin Discovery Works;
Quarter 2	<p><b>THEME:</b> Heat and Energy/Force in Motion</p> <p><b>ENDURING UNDERSTANDING:</b> How is Heat Produced and Transferred to Other Objects? What Causes Objects to Move or Stay Still? What is Energy? What is Gravity? What is Friction?</p> <p><b>ESSENTIAL QUESTIONS:</b> What is the difference between stored energy and energy in motion? What are conduction, convection, and radiation? What is the difference between a conductor and an insulator? How can heat be trapped to benefit organisms?</p>	Wisconsin Model Academic Science Standard C.4.1-8 D.4.3-8	<p>Identify household utensils as either conductors or insulators; Create a display of household objects demonstrating the 3 different types of heat transfer; Using only materials found in their desks, students must keep a cup of hot water hot; Write an explanation of the relationship between force and motion</p> <p><b>FORMATIVE ASSESSMENTS:</b> Concept quizzes; vocabulary quizzes</p> <p><b>SUMMATIVE ASSESSMENT:</b> Unit Test</p>	Compare and contrast conduction, convection, and radiation; Differentiate between conductors and insulators; Explain how heat is transferred from one object to another; Analyze and describe how organisms stay warm; Compare and contrast stored energy and energy in motion; Describe the forces that cause an object to move or stay still; Explain why objects fall downwards	<b>Heat/Energy:</b> Create a study guide for the three different types of heat, conduct experiments to trap heat using feathers and shortening, conduct experiments with different colored papers to determine which color absorbs the most heat, watch Magic School Bus video on the transfer of heat, identify household items as conductors and insulators. <b>Force in Motion:</b> create a study guide depicting all 6 simple machines, identify common household simple machines, conduct several experiments on force vs. gravity, trip to Discovery World.	Various texts on energy and force and motion; TLC Learning Videos; Teacher Resource Book; Houghton Mifflin Discovery Works;
Quarter 3	<p><b>THEME:</b> Natural Resources</p> <p><b>ENDURING UNDERSTANDING:</b> What is the relationship between Earth and humans? How do they affect one another?</p> <p><b>ESSENTIAL QUESTIONS:</b> What are natural resources? What is the difference between renewable, nonrenewable, and inexhaustible resources? How do natural resources differ? How is air used? Where is water found on earth, and why is water important? How can sources of fresh water be protected?</p>		<p>Create a poster showing examples of natural resources as renewable, nonrenewable, and inexhaustible, identify fossil fuels and their uses; create a diagram of the water cycle and write an explanation of how adults and children can protect our water source.</p> <p><b>FORMATIVE ASSESSMENTS:</b> Concept quizzes; vocabulary quizzes</p> <p><b>FORMATIVE ASSESSMENT:</b> Unit Test</p>	Compare and contrast renewable, nonrenewable, and inexhaustible; Explain how natural resources differ amongst each other; Explain how air is used; Describe where water is found. Analyze and describe the differences between the natural water cycle and a water treatment plant; Explain different ways in which water can be protected.	Create a flip chart of the 3 different types of natural resources, create a Venn diagram depicting the differences between the natural resources, conduct an experiment on greenhouse gases and explain how it affects the Earth, watch video presentations on water and air pollution, evaluate students' daily choices of how they use resources.	Various texts on natural resources, pollution, water cycle; TLC Learning Videos; Teacher Resource Book; Houghton Mifflin Discovery Works;
Quarter 4	<p><b>THEME:</b> Roles of Living Things</p> <p><b>ENDURING UNDERSTANDING:</b> What are the relationships among living things?</p> <p><b>ESSENTIAL QUESTIONS:</b> What do living things need? How do living things get the food they need? What are food chains and food webs? How are living things adapted for getting food? How are living things adapted for protection? How can living things change the environment? How are living things adapted to their environment?</p>		<p>Create a make-believe insect that uses camouflage to hide in the classroom, describe how it mimics or blends in to its surrounding. Create a picture of a habitat that includes animals, depict 3 food chains using those animals and evaluate the adaptations each animal has to survive.</p> <p><b>FORMATIVE ASSESSMENTS:</b> Concept quizzes; vocabulary quizzes</p> <p><b>SUMMATIVE ASSESSMENT:</b> Unit Test</p>	Identify the basic needs of plants and animals, evaluate why animals can only live in certain habitats, compare and contrast predator and prey and explain how an animal can be considered both, analyze the differences between the 4 different types of consumers vs. producers, create and analyze food chains and webs, identify and list several different adaptations plants and animals use for getting food and survival in their habit.	Create a study guide of the vocabulary words: producer, consumer, carnivore, herbivore, omnivore, decomposer, include definition and picture example of each. Use animal photos to create examples of food chains, conduct experiment depicting different birds beaks and how it affects what they eat, categorize animals' adaptations by an animal's special body part or behavior, discuss and evaluate how people and animals change and affect their environment both positively and negatively, watch video presentations on adaptations and camouflage	Various texts on animals; TLC Learning Videos; Teacher Resource Book; Houghton Mifflin Discovery Works;



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Quarter 1	<p><b>THEME: EARTH'S LAND</b>  <b>ENDURING UNDERSTANDING: How Can we Describe our Earth?</b>  <b>ESSENTIAL QUESTIONS:</b> What are Earth's landforms? What are glaciers? What are weathering and erosion? How does moving water shape the land? How do wind and ice shape the land? What are natural resources? Why is soil an important resource? Why are rocks and minerals important? Why are energy resources so important? What do people throw away and where does it go? How can we help solve the trash problem?</p>	Wisconsin Model Academic Science Standards A.4. 1 through 5; WMASS B.4.1 through 3; WMASS C.4.1 through 8; WMASS D.4.1, 2, 4, 5, and 7; WMASS E. 1 through 3; E.4.6 through 8; WMASS F.4.4; WMASS G.4.1; WMASS H.4.2 through 4	<p><b>INFORMAL ASSESSMENTS:</b>  Daily class discussions; end of section questions; lab activities, data charts and end of lab questions; KWL charts; outline notes, models and drawings  <b>FORMATIVE ASSESSMENTS:</b>  Chapter Labs and Activities, Investigation Reviews; Data charts; Lab analysis and conclusions; vocabulary and content quizzes; landform models; research reports  <b>SUMMATIVE ASSESSMENTS:</b>  Chapter and Unit tests; Unit projects</p>	Explain and predict changes in the Earth; Make observations and record data; Explain cause and effect vis a vis weathering and erosion; Differentiate between weathering and erosion; Describe landforms in terms of how natural forces formed them; Make connections between human actions and environmental change; Collect, record, and interpret data; Create hypotheses based upon observations and experiences; Make inferences and predictions based on your own observations; Take notes from a live presentation	Create a Venn Diagram showing weathering vs. erosion; Construct a Cause and Effect chart to show the results of weathering and erosion; Observe and record the trash and recycling habits of our school and your home/neighborhood; Take a field trip to the Milwaukee Public Museum to see exhibits on glaciers; Take a field trip to a botanical garden (in Milwaukee or Chicago) to observe the relationship between Earth's changes and its plant life in our area; Write reports on your field trip experiences; Create a project out of "trash"; Create a presentation about recycling and conservation; Host a guest expert on recycling; Host a presentation by a professional meteorologist	<i>Houghton Mifflin Science Discovery Works</i> , 4th Grade Textbook and accompanying lab activities; Subject-specific trade books; Visit from Community Resource Person (Milwaukee Recycling Center); Visit from local TV weatherman
Quarter 2	<p><b>THEME: CLASSIFYING LIVING THINGS/ WEATHER AND CLIMATE</b>  <b>ENDURING UNDERSTANDINGS: What are living things and how do they meet their needs? What causes weather and climate and how do they affect life on Earth?</b>  <b>ESSENTIAL QUESTIONS:</b> How can living things be classified? How do vertebrates differ? How do the groups of invertebrates differ? How are plants classified? What are the basic needs of living things? How do living things meet their needs? What is air? Why does air move? What is air pressure? How can you find wind speed and direction? How does water in the air affect weather? What can clouds tell you about weather? How can maps help predict weather? How can you stay safe during dangerous weather? What causes the seasons? What factors affect climate?</p>	Wisconsin Model Academic Science Standards A.4.1 through 5; WMASS B.4.1 through 3; C.4.1 through 8; WMASS D.4.4 and 5; D.4.7; WMASS E.4.5 and 6; WMASS F.4.1 through 4; WMASS H.4.2	<p><b>INFORMAL ASSESSMENTS:</b>  Daily class discussions; end of section questions; lab activities, data charts and end of lab questions; KWL charts; outline notes, models and drawings  <b>FORMATIVE ASSESSMENTS:</b>  Chapter Labs and Activities, Investigation Reviews; Data charts; Lab analysis and conclusions; vocabulary and content quizzes; graphic organizers; research reports  <b>SUMMATIVE ASSESSMENTS:</b>  Chapter and Unit tests; Unit projects</p>	Analyze and describe the relationship between structure and function vis a vis living things; Analyze and describe the relationship between an organism's structure and how it meets its needs; Organize and arrange data into groups and subgroups; Compare and contrast different groups of living things; Make comparisons within and amongst groups of organisms; Describe air and its components; Explain how air moves and the changes this movement causes; Explain how to measure wind speed and direction and demonstrate ability to do so;	Create a graphic organizer to classify animals (mammals, birds, fish, reptiles-then subtypes such as carnivores, herbivores, omnivores); Create a T-chart listing vertebrates vs. invertebrates; Construct a flow chart displaying the relationship between an animal's structure and its food-getting methods; Write a descriptive essay of an animal that includes all its classifications; Construct a model of the Water Cycle; Create an air-current map of the Earth; Create a graph showing the relationship between air pressure and storms; Construct a weather/wind vane; Describe the different cloud types and their relationship to the weather; Read and explain weather maps then draw your own to display a given type of weather; Act out storm safety procedures; Create a "bad weather" plan and share it with the class; Construct a Four Seasons display model with descriptions and causes for each season	<i>Houghton Mifflin Science Discovery Works</i> , 4th Grade Textbook and accompanying lab activities; Subject-specific trade books
Quarter 3	<p><b>THEME: MAGNETISM AND ELECTRICITY</b>  <b>ENDURING UNDERSTANDING: How do the forces of magnetism and electricity affect Earth and its living things?</b>  <b>ESSENTIAL QUESTIONS:</b> What are magnets? What are magnetic force fields? What is static electricity? What is current electricity? How do electric circuits differ? Where does electric current come from? How is electricity useful? How is electricity dangerous?</p>	Wisconsin Model Academic Science Standards A.4.1 through 5; WMASS B.4.1 through 3; C.4.1 through 8; WMASS D.4.8; WMASS G.4.4 and 5; WMASS H.4.1 through 4	<p><b>INFORMAL ASSESSMENTS:</b>  Daily class discussions; end of section questions; lab activities, data charts and end of lab questions; KWL charts; outline notes, models and drawings  <b>FORMATIVE ASSESSMENTS:</b>  Chapter Labs and Activities, Investigation Reviews; Data charts; Lab analysis and conclusions; vocabulary and content quizzes; labeled circuit diagrams; research reports; graphic organizers and posters  <b>SUMMATIVE ASSESSMENTS:</b>  Chapter and Unit tests; Unit projects</p>	Define and describe magnets; Define and describe magnetic forces; Define and describe electricity; Differentiate between static and current electricity; Compare and contrast different types of electric circuits; Explain how electric current behaves and functions; List and explain the many uses for electricity; Describe the dangers associated with electricity and how to avoid/manage these dangers	Perform an experiment to determine which materials a magnet will attract; Predict and test through which materials a magnet can attract; Perform an experiment to observe and analyze attraction and repulsion; Create a compass by magnetizing a needle; Create a magnetic field and lines of force using a magnet and iron filings; Create positive and negative charges by rubbing balloons with wool and plastic wrap; Draw analogies between jumping charges in the balloon activity and lightning; Create and test a simple electrical circuit; Diagram and label a simple circuit; Predict the conductivity of various materials then test and record the results; Trace the path of current between a dry cell and bulb; Construct both a series and a parallel circuit; Create a Venn diagram to compare and contrast series and parallel circuits; Create a list of devices in your home that run in electric motors; Make a T-chart to display the advantages and disadvantages of electric cars; Create an electricity safety poster or booklet to share with class/school; Write an essay	<i>Houghton Mifflin Science Discovery Works</i> , 4th Grade Textbook and accompanying lab activities; Subject-specific trade books;
	<b>THEMES: PROPERTIES OF MATTER/HEALTH AND NUTRITION</b>	Wisconsin Model Academic Science Standards A.4.1 through	<b>INFORMAL ASSESSMENTS:</b> Daily class discussions; end of	Define and describe matter; List and describe the three states of	List and describe matter in the classroom; Construct a graphic	<i>Houghton Mifflin Science Discovery Works</i> , 4th Grade

<p>Quarter 4</p>	<p><b>ENDURING UNDERSTANDINGS:</b> What is matter and how does it behave? How do you take care of your health?  <b>ESSENTIAL QUESTIONS:</b> How can matter be described? How can matter be measured? What is matter like? How can matter change state? What are physical changes? What are chemical changes? What is our body made of? How do our body systems work to meet our needs? How can we take care of our bodies? Why is nutrition important?</p>	<p>4; WMASS B.4.1 through 3; WMASS C.4.1 through 8; WMASS D.4.1 through 8; WMASS H.4.1 through 4</p>	<p>section questions; lab activities, data charts and end of lab questions; KWL charts; outline notes, models and drawings  <b>FORMATIVE ASSESSMENTS:</b> Chapter Labs and Activities, Investigation Reviews; Data charts; Lab analysis and conclusions; vocabulary and content quizzes; posters and graphic organizers; research reports; menus and food diaries  <b>SUMMATIVE ASSESSMENTS:</b> Chapter and Unit tests; Unit projects</p>	<p>matter; Describe the behavior of different types of matter; Perform experiments; Record observations; Analyze data and draw conclusions; Explain the ways in which matter can be measured (size, mass, volume) and perform measurements; Predict and infer changes in matter; Differentiate between physical and chemical changes in matter;</p>	<p>organizer to explain the three states of matter; Create "goo" and describe its properties; Create mixtures and solutions and compare and contrast their properties; Demonstrate physical change by cutting fruit into a fruit salad; Demonstrate chemical change by burning materials; Perform the "dance of the molecules" to demonstrate how matter behaves when heated or cooled; Induce rust on a nail and compare it to a shiny, new nail then record, analyze, and share your observations; Create a menu for a week of healthy meals and snacks; Keep and share a food journal; Create a plate collage for the ideal dinner</p>	<p>Textbook and accompanying lab activities; Subject-specific trade books; "Magic School Bus" episodes; "Bill Nye the Science Guy" episodes; Food package nutrition labels; <a href="http://www.nal.usda.gov/kids-and-teens">http://www.nal.usda.gov/kids-and-teens</a></p>
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Quarter 1	<p><b>Theme: The Solid Earth/The Solar System and Beyond</b></p> <p><b>Enduring Understanding: What is our Earth and the Universe Around it Made of?</b></p> <p><b>ESSENTIAL QUESTIONS:</b> What are the differences and similarities among rocks and minerals? How can the properties of rocks and minerals be used to identify them? How do humans utilize rocks and minerals? Where on Earth can specific rocks and minerals be found? How are rocks and minerals formed? What are the differences and similarities among sedimentary, metamorphic, and igneous rocks? How can we conserve mineral resources? What forces shape the Earth? What does each of Earth's layers consist of? How do mountains form? How can we learn about Earth's past by studying rocks and fossils? Who are Earth's neighbors? How are the other planets similar to or different from Earth? What can you see in the night sky? How do astronomers learn about space? What are stars and how do they differ? What are galaxies and how do they differ? What is it like in space?</p>	Wisconsin Model Academic Science Standard A.8. 1 through 8; WMASS B.8. 1 through 6; WMASS C.8. 1 through 11; E.8.1 through 8; WMASS G.8.3, 6, and 7; WMASS H.8.1 and 2	<p><b>INFORMAL ASSESSMENTS:</b> Daily class discussions; end of section questions; lab activities, data charts and end of lab questions; KWL charts; outline notes, models and drawings</p> <p><b>FORMATIVE ASSESSMENTS:</b> Chapter Labs and Activities, Investigation Reviews; Data charts; Lab analysis and conclusions; vocabulary and content quizzes; Earth layer models; Solar System models; planet models, descriptive/expository essays and research reports</p> <p><b>SUMMATIVE ASSESSMENTS:</b> Chapter and Unit tests; Unit projects</p>	Explain and predict changes in the Earth; List and describe the 5 mineral properties; Make observations, collect, record, and interpret data; Measure and use numbers, make estimates; Identify rocks and minerals based on the 5 observable properties; Sort and classify objects (minerals, rocks, star types) based upon observable properties; Create hypotheses based upon observations and experiences; Make inferences and predictions based on your own observations and data; Communicate your findings and ideas orally, in writing, via actions, graphs, tables, diagrams, drawings, and models	Make observations and record data about actual rocks and minerals; Identify rocks and minerals based on their properties; Sort and classify rocks and minerals based on their properties; Grow and observe crystals then record and analyze observations; Draw parallels between changes in crystals on a small scale and changes in the Earth on a larger scale; Create a 3-D model showing Earth's layers; Create a filmed advertisement, narrative story, or informative PowerPoint presentation on a chosen mineral; Construct a model of the Rock Cycle; Create a planisphere to predict star positions; Make a telescopic camera; Create an Earth ruler to compare planet sizes; Go on a trip to the UW-Madison Geology Dept. Museum; Go on a trip to the UW-Milwaukee Planetarium; Watch "Dark City"	<i>Houghton Mifflin Science Discovery Works</i> 5th Grade Textbook and accompanying lab activities; Subject-specific trade books; PBS <i>Nature</i> Episodes ("Kilauea: Mountain of Fire"); University of Wisconsin-Madison Geology Department Museum; University of Milwaukee Planetarium; PBS POV Film "Dark City"; PBS <i>Stargazers</i> episodes; <i>"Bill Nye the Science Guy"</i> episodes
Quarter 2	<p><b>Theme: Systems in Living Things</b></p> <p><b>Enduring Understanding: What are Living Things Made Of and How do They Function?</b></p> <p><b>ESSENTIAL QUESTIONS:</b> What is a cell and how does it work? What are the differences and similarities between plants and animals? How do organisms' structures help them function? How do different body systems work together to help an organism carry out its life processes? How do organisms respond to their environments? What are the stages of development of different organisms? How do organisms reproduce and pass on their characteristics?</p> <p><b>Theme: Populations and Ecosystems</b></p> <p><b>Enduring Understanding: How do Living Things Interact with Each Other and Their Environments?</b></p> <p><b>ESSENTIAL QUESTIONS:</b> What is an Ecosystem? What is a community? What is a population? How are living things in an ecosystem related? What is a food chain? What is symbiosis? How do living and non-living things interact in an ecosystem? How do humans change ecosystems? How does energy flow in an ecosystem? How is matter cycled in an ecosystem? How do Earth's major ecosystems differ? What is biodiversity and why is it important?</p>	Wisconsin Model Academic Science Standards A.8.1 through 8; WMASS B.8.1 through 6; WMASS F.8.1 through 10; WMASS G.8.3, 6, and 7; WMASS H.8.1 through 3	<p><b>INFORMAL ASSESSMENTS:</b> Daily class discussions; end of section questions; lab activities, data charts and end of lab questions; KWL charts; outline notes; models and drawings</p> <p><b>FORMATIVE ASSESSMENTS:</b> Chapter Labs and Activities, Investigation Reviews; Data charts; Lab analysis and conclusions; vocabulary and content quizzes; Cell models; Ecosystem dioramas and/or drawings, descriptive/expository essays and research reports</p> <p><b>SUMMATIVE ASSESSMENTS:</b> Chapter and Unit tests; Unit projects</p>	List and describe the parts of a cell and their functions; Make observations, collect, record, and interpret data; Measure and use numbers, make estimates; Identify plant and animal cells based on their observable parts; Differentiate between a plant and an animal cell; Sort and classify objects (cell parts and their functions, cell types) based upon observable properties; Create hypotheses based upon observations and experiences; Make inferences and predictions based on your own observations and data; Communicate your findings and ideas orally, in writing, via actions, graphs, tables, diagrams, drawings, and models	Perform an experiment by following step-by-step instructions; Draw and label the parts of both a plant and an animal cell; Describe the function of each part of a cell; Create a 3-dimensional model of either a plant or animal cell; Create a flow chart to describe the relationship between cells, tissue, organs, organ systems, and organisms; Construct a comparison chart demonstrating the differences and similarities between plant and animal transport systems; Compare and contrast how plants and animals carry out their life processes; Draw and describe the 4 plant tropisms; Write a descriptive essay about food's journey through the digestive system; Create a model to show the flow of blood in the human heart; Create a graphic organizer of a food web; Create a 3-Dimensional model of a complete ecosystem containing several organisms; Write a descriptive essay about a drastic change in an ecosystem (the sudden disappearance of a species or non-living resource); Visit an urban farm and write a narrative of the experience from	<i>Houghton Mifflin Science Discovery Works</i> 5th Grade Textbook and accompanying lab activities; Subject-specific trade books; Field Trip to Growing Power (Milwaukee Urban Farm); PBS Bill Moyers' <i>Earth on Edge</i> : <a href="http://www.pbs.org/earthonedge/ecosystems/index.html">http://www.pbs.org/earthonedge/ecosystems/index.html</a>
Quarter 3	<p><b>Theme: Matter and Energy</b></p> <p><b>Enduring Understanding: What is Everything Made of and How Does it Behave?</b></p> <p><b>ESSENTIAL QUESTIONS:</b> How can you describe matter? What is mass? What is volume? What is energy? Where does energy come from? What are the properties of matter? How is a chemical property different from a physical property? What are the three states of matter? What are elements? What are compounds and solutions? What are different forms of energy? How can energy change? How can matter change?</p>	Wisconsin Model Academic Science Standards A.8.1 through 8; WMASS B.8.1 through 6; WMASS C.8.1 through 11; WMASS D.8.1 through 10; WMASS G. 8.3, 6, and 7; WMASS H.8.1 through 3	<p><b>INFORMAL ASSESSMENTS:</b> Daily class discussions; end of section questions; lab activities, data charts and end of lab questions; KWL charts; outline notes; models and drawings</p> <p><b>FORMATIVE ASSESSMENTS:</b> Chapter Labs and Activities, Investigation Reviews; Data charts; Lab analysis and conclusions; vocabulary and content quizzes; Atom models; Molecule models and/or drawings, descriptive/expository essays and research reports</p> <p><b>SUMMATIVE ASSESSMENTS:</b> Chapter and Unit tests; Unit projects</p>	Perform experiments by following step-by-step instructions; Explain and predict changes in matter and its states and behavior; List and describe the 4 states of matter; Make observations, collect, record, and interpret data; Measure and use numbers, make estimates; Identify elements and compounds based on observable properties; Sort and classify objects ( ) based upon observable properties; Differentiate between potential and kinetic energy and demonstrate the difference; Create hypotheses based upon observations and experiences; Make inferences and predictions based on your own observations and data; Communicate your findings and ideas orally, in writing, via actions, graphs, tables, diagrams, drawings, and models	Perform experiments on various objects found in the classroom in order to describe them as matter; Create a Venn Diagram to compare and contrast energy and matter; Perform an experiment to separate mixed matters (salt from water, iron filings from charcoal); Create a graphic organizer to list examples of the different states of matter; Construct models of various elemental atoms using copper wire and colored beads; Utilize chemical symbols to name elements and compounds; Create different solutions and observe and record data about their properties; Design and carry out an experiment using a balloon and a rubber band to demonstrate potential and kinetic energy; Design and construct models to show <b>radiation, conduction, and convection</b> ; Perform experiments on sugar cubes and marshmallows to demonstrate <b>physical and chemical</b> changes; Create a graphic organizer to describe the three types of physical change; Construct a cause and effect chart to explain changes in states of matter;	<i>Houghton Mifflin Science Discovery Works</i> 5th Grade Textbook and accompanying lab activities; Subject-specific trade books; PBS <i>Nova: "Fabric of the Cosmos"</i> episodes; <i>"Bill Nye the Science Guy"</i> episodes



<p>Quarter 4</p>	<p><b>Theme: Light and Sound</b>  <b>Enduring Understanding: Where do Light and Sound Come From and How do They Behave?</b>  <b>ESSENTIAL QUESTIONS:</b> What is light, and where does it come from? How does light travel? How does light behave? How are natural and artificial light energies produced? What are the different types of light? How is laser light different from other light? How are light waves similar to other kinds of waves? What is the relationship between light's color and its wavelength? What happens to light as it passes from one material to another? How do humans control light? How do cameras, telescopes and microscopes work? What is sound? How does matter affect how sound travels? How do high sounds differ from low sounds? How can you describe sound waves? What is pitch and how is it changed? What is frequency? How can we control sound? How do people hear? What are decibels? How is sound transmitted and recorded?</p>	<p>Wisconsin Model Academic Science Standards A.8.1 through 8; WMASS B.8.1 through 6; WMASS C.8.1 through 11; WMASS D.8.8 through 10; WMASS G. 8.3, 6, and 7; WMASS H.8.1 through 3</p>	<p><b>INFORMAL ASSESSMENTS:</b> Daily class discussions; end of section questions; lab activities, data charts and end of lab questions; KWL charts; outline notes; models and drawings  <b>FORMATIVE ASSESSMENTS:</b> Chapter Labs and Activities, Investigation Reviews; Data charts; Lab analysis and conclusions; vocabulary and content quizzes; Wave models: Color wavelength models and/or drawings, descriptive/expository essays and research reports; Comparison of camera and Al-Khwarizmi's diagram of human eye; Research report on Galileo's, Newton's, or Herschel's telescopes  <b>SUMMATIVE ASSESSMENTS:</b> Chapter and Unit tests; Unit projects</p>	<p>Perform experiments by following step-by-step instructions; Explain and predict changes in light and sound (volume, brightness, pitch); Describe light waves and compare them to other types of waves; Make observations, collect, record, and interpret data; Measure and use numbers, make estimates; Identify elements and compounds based on observable properties; Sort and classify objects ( ) based upon observable properties; Utilize subject-specific units of measure (decibels, watts); Create hypotheses based upon observations and experiences; Make inferences and predictions based on your own observations and data; Communicate your findings and ideas orally, in writing, via actions, graphs, tables, diagrams, drawings, and models</p>	<p>Utilize a mathematical formula  Perform an experiment to create a working simple electrical circuit, adding additional dry cells; List and describe multiple sources of light; Create a timeline to explain how artificial lighting has changed over time; Perform a slinky experiment to simulate light waves; List and describe the parts of a wave; draw a light wave and label its parts; Create and color a light wavelength chart; Perform an experiment to bend and bounce light with mirrors, oil, and water; Create a Venn Diagram to compare and contrast reflection and refraction; Construct a telescope with a cardboard tube; Construct a timeline of the history of the telescope; Perform an experiment mixing colored light; Construct and play a rubber-band banjo; Sketch sound waves to represent given sounds; Construct and use a string phone then record and analyze your data; Construct and play a bottle-xylophone; Construct and play a rubber-band guitar using a pencil to change pitches; Perform a blindfolded sound-identification experiment; Draw and label a diagram of the human ear and describe how it functions.</p>	<p><b>Houghton Mifflin Science. Discovery Works</b> 5th Grade Textbook and accompanying lab activities ; Subject-specific trade books; <b>PBS Nova: "Fabric of the Cosmos"</b> episodes; <b>"Bill Nye the Science Guy"</b> episodes</p>
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Timeline	Themes/Enduring Understandings/Essential Questions for the Unit	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
First Quarter	<p>What is the Scientific Method and how does it result in scientific knowledge? Compare and contrast Scientific Variables and constants. How is a control used during an experiment?</p> <p>- What are a physical and chemical property? How do you know there has been a chemical change? What are the properties by which matter is identified?</p> <p>-What does the law of Conservation of Energy state? How does energy change forms? Examples of energy transfers in Earth's systems?</p> <p>-What is an adaptation? When is it an adaptation or an evolution? What kind of factors lead to each?</p>	<p>A.8.1, A.8.3, A.8.5, A.8.6</p> <p>Health B1, B6</p> <p>C.8.3,</p> <p>C.8.1, C.8.3, C.8.6, C.8.9, C.8.11</p> <p>D.8.1, D.8.2, D.8.3, D.8.4, D.8.10</p>	<p>Concept mapping. Content labs, Chapter project: Choose a project to apply the scientific method. Quizzes and Chapter test. Performance Assessment Test, daily work, observation, labs,</p>	<p>ID the 5 steps of the Scientific Method. Compare fact, model, law, theory and hypothesis. ID the difference between the truth and evidence. Limit common mistakes during the application of the scientific method. ID the difference between control and variable. Modeling, compare/contrast, note taking, inferring</p>	<p>Class Procedures, Focus Questions, Learning Logs, Activity 1: Addresses lab safety, team building and activity that incorporates scientific investigation.</p> <p>-Spongebob Safety Practice: <a href="http://www.science-class.net/index.htm">www.science-class.net/index.htm</a></p> <p>- (choose one): Sucker Lab, Think like a scientist, sink or float. (look for an activity that incorporates experimenting and variables.</p> <p>Mini Metric Olympics (metric pyramid) <a href="http://www.nist.gov/public_affairs/kids/metricpyramidfinal1.pdf">http://www.nist.gov/public_affairs/kids/metricpyramidfinal1.pdf</a></p> <p>Methods of measurement, labs, defining , tables, note taking, graphing</p> <p>--Observation, notetaking, inferring, interpreting data, problem solving, compare/contrast, table building</p>	<p>Lab Safety Presentations: <a href="http://science.ppst.com/labwork.html">http://science.ppst.com/labwork.html</a></p> <p>Brain POP: Scientific Methods: <a href="http://glencoe.mcgraw-hill.com/sites/dl/free/0078802482/164155/00044686.html">http://glencoe.mcgraw-hill.com/sites/dl/free/0078802482/164155/00044686.html</a></p> <p>Identifying Variables: <a href="http://science.ppst.com/variables.html">http://science.ppst.com/variables.html</a></p> <p>TEXTBOOK: Prentice Hall Science Explorer (Units 1-20)</p>
Second Quarter	<p>What are some basic needs that are provided by an organism's habitat? How to Biotic and Abiotic factors important to all organisms? Why do ecologists study both biotic and abiotic factors? What are some factors that could limit the growth of a population? Why is it necessary for ecologists to estimate the size of a population? What is the relationship between organisms in an ecosystem? Is the relationship always good or bad? What is the cause of the Earth's major biomes? What biotic and/or abiotic factors determine how a biome is categorized? How do organisms get energy? What are Earth's natural resources?</p>	<p>Environmental Ed.</p> <p>C.8.1, D.8.2, D.8.7</p> <p>A.8.4, A.1-7</p> <p>Living systems are organized</p> <p>Organisms are dependent ..</p> <p>Organisms compete..</p> <p>Ask questions</p> <p>Report Data</p> <p>Evaluate data</p> <p>Use systematic observations</p>	<p>Quizzes and Chapter test. Performance Assessment Test, daily work, observation, labs, Write a letter to an environmental agency. Biome Project: either a prezi, ppt, video, play, model, or demonstration.</p>	<p>Describe the levels of organization within an ecosystem. Describe how ecologists determine the size of a population. Explain what causes a population to change its size. Describe the roles of organisms in their environment. ID 3 forms of symbiotic relationships.</p>	<p>Inferring, Drawing Conclusions, Making Models, Predicting, Classifying, Venn Diagrams, Flow Charts, Cycle Diagrams "Counting Turtles" "Camouflage Butterflies" "Adaptations game: Pick up as many beans as you can with the 'adaptation' you were assigned" SMARTBoard Activity on Food Chains and Food Webs</p>	<p>TEXTBOOK: Prentice Hall Science Explorer (Units 1-20) <a href="http://themes.ppst.com/greenplanet.html">http://themes.ppst.com/greenplanet.html</a></p> <p><a href="http://www.epa.gov/recyclecity/">www.epa.gov/recyclecity/</a></p> <p><a href="http://www.dnr.wi.gov/forestry/publications">www.dnr.wi.gov/forestry/publications</a></p>
Third Quarter	<p>Earth Science: What are Earth's layers made of?</p> <p>How do Earth's plates help create landforms?</p> <p>How do Scientists explain Earth's features?</p> <p>What causes earthquakes and volcanoes?</p> <p>What are rocks and minerals?</p> <p>Why is soil important to living things? How does Earth's surface change?</p> <p>How does water affect Earth's features?</p> <p>How do waves affect coastal landforms?</p> <p>What is Earth's atmosphere?</p> <p>How do clouds and precipitation form?</p> <p>What causes weather and climate?</p> <p>What are the characteristics of Earth, Sun and Moon?</p>	<p>E.8.1, E.8.2, E.8.3 E.8.4, E.8,5</p> <p>C.8.18.2, D, D.8.7, A.8.4</p>	<p>Concept mapping. Content labs, Chapter project: Choose a project to apply the scientific method. Quizzes and Chapter test. Performance Assessment Test, daily work, observation, labs,</p>	<p>Use appropriate tools</p> <p>Use observable properties</p> <p>Identify properties</p> <p>Evaluate data</p> <p>Use technology</p> <p>Review data</p> <p>Identify some properties of air</p> <p>Name instruments that are used to measure air pressure. Explain how increasing altitude affects air pressure and density. Describe the characteristics of the main layers of the atmosphere. Explain the cycle and the atmospheric system of the Earth using Scientific evidence and personal observations. Describe what happens when radiation reaches the earth. Explain how air pollution can affect human health. Summarize the process of radiation, convection,</p>	<p>Labs, notes, daily work, test, observation, identification, daily work, tests</p> <p>Making Models, research papers</p>	<p>TEXTBOOK: Prentice Hall Science Explorer (Units 1-20)</p>
Fourth Quarter	<p>1. Why do theories of the origin of the universe change?</p> <p>2. How does our galaxy compare with other galaxies?</p> <p>3. What is gravity's role in the solar system?</p> <p>4. How does Earth compare to other planets in the solar system? (size, surface features, atmospheric features, relative distance from the sun, ability to support life)</p> <p>5. What other objects are included in the</p>	<p>A.1, A.2, A.3, A.4, A.5, A.6, A.7, A.8, A.9, A.10, A.11, A.12, A.13, A.14, A.15, A.16</p>	<p>Individual and Class Discussions</p> <p>Teacher Observation</p> <p>Student Journals</p> <p>Performance Assessment Tasks</p>	<p>Investigate and design various models of size and distance related to the solar system</p> <p>Describe the concept of systems and models</p> <p>Identify relative sizes of bodies in our solar system and how they affect life on Earth</p> <p>Create scale models of parts of our solar system</p> <p>Construct a scale model of the entire solar system is problematic because the distances in space are so great that even a very small-scale model would be too</p>	<p>Labs, notes, daily work, test, observation, identification, daily work, tests</p> <p>Making Models, research papers</p>	<p>TEXTBOOK: Prentice Hall Science Explorer (Units 1-20) , SMARTBoard presentation, NOVA</p>

solar system?  
6. Why do objects seem to move across the sky?  
7. How does the position of the sun, Earth, and moon affect each other? (include eclipses and phases)  
8. What causes tides?  
9. What are the reasons for the seasons?

Lab Notebooks

large to be practical. In parking lot students will draw a scale model of the solar system.  
Draw scale pictures of the planets  
Compare and Draw Earth to sun to scale  
Build Scale model of the Earth-Moon system  
Build a Solar System Model  
Id the effects of Earth's rotation and revolution.  
Describe the main characteristics

making models, research papers, video,

Grade	Timeline	Themes/Enduring Understandings/Essential Questions for the Unit	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
7th Grade Science	August - September	<b>Inner Earth:</b> Heat is transferred by radiation, conduction, and convection. The movement of Earth's plates is probably caused by convection currents in the mantle. Plate tectonics explains how Earth's crust had changed. Students build a model of Earth and show sea-floor spreading and convection currents in Earth's mantle. Temperature and pressure increase as you approach Earth's center. Earth's magnetic poles reverse themselves about once every 600,000 years.	<b>STRUCTURE OF EARTH SYSTEM</b>  <b>E.8.1</b> Using the science themes, explain and predict changes in major features of land, water, and atmospheric systems  <b>E.8.2</b> Describe underlying structures of the earth that cause changes in the earth's surface	1. Chapter Project: build a model of the Earth's structure. 2. Section Quizzes and Chapter Test 3. Content labs 4. Content map for each section	1. Describe what geologists do. 2. List the characteristics of the Earth's crust, mantle and core. 3. Explain how the heat transferred. 4. Identify what causes convection currents. 5. Describe the theory of continental drift. 6. List evidence used by Wagner to form his theory and why other scientist rejected it. 7. Describe the process and explain the evidence of sea floor spreading and plate tectonics. 8. Explain the process of subduction. 9. Describe how stress forces affect rocks.	1. Instruction on Material 2. Guided Practice 3. Independent Practice 4. Projects 5. Content Labs 6. Content Maps	Prentice Hall; Science Explorer: Inside Earth
	October	<b>Earthquakes:</b> Stress is a force that acts on rocks. Seismic waves carry the energy of an earthquake away from the focus. Earthquakes can cause great damage. Overtime, fault movement can create mountains and valleys. Students design a model of an earthquake-resistance structure. Students model movement along faults. Stress causes rock to deform in various ways, seismograph records ground movements.	<b>STRUCTURE OF EARTH SYSTEM</b>  <b>E.8.1</b> Using the science themes, explain and predict changes in major features of land, water, and atmospheric systems  <b>E.8.2</b> Describe underlying structures of the earth that cause changes in the earth's surface  <b>E.8.3</b> Using the science themes during the process of investigation, describe climate, weather, ocean currents, soil movements and changes in the forces acting on the earth  <b>E.8.4</b> Using the science themes, analyze the influence living organisms have had on the earth's systems, including their impact on the composition of the atmosphere and the weathering of rocks	1. Chapter Project: Design an earthquake resistant building 2. Section Quizzes and Chapter Test 3. Content labs 4. Content map for each section	1. Describe the types of faults, why faults form and why they occur. 2. Describe how movement along faults changes Earth's surface. 3. Describe the different kinds of seismic waves and name the scales used to measure the strength of an earthquake. 4. Identify the different kinds of seismic waves and name the scales used to measure the strength of an earthquake. 5. Describe and explain what can be done to reduce earthquake hazards.	1. Instruction on Material 2. Guided Practice 3. Independent Practice 4. Projects 5. Content Labs 6. Content Maps	Prentice Hall; Science Explorer: Inside Earth
	November	<b>Volcanos:</b> A hot spot where magma from the mantle melts through the crust. During a volcanic eruption, gases dissolved in magma rush out, carrying magma with them. A volcano passes through three stages: Active, dormant, extinct. Most volcanoes occur along diverging plates, boundaries or in subduction zone. Earthquake zones and volcanic belts are located along plate boundaries. The build up of lava and magma creates landform on or beneath Earth's surface.	<b>STRUCTURE OF EARTH SYSTEM</b>  <b>E.8.1</b> Using the science themes, explain and predict changes in major features of land, water, and atmospheric systems  <b>E.8.2</b> Describe underlying structures of the earth that cause changes in the earth's surface  <b>E.8.3</b> Using the science themes during the process of investigation, describe climate, weather, ocean currents, soil movements and changes in the forces acting on the earth  <b>E.8.4</b> Using the science themes, analyze the influence living organisms have had on the earth's systems, including their impact on the composition of the atmosphere and the weathering of rocks	1. Chapter Project: Design and build a volcano 2. Section Quizzes and Chapter Test 3. Content labs 4. Content map for each section	1. Identify where Earth's volcanic regions are found and explain why they are found there. 2. Describe and explain what happens when a volcano erupts and the two types of eruptions. 3. Identify some hazards of volcanoes. 4. Identify types of volcanic activities other than eruption. 5. Identify landform that lava creates on Earth's surface.	1. Instruction on Material 2. Guided Practice 3. Independent Practice 4. Projects 5. Content Labs 6. Content Maps	Prentice Hall; Science Explorer: Inside Earth
	December - January	<b>Science Fair Project:</b> Students will plan and execute a science fair project. They will follow the five steps of the scientific method and apply what they had learned in science. Students must submit a research to support their science fair project. In general, all students must follow the guidelines of the MRSEF.	<b>Science Standard C: Science Inquiry</b> <b>C.8.1</b> Identify* questions they can investigate* using resources and equipment they have available <b>C.8.2</b> Identify* data and locate sources of information including their own records to answer the questions being investigated <b>C.8.3</b> Design and safely conduct investigations* that provide reliable quantitative or qualitative data, as appropriate, to answer their questions <b>C.8.4</b> Use inferences* to help decide possible results of their investigations, use observations to check their inferences <b>C.8.5</b> Use accepted scientific knowledge, models*, and theories* to explain* their results and to raise further questions about their investigations* <b>C.8.6</b> State what they have learned from investigations*, relating their inferences* to scientific knowledge and to data they have collected <b>C.8.7</b> Explain* their data and conclusions in ways that allow an audience to understand the questions they selected for investigation* and the answers they have developed <b>C.8.8</b> Use computer software and other technologies to organize, process, and present their data <b>C.8.9</b> Evaluate*, explain*, and defend the validity of questions, hypotheses, and conclusions to their investigations* <b>C.8.10</b> Discuss the importance of their results and implications of their work with peers, teachers, and other adults <b>C.8.11</b> Raise further questions which still need to be answered	1. Oral Presentation. 2. Display Board. 3. Project report. 4. Project research. 5. Log Book. 6. Project display.	1. Explore different science topic for the project question. 2. Plan and write a research to support you project question. 3. Start your log book following the guidelines in the student handbook. 4. Plan the experiment to test your hypothesis. Collect all needed material. 5. Collect data and write it down in graphs and tables. 6. Write your conclusion. 7. Organize your display board and write your final report. 8. Prepare oral presentation.	1. Oral Presentation. 2. Display Board. 3. Project report self and peer evaluations 4. Project research. 5. Log Book.	
February	<b>From Bacteria to Plants:</b> The composition of air change as a result of the presence living organisms. Classification group form a hierarchy in which the kingdoms are the largest group are the most general and the smallest groups species are the most specific. Differences between organisms are used as a means of classifying them into different groups. Viruses are considered to be non-living but have genetic material necessary to reproduce. The cells of bacteria differ in structure from other cells. All bacteria have a similar cellular structure. However, bacteria are divided into two kingdoms based on chemical differences. Some bacteria are producers, decomposers, or parasites.	<b>Science Standard F: Life and Environmental Science</b> <b>F.8.2</b> Show how organisms have adapted structures to match their functions, providing means of encouraging individual and group survival within specific environments  <b>F.8.3</b> Differentiate between single-celled and multiple-celled organisms (humans) through investigation, comparing the cell functions of specialized cells for each type of organism	1. Chapter Project: Unicellular Project Poster 2. Section Quizzes and Chapter Test 3. Content labs 4. Content map for each section	1. List the characteristics all living things share. 2. Identify what all living things need to survive. 3. Explain why scientists organize living things into groups. 4. Explain the relationship between classification and evolution. 5. Name and describe the six kingdoms into which all organisms are grouped. 6. Give reasons why viruses are considered to be non living 7. Describe structure and explain the multiplication of viruses and bacteria. 8. Describe ways in which bacteria cells are different from other organism's cells and name the two bacteria kingdoms. 9. List the positive roles of bacteria.	1. Instruction on Material 2. Guided Practice 3. Independent Practice 4. Projects 5. Content Labs 6. Content Maps	Prentice Hall; Science Explorer: From Bacteria to Plants	
March	<b>From Bacteria to Plants:</b> Protists are unicellular organisms that contain nuclei. Most are microscopic and are eukaryotes but they vary in size and in how they obtain food. Some protists are parasitic and can harm crops and cause disease in humans. Most fungi are made of thread like fibers called hyphae. Fungi are alike in the way they reproduce and obtain food Fungi interact with the living world in a variety of ways and obtain energy by absorbing food from living organisms.	<b>Science Standard F: Life and Environmental Science</b> <b>F.8.2</b> Show how organisms have adapted structures to match their functions, providing means of encouraging individual and group survival within specific environments  <b>F.8.3</b> Differentiate between single-celled and multiple-celled organisms (humans) through investigation, comparing the cell functions of specialized cells for each type of organism	1. Chapter Project: Unicellular Project Poster 2. Section Quizzes and Chapter Test 3. Content labs 4. Content map for each section	1. Describe the characteristic of animal-like, fungus like and plantlike protists. 2. Name the characteristics that all fungi share. 3. Describe how fungi obtain food and reproduce. 4. List the roles fungi play in the living world.	1. Instruction on Material 2. Guided Practice 3. Independent Practice 4. Projects 5. Content Labs 6. Content Maps	Prentice Hall; Science Explorer: From Bacteria to Plants	
April	<b>Motion, Energy and Forces:</b> Interactions between systems of objects are summarized in Newton's three laws of motion and the law of gravity. This includes interactions within the system of objects known as solar system. Students design a scooter based on Newton's principles of motion. Balanced and unbalanced forces, inertia, friction, and momentum are discussed as students applied Newton's three laws of motion.	<b>MOTIONS AND FORCES</b> <b>D.8.5</b> While conducting investigations, explain the motion of objects by describing the forces acting on them  <b>D.8.6</b> While conducting investigations, explain the motion of objects using concepts of speed, velocity, acceleration, friction, momentum, and changes over time, among others, and apply these concepts and explanations to real-life situations outside the classroom  <b>D.8.7</b> While conducting investigations of common physical and chemical interactions occurring in the laboratory and the outside world, use commonly accepted definitions of energy and the idea of energy conservation	1. Chapter Project: Build a Scooter 2. Section Quizzes and Chapter Test 3. Content labs 4. Content map for each section	1. State Newton's three laws of motion. 2. Define inertia, force, mass, acceleration and identify the relationship between force and acceleration. 3. Describe friction and identify the factors that determine the friction force between two surfaces. 4. Explain how mass differ from weight. 5. Define and calculate momentum and state the law of conservation of momentum.	1. Instruction on Material 2. Guided Practice 3. Independent Practice 4. Projects 5. Content Labs 6. Content Maps	Prentice Hall; Science Explorer: Motion, Forces and Energy	

May

**Motion, Energy and Forces:** Matter is composed of moving particles. A liquid or fluid is a form of matter with distinct properties. Different forms of matter have different physical properties, such as pressure and density. The movement of a fluid affects its pressure on an object. When the forces of fluids pressure are confined they are equally transmitted to objects. Students learn how the contribution of scientists Pascal and Bernoulli improved our understanding of fluid pressure and the motion of fluids. As students design small-scale boats they take constraints into account and propose solution to improve their designs. Modeling the rotation of a lawn sprinkler allows students to think about the application of pressure and forced to making sprinkler spin.

**MOTIONS AND FORCES**

**D.8.5** While conducting investigations, explain the motion of objects by describing the forces acting on them

**D.8.6** While conducting investigations, explain the motion of objects using concepts of speed, velocity, acceleration, friction, momentum, and changes over time, among others, and apply these concepts and explanations to real-life situations outside the classroom

**D.8.7** While conducting investigations of common physical and chemical interactions occurring in the laboratory and the outside world, use commonly accepted definitions of energy and the idea of energy conservation

- 1. Chapter Project: Build a small scale boat
- 2. Section Quizzes and Chapter Test
- 3. Content labs
- 4. Content map for each section

- 1. Define and calculate pressure.
- 2. State and apply Archimedes', Pascal's, Bernoulli's principal.
- 3. Recognize that pressure decreases at higher altitudes and increase at greater depth.
- 4. Explain how hydraulic system works.
- 5. Define the buoyant force and its effect.
- 6. Explain how the density of an object determines whether it floats or sinks.

- 1. Instruction on Material
- 2. Guided Practice
- 3. Independent Practice
- 4. Projects
- 5. Content Labs
- 6. Content Maps

Prentice Hall; Science Explorer: Motion, Forces and Energy

Timeline	Themes/Enduring Understandings/Essential Questions for the Unit	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
1st Quarter	<p>Students study the development and use of the microscope in the history of cell development. Students explore the microscope and how to make different types of microscopic slides</p> <p>Students investigate how various materials enter or leave the cell. Students compare the plant and animal cells. Students summarize the cell theory and cell structure.</p> <p>Students describe the most important groups of organic compounds found in living things.</p>	<p>G.8.1</p> <p>G.8.2</p> <p>G.8.3</p> <p>F.8.1</p> <p>F.8.2</p> <p>F.8.3</p> <p>Standard C</p> <p>G.8.1</p> <p>G.8.2</p> <p>G.8.3</p>	<p>Microscopic slide lab.</p> <p>2. Microscope parts presentation poster.</p> <p>3. Cell theory concept maps.</p> <p>Quizzes and tests</p> <ul style="list-style-type: none"> <li>Projects</li> <li>Laboratory experiences &amp; reports</li> <li>Research and class presentations</li> <li>Performance assessment (inquiry focused)</li> </ul>	<p>1. Explain how the invention of the microscope contributed to scientists understanding of living things.</p> <p>2. State the three points of the cell theory.</p> <p>3. Describe how a light microscope works, including how a lens magnifies an object. Identify the role of a cell membrane and nucleus in the cell.</p> <p>2. Describe the functions performed by other organelles in the cell.</p> <p>3. Compare bacterial cell with plant and animal cells.</p> <p>4. Describe the role of specialized cells in many celled organism.</p>	<p>Scavenger Hunt for living nonliving and once-living things</p> <p>Microscope LAB</p> <p>Classifying V N C GERM booklet for cell organelles.</p> <p>2. Cell analogy poster and presentation.</p> <p>3. Cell Ice cream model.</p> <p>4. Cell model presentations.</p> <p>5. Simulation of the cell structure.</p> <p>6. Quizzes and chapter test.</p>	<p>Prentice Hall: <a href="#">Science Explorer</a> Units 1-20</p>
2nd Quarter	<p>Through out this unit, students learn that the bodies of humans are organized into cells, tissues, organs and organ systems. In addition, students identify the cell as the basic unit of structure and function of living things. Tissues have specialized jobs and the body systems that interact with one another. Students learn about component of wellness and decision making process to determine if something is good for their health.</p> <p>Students will compare the Theory of evolution to the creation of life in Qura'n and sunnah</p>	<p>F.8.7</p> <p>F.8.8</p>	<p>Quizzes and tests</p> <ul style="list-style-type: none"> <li>Projects</li> <li>Laboratory experiences &amp; reports</li> <li>Research and class presentations</li> <li>Performance assessment (inquiry focused)</li> </ul>	<p>Identify the functions of each system in the human body. Explain the function and structure of the main organs in the human body.</p> <p>List some common injuries or disease with each system. Identify and describe different methods of how to take care of each system in the human body. Describe the relationship between all the systems in the human body and how they interact to maintain a healthy body.</p> <p>Summarize the theory of evolution and create a timeline describing the development of the theory. Compare the theory of evolution and the story creation in Qura'n. Create a visualize representation of what I do students believe.</p>	<p>Investigation posters.</p> <p>Investigation packet.</p> <p>Web pages and Power Point presentations.</p> <p>Concept map for each system.</p>	<p>Prentice Hall: <a href="#">Science Explorer</a> Units 1-20</p>
3rd Quarter	<p>Students will plan and execute a science fair project. They will follow the five steps of the scientific method and apply what they had learned in science. Students must submit a research to support their science fair project. In general, all students must follow the guidelines of the MRSEF.</p> <p>How can resting and moving energy continually interchange?</p> <p>How are mixtures, compounds and elements defined?</p>	<p>Standard C: Science Inquiry</p> <p>D.8.1</p>	<p>Oral Presentation.</p> <p>Display Board.</p> <p>Project report.</p> <p>Project research.</p> <p>Log Book.</p> <p>Project display..</p> <p>Building a model for certain element.</p> <p>Oral presentation of the model.</p> <p>Performance task.</p>	<p>Explore different science topic for the project question.</p> <p>Plan and write a research to support you project question. Start your log book following the guidelines in the student handbook.</p> <p>Plan the experiment to test your hypothesis. Collect all needed material.</p> <p>Collect data and write it down in graphs and tables.</p> <p>Write your conclusion. Organize your display board and write your final report.</p> <p>Prepare oral presentation</p> <p>Distinguish between chemical and physical changes of matter.</p> <p>Identify characteristics properties of matter and explain their uses. Compare mixtures and pure substance and describe elements and compounds.</p> <p>Explain the difference between weigh and mass.</p> <p>Calculate the density of substances using SI units for mass</p>	<p>Students will plan and execute a science fair project. They will follow the five steps of the scientific method and apply what they had learned in science. Students must submit a research to support their science fair project. In general, all students must follow the guidelines of the MRSEF.</p> <p>Matter can undergo changes physical changes alter the form of a substance but not its identity. Chemical changes produce new substances. Matter may be pure substances or mixtures. Elements are the simplest form of pure substances from which other substances are made. Atoms are the smallest particles of the elements, and they can combine to form molecules. Substances can be made to change state by adding or removing energy.</p>	<p>Prentice Hall: <a href="#">Science Explorer</a> Units 1-20</p>
4th Quarter	<p>A chemical reaction changes the original reactants into new substances with different properties. The types of atoms and how they are joined determine the properties of a substance. Elements combined to form compounds. Molecules are made of atoms bonded together. Chemical reactions produce new substances. Different kinds of reactions may be classified by the types of changes substance undergo. Chemical reactions involve changes in energy that may be exothermic or endothermic. Mass is always conserved in chemical reaction.</p> <p>Chemical equations using symbols and formulas to represent changes in substances</p>	<p>D.8.3</p> <p>D.8.2</p>	<p>Quizzes and tests</p> <ul style="list-style-type: none"> <li>Projects</li> <li>Laboratory experiences &amp; reports</li> <li>Research and class presentations</li> </ul>	<p>Define and compare elements, compounds, mixtures, atoms and molecules.</p> <p>2. Compare chemical changes and physical changes.</p> <p>3. Explain how chemical bonds are changed during chemical reaction.</p> <p>4. Identify evidence of chemical reaction.</p> <p>5. Describe the information</p>	<p>1. Chapter project: Make your own dye.</p> <p>2. Oral presentation of the</p>	<p>Prentice Hall: <a href="#">Science Explorer</a> Units 1-20</p>

<p>during reaction.          Acids and bases cause predictable color changes when in contact with indicators. Acids and bases form salts when they react together. Food is broken down into smaller particles through mechanical and chemical digestion. When solute dissolves in a solvent, the solute particles separate and become surrounded by solvent particles. Acids and bases produce ions in water solution. Acids produce hydrogen ions, and bases produce hydroxide ions. The solubility of most solids</p>		<p>presentations          • Performance assessment (inquiry focused)</p>	<p>conveyed in chemical equations.          6. Apply the principle of conservation of mass to balancing chemical equations.          7. Identify and describe the three categories of chemical reaction. Define and compare solutions and suspensions.</p>	<p>project.</p>	
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