

5th Grade Science Scope and Sequence

Week/ Day	Topic	Objectives	Lesson Development	Sample Activities	Resource/ Text Alignment
	How Scientist Work	To learn the steps of the Scientific Method	Construct a permanent display focusing on the sequence of steps of the scientific method.	Use a video on Scientific Method (If available in library)	X-XII
	Process Skills in Science	To familiarize students with process skills and vocabulary words used in all science communication.	Read and discuss pages X-XII		
	Process Skills in Science		Read XIII-XXV	Create a permanent word wall with process skill words to refer to all year	XIII-XXV
	Process Skills in Science		Use overhead “Process Skills” from Harcourt transparencies packet provided	Student made vocabulary list or flash cards.	
	Reading to Learn Science	To help students to understand the purpose of the reading by recognizing the titles, headings, pictures, captions, and vocabulary as important parts to their understanding of the written materials	Create a teacher overhead of pages XVIII- XX to use in discussing reading strategies with students as they follow in their book		
	Reading to Learn Science		Read and review page XXI in text.		
	Using Writing in Science	To help students realize that writing of various forms can be incorporated into the learning of science.	Use TR book pages 49-61 (tie with Language Arts)		

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	<p>Using Numbers for Measurement and Interpreting Data in Science</p> <p>Safety in Science</p> <p>Living/ Non-Living</p> <p>Cell Structure and Function</p>	<p>To help students learn how scientists use numbers to collect, display and interpret data.</p> <p>To have students recognize the importance of safety in science.</p> <p>Introduce to the students the different characteristics of living vs non-living things</p> <p>Identify the different structures and functions of a plant cell and an animal cell.</p> <p>Students will be able to compare and contrast the cells as well as draw and label each type of cell.</p> <p>Distinguish between single cell and multi-cell organisms.</p>	<p>Read XXII – XXIII (Good place to discuss Mean, Median, Mode, and Range.</p> <p>Read and discuss page XXIV</p> <p>Discuss and record 6 life processes 1) getting energy 2) using energy 2) reproducing 4) growing 5) getting rid of waste 6) reacting to outside change.</p> <p>Read and discuss A6 – A9 (teacher guided discussion of each structure)</p> <p>Fill in Venn diagram then use this as a writing assignment (4-square)</p> <p>Students use flash cards to study then develop a game</p> <p>All living organisms are one or the other- refer back to all cells must be able to do the 6 life processes.</p>	<p>Copy Workbook page WBV-VI for students to keep in notebook.</p> <p>Do a room display of these processes</p> <p>Observe onion cells</p> <p>Micro slides of animal cells (available in Science Order Catalogs)</p> <p>View Internet pictures of cells</p> <p>Students draw, color, and label both cells</p> <p>View various cell slides</p>	<p>XXII – XXIII</p> <p>R2 – R5</p> <p>XXIV</p> <p>WB V-VI</p> <p>See background A3</p> <p>A6 – A9</p> <p>WB 2 – 3</p> <p>WB 7 – 9</p> <p>TR 55, 93, 165</p> <p>Mini-lesson A1 – 1</p> <p>Process Skills A3-1</p> <p>Process Skills A1-1</p>

Week/ Day	Topic	Objectivities	Lesson Development	Sample Activities	Resource/ Text Alignment
	Cell Structure and Function (cont.)	<p>Develop Graphing Skills</p> <p>To determine how cells receive their nutrients and water.</p> <p>Assessment</p> <p>To relate cells, tissues, organs, and systems</p>	<p>Introduce the 5 Kingdoms of living organisms emphasizing that monerans are one celled organisms (bacteria)</p> <p>Teaching the use of X and Y axis and how to follow Coordinate directions.</p> <p>Introduce diffusion and osmosis by covering topics, pictures, vocabulary, and text</p> <p>Using writing in Science. Students must write in complete sentences.</p> <p>View pictures or slides of animal tissue, specifically muscle cells: voluntary muscles (skeletal), involuntary (smooth) and cardiac (heart)</p> <p>Develop vocabulary</p>	<p>Teacher should provide pictures or encourage students to bring in pictures of representatives of each kingdom.</p> <p>Graphing a cell. (graph paper)</p> <p>Read A10-A11</p> <p>Celery Experiment A12</p> <p>Small groups observe food coloring dropped into warm water</p> <p>Writing</p> <p>Flash cards</p>	<p>A 38 – 41</p> <p>Text</p> <p>Diffusion Experiment</p> <p>Page A13</p> <p>Lesson 2 Graphic Organizer</p> <p>Text A14-A15</p> <p>WB 7-8</p> <p>Text Video A</p>

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	Cell Structure and Function (cont.)	<p>To relate how systems are needed to work together to allow the whole organism to function.</p> <p>Assessment</p> <p>Continue Systems</p> <p>Assessment Lesson 3</p> <p>Chapter 1 Assessment</p>	<p>Relate tissues to organs and organs to systems by continuing with pages A16-A21</p> <p>Circulatory, Respiratory, Digestive, Excretory Systems</p> <p>Have Students answer questions in complete sentences.</p> <p>Muscular System</p> <p>Present and explain</p> <p>Use skeleton to identify bones</p> <p>Develop Vocabulary</p> <p>Write a sensory poem</p> <p>Have students write answers in complete sentences</p> <p>Assessing Vocabulary</p> <p>Test Prep</p>	<p>Squeezing Sponge- Wet sponge then squeeze out extra to show waste water not needed for the sponge to still be wet.</p> <p>Writing</p> <p>Student Activities</p> <p>Overhead</p> <p>Graphic Organizer</p> <p>Flash Cards</p> <p>Writing</p>	<p>A16 – A21</p> <p>WB10</p> <p>Transparency A1-2</p> <p>WB11 A21</p> <p>A22-23 or WB12</p> <p>A1-A3</p> <p>WB1</p> <p>TR book A14-15</p> <p>WB18</p> <p>A27</p> <p>WB16</p> <p>WB17 A22 – A23</p>

Week/ Day	Topic	Objectives	Lesson Development	Sample Activities	Resources/ Text Align.
	Heredity and Reproduction	<p>Introduce growth and heredity for plants and animals (Unit A, Ch 3, Les. 1)</p> <p>To determine how plants and animals grow by mitosis and meiosis</p>	<p>Read and discuss titles, graphs, fast facts and vocabulary</p> <p>Organize facts and processes</p> <p>Have students observe, compare, and conclude information on mitosis</p> <p>Review of observing cell parts</p> <p>Develop interest and math skills</p> <p>Develop vocabulary with various strategies</p> <p>Discuss asexual and sexual reproduction</p> <p>Present visuals of mitosis and meiosis</p> <p>Discuss WB 40 after studying plant and animal cells</p> <p>Use modeling meiosis as a teaching tool rather than an assessment</p> <p>Students will create two flow charts for the stages of mitosis and meiosis. Then write a paragraph to explain each.</p> <p>Assess students understanding of content</p>	<p>Graphic Organizer Transparency</p> <p>Make slides or study computer images of cell mitosis and meiosis</p> <p>Process Skill Tip Transparency</p> <p>Reading to Learn</p> <p>Math Link</p> <p>Voc. Activities</p> <p>Yeast growth with warm water and sugar</p> <p>Flow Chart</p> <p>Review- write in complete sentences</p> <p>Study Guide</p>	<p>A60-61</p> <p>WB37 A3</p> <p>A62-63 WB 38-39</p> <p>TM A63 A1-3</p> <p>A64-69</p> <p>A65</p> <p>TR A65</p> <p>AG 20-21</p> <p>TR 54</p> <p>A69</p> <p>WB42</p>

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Week/ Day	Topic	Objectives	Lesson Development	Sample Activities	Resources/ Text Align.
	<p>Heredity and Reproduction cont.</p> <p>CLASSIFYING PLANTS</p> <p>Plants are living organisms which produce food for themselves and other organisms. Plants are known as PRODUCERS in the interaction of living things.</p> <p>Unit A</p>	<p>Compare the traits of parents and their offspring (Unit A, Chap. 3, Les. 3)</p> <p>Describe two main groups of plants</p> <p>To recognize how the various structures of a vascular plant are associated with food production for the plant (photosynthesis)</p> <p>To describe how various parts of vascular plants provide food for other living organisms</p> <p>Review Scientific Method</p>	<p>Students should understand that every characteristic about their bodies was inherited from both their mother and their father</p> <p>Read to Learn- Cover headings, graphs, vocabulary, and what we want to learn</p> <p>Read pages 78-79 to develop inherited, dominate, and recessive traits.</p> <p>Read 80-81</p> <p>Concept and Vocabulary</p> <p>Assessment</p> <p>Compare vascular and non-vascular plants</p> <p>Introduce chapter 4 of text - Harcourt Science</p> <p>Have available 6 small potted plants for students to observe</p> <p>Develop experiment over a period of days</p>	<p>Inherited Characteristics</p> <p>Graphic Organizer Transparency</p> <p>Develop Vocabulary</p> <p>Vocabulary Flash Cards</p> <p>Hands on Activities</p> <p>Find Computer references on DNA and Genes</p> <p>Review</p> <p>Read and discuss</p> <p>Discuss and review common parts of a plant and the purpose of each part</p> <p>“Investigate”</p>	<p>A76-77 WB 48-49</p> <p>WB 37 A3</p> <p>A76-81 TM A 79</p> <p>TM A80</p> <p>WB52-53</p> <p>A86-87 AG19 A50-52 WB34</p> <p>A 88-89</p> <p>A90-91 WB 56-57</p>

	Experiment	and observe process		Use “Mini Lesson” Plants and Light	Trans A4--1 (TM)A1i-A1j
Week/ Day	Topic	Objectives	Lesson Development	Sample Activities	Resources/ Text Align.
	Plant parts (cont.) Food Production of Plants	Three basic parts of a vascular plant	Read with class - emphasize 3 basic parts of plants Divide students into three groups.(Roots, Stems and Leaves). Each group is assigned that section to read and share with the class.	Discuss “Find Out” Go over vocabulary for recognition Flash Cards Group reading and sharing Provide each group with questions from TM A 93-97	A92 TR manual A93-94 A94-95 A96
	Structures and Functions of Plants Roots	Organize Information To determine the functions of roots and how they help plants to adapt to changes in the environment.	Individually or as a group fill in the respective parts of graphic organizer and share answers with the class Roots anchor, take in water and nutrients, and store food for the plant, as well as other organisms. Provide a variety of roots, which provide food for man, for children to observe and discuss.	Graphic organizer Plant overheads of roots, stems and leaves	WB 55 Transparency A4 Supply catalogs or make from worksheets
	Stems	To determine the functions of stems. To recognize that the xylem and phloem tubes are necessary parts of a	Teacher demonstration or group activity. Emphasize the scientific method.	“Investigation Challenge” Water Movement in Stems)	TM - A94 Also see A48-49 WB 30-31-32

	Leaves	<p>vascular plant.</p> <p>Describe the function of leaves. Teach the process of photosynthesis, emphasizing how plants produce food and why they store food.</p> <p>Recognize the meaning of vocabulary terms</p> <p>Describe the function of the stomata in a leaf.</p> <p>Review</p> <p>Informal Assessment</p>	<p>Use pictures, graphics, or overheads to illustrate the process of photosynthesis and how it takes place. Identify that a plant must have water, sunlight and carbon dioxide.</p> <p>Breakdown the meaning of individual syllables, in order to better understand the meanings of the words.</p> <p>Why and How do leaves give off excess water?</p> <p>Complete Lesson 2 of Graphic Organizer for Chapter 4</p> <p>Answer questions in complete sentences</p>	<p>Draw- have students draw a leaf and illustrate the 3 factors necessary for photosynthesis to take place</p> <p>Syllables</p> <p>Plants and Water Leaf Cast</p> <p>Graphic Organizer</p> <p>Review</p>	<p>Excellent example in Scotts Forman “Discover Science” p.43</p> <p>TM A96</p> <p>TR 66 TR 68</p> <p>WB 55 Trans A4</p> <p>A97</p> <p>A97</p> <p>A98-99 WB 61-62</p>
	Nonvascular Plants, parts and functions	<p>Describe parts and functions of nonvascular plants</p>	<p>Allow students to observe, infer and compare the plant parts with the plant parts of the vascular plant.</p> <p>Be specific to point out the lack of specific stems and leaves, and also identify the spores (used for reproduction) if available.</p>	<p>“Investigate” Nonvascular Plants</p>	

	<p>Reproduction of nonvascular plants and <u>simple</u> vascular plants</p>	<p>To determine that some plants reproduce from spores</p>	<p>Have available examples of mosses and ferns for students to observe and compare the differences in structure as well as to identify the spores as the reproductive part of the plant.</p>		
	<p>Reproduction of vascular plants. (Cone bearing and flowering plants)</p>	<p>Compare seed bearing plants such as pine cones and fruit plants that develop from flowers.</p>	<p>Have available examples for students to observe and compare.</p>	<p>“Investigation Challenge” Comparing Seeds</p>	<p>TM A101</p>
		<p>Develop better understanding of vocabulary terms.</p>	<p>Read and discuss information given in TMA102 for better understanding of terms.</p>	<p>Flashcards</p>	<p>TR manual</p>
	<p>Functions of a flower in plant reproduction.</p>	<p>Identify the various parts of a flower that are used in the development of a seed.</p>	<p>Identify the location and use of the stamen (male part of the flower, containing</p>		

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	Purpose of pollination and fertilization in the reproduction of a seed producing plant	Determine the reason that a flower must be pollinated in order for reproduction to take place.	Develop purpose of pollination by explaining that the pollen is the sperm that fertilizes the egg, in order to produce the seed needed in order to reproduce a new plant.	Overhead pictures made from handouts.	A105
	Function of a cone to reproduce a plant.	Determine how and where a seed is produced in a cone.	Develop understanding by reading and discussing gymnosperms and angiosperms and how they are alike and different.	Worksheets and overheads Dissect a pinecone	
	Germinating seeds	Determine the effects of water, light, heat, and placement of seed when germinating.	“Investigation Challenge”	Germinating Seeds Experiments	

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	Atmospheric Cycles	<p>Analyze data obtained from studies of atmospheric conditions (air pressure, wind speed, & precipitation)</p> <p>Distinguish between weather and climate.</p> <p>Predict weather conditions based on an analysis of atmospheric data.</p> <p>Identify how various geographic features affect weather and climate.</p> <p>Demonstrate components and processes of water cycle.</p> <p>Identify basic features of the water cycle</p> <p>Analyze how temperature effects evaporation, condensation, precipitation.</p>	<p>Measuring weather conditions</p> <p>What causes weather?</p> <p>What is climate and how does it change?</p> <p>Weather tools</p> <p>Cloud types</p> <p>Local winds</p> <p>Prevailing winds</p> <p>Fronts</p>	<p>Field trip- Doppler Radar, National Weather Service in Morristown</p> <p>TH 63 – 68 El Nino</p> <p>C70-71 Sun’s Energy heats unevenly</p> <p>C89 – How strong is air pressure?- book, bag, straw</p> <p>Analyze data of weather C78-C79 WB192-193 logsheet for data</p> <p>Writing WB198</p> <p>WB 194 Compare and Contrast</p>	<p>Transparency C3 Wind & Climate</p> <p>Transparency B1 and B2 Observe & Infer</p> <p>C82 Biomes</p> <p>Library Books on weather, climate, storms, water cycle, fronts, clouds.</p> <p>Weather Videos (Preview the video and write out questions kids can answer as they watch or after the video)</p>

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	Earth and its Place in the Universe	<p>Distinguish among the planets according to specific characteristics.</p> <p>Demonstrate how moon phases occur.</p> <p>Explain why the moon appears to change shape.</p> <p>Identify and arrange the phases of the moon in the correct sequence.</p> <p>Explain the difference between rotation and revolution.</p> <p>Identify the force that pulls objects towards earth.</p> <p>Recognize that the appearance of an object in the sky is affected by its distance from earth.</p>	<p>Moon Phases</p> <p>Features</p> <p>Solar eclipse</p> <p>Lunar eclipse</p> <p>Space exploration</p>	<p>Compare/contrast the earth and moon- Venn diagram</p> <p>Work Math problems with earth days vs. planet days</p> <p>Field trip to Science Discovery Center at the Knox Zoo</p> <p>D12 – D13 How earth, sun, moon move through space- use WB228 to draw conclusions</p> <p>Read mini-lesson D24 – D25 use transparency D1-3</p> <p>WB 240 WB 245 WB 246-247</p>	<p>Relate to Reading Text story “Follow the Drinking Gourd”</p> <p><u>Our Solar System</u>, by Seymour</p> <p>Science Online</p> <p>Workbook</p> <p>NASA website</p> <p>Unit D Text</p>

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	Earth Features	<p>Explain and identify how certain forces cause changes in the earth's geological features (wind, water, plate tectonics)</p> <p>Recognize the impact of extreme natural events.</p> <p>Describe the process of soil formation.</p> <p>Select the soil characteristics that best support plant growth.</p> <p>Explore ways technological advances enabled people to overcome geographic barriers.</p> <p>Recognize that the age of earth materials can be determined by their position in rock layers</p> <p>Identify characteristics of the earth's layers</p>	<p><u>Surface processes</u> Weathering Erosion Deposition</p> <p><u>Land form change</u> Water change Wind Ice & gravity</p> <p>Processes that begin in Earth's interior Mountain building Volcano formation Earthquakes</p> <p>Stages in Continental Drift Pangea Gondwana-Laurasia Present Earth Evidence is similar rock layers and fossils</p> <p>Use vocabulary Key words on C32a-C32b</p> <p>Use Teacher Planning Guide</p>	<p>Use TH 57-60 Limestone Caves</p> <p>Field trip to Forbidden Caverns</p> <p>Build your own Stalactites and Stalagmites</p> <p>Classify Mineral Properties page C34-35</p> <p>Identifying Rocks page C40-41</p> <p>Draw and label the layers of the earth</p> <p>WB 276- Atoms and Elements</p>	<p>WB145</p> <p>WB153</p> <p>WB154</p> <p>WB155</p> <p>WB160</p> <p>WB161</p> <p>Make & use models of the Earth (Can use biscuit dough, clay, or playdough)</p> <p>Transparencies C1-C3</p> <p>Posters from P&S School Supply on Landforms and Weather</p>

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	Earth Resources	<p>Choose the appropriate use for an earth material (fuel, monument, and house foundation)</p> <p>Select a diagram that illustrates the most appropriate use of earth material</p> <p>Describe the process of soil formation</p> <p>Select the soil characteristics that best support plant growth</p> <p>Recognize the impact of society's use of nonrenewable resources over time</p>	<p>C112- Human activities affect the shore</p> <p>TH 69 – TH74 Submersibles</p> <p>C116 – 121 Ocean Resources</p> <p>C108 – 109 Effect of waves on beach erosion</p>	<p>Use of kits found in school libraries dealing with Recycle, Renew, & Reuse</p> <p>Writing an opinion paper on for or against using jetties to help the shore TR57</p> <p>Have students bring in plastic and paper recycling materials for one week to show the amount of material that can be reused that is normally thrown in the trash.</p>	<p>*Covered in unit B also</p> <p>TC4</p> <p>WB 199</p> <p>Graphic Organizer on Exploring Oceans</p>

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	Forces and Motion	Determine the effects that gravity has on objects found on or near the earth's surface	Determine everyday forces such as gravity, friction, and motion, and how they effect the earth	Field trip to the Science Discovery Center	Web Quest Human Race
		Learn how we use simple machines	Students can bring in cars and see how that car rolls on different slopes and surface frictions	WB 290 – 291 WB292 WB302 WB317	F6 – F9 Science Online Magnetism game
			Discuss and list simple machines that we use everyday to make our lives easier.	Build a simple machine	WB306
			Write an explanation of a simple machine and its everyday use	Calculate work=distance x force	
	Energy	Recognize how various materials conduct heat and ways that energy is transferred	Use Venn diagram to write compare and contrast paper on potential & kinetic	List examples on board(bow & arrow)	F61 F64
		Compare and contrast potential and kinetic energy	Discuss what pots are made of and why	Pencil in a glass of water	Transparency D1-D3
		Describe how lenses refract light	Fan, light, car, generators, dams and how energy changes forms	Make circuits	WB328
		Identify the poles of a magnet and its magnetic field	Insulator or conductor? Which is best during a storm?	Discuss the different types of circuits at the school and why several lights come on with one switch	WB330
		Compare and contrast series And parallel circuits	Venn Diagram to compare concave and convex lenses		WB340

