



7th Grade Science Scope & Sequence Darul Arqam North

1st Quarter

Resources:

Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS)
Week 1	Asking About Life Scientific Method	<ol style="list-style-type: none"> 1. Describe three methods of investigation. 2. Identify benefits of science in the world around you. 3. Describe five jobs that use science. 4. Explain why scientists use scientific methods. 5. Determine the appropriate design of a controlled experiment. 6. Use information in tables and graphs to analyze experimental results. 7. Explain how scientific knowledge can change. 	Scientific Investigation and Reasoning 7.1, 7.2, 7.3, 7.4 (Implemented throughout instruction and are not taught in isolation) 7.1 A, B, 7.3, 7.4
Week 2	Scientific Models Tools, Measurement, and Safety	<ol style="list-style-type: none"> 1. Give examples of three types of models. 2. Identify the benefits and limitations of models. 3. Compare the ways that scientists use hypotheses, theories, and laws. 4. Collect, record, and analyze information using various tools. 5. Explain the importance of the International System of Units. 6. Calculate area and density. 7. Identify lab safety symbols, and demonstrate safe practices during lab investigations. 	7.2 A, B, 7.3, 7.4
Week 3	The Properties of Matter Physical Properties Chemical Properties	<ol style="list-style-type: none"> 1. Describe the two properties of all matter. 2. Identify the units used to measure volume and mass. 3. Compare mass and weight. 4. Identify six examples of physical properties of matter. 5. List six examples of physical changes. 6. Explain what happens to matter during a physical change. 7. Describe two examples of chemical properties. 8. Explain what happens during a chemical change. 9. Distinguish between physical and chemical changes. 	7.6 B



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Week 4	Photosynthesis	<ol style="list-style-type: none"> 1. What role does the Sun play in the interaction of matter and energy during photosynthesis? 2. What forms of energy conversions occur during the process of photosynthesis? 3. What is photosynthesis? 4. To recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis? 	7.5 A
Week 5	Cycling of matter	<ol style="list-style-type: none"> 1. How can the decay of biomass be explained and related to the carbon, nitrogen and water cycles? 2. How can you use a food web example to demonstrate and explain the cycling of carbon within living systems? 3. How can you use the decay of biomass in a compost bin to demonstrate and explain the cycling of nitrogen within living systems? 4. Why is the water cycle a key component in the cycling of matter within living systems? 5. To demonstrate and explain the cycling of matter within living systems such as in the decay of biomass in a compost bin. 	7.5B
Week 6	Elements, Compounds & Molecules	<ol style="list-style-type: none"> 1. Describe pure substances. 2. Describe the characteristics of elements, and give examples. 3. Explain how elements can be identified. 4. Classify elements according to their properties. 5. Explain how elements make up compounds. 6. Describe the properties of compounds. 7. Explain how a compound can be broken down into its elements. 8. Give examples of common compounds. 	7.6 A, 7.6C



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Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS)
Week 7	Organic Compounds	<ol style="list-style-type: none"> 1. What are Organic Compounds? 2. Explain why there are so many organic compounds. 3. Identify and describe saturated, unsaturated, and aromatic hydrocarbons. 4. Describe the characteristics of carbohydrates, lipids, proteins, and nucleic acids and their functions in the body. 5. What are some common properties that characterize organic compounds as they are naturally formed and as they are changed during the digestive process in organisms? 6. What element most commonly distinguishes organic compounds from inorganic compounds? 7. What combination of elements commonly form organic compounds? 	7.6A
Week 8	Physical and Chemical Changes Molecules	<ol style="list-style-type: none"> 1. How are physical changes different from chemical changes of matter in the digestive system? 2. What are some examples of physical changes that occur during the digestive process? 3. What evidence indicates that a physical change in matter has occurred? 4. What are some examples of chemical changes that occur during the digestive process? 5. What evidence indicates that a chemical change in matter has occurred? 6. To distinguish between physical and chemical changes in matter in the digestive system. 7. What are the molecules that result during the digestion of carbohydrates, proteins, and lipids (fats)? 	7.6 B, 7.6 C



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Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS)
Week 9	Work and Simple Machine	<ol style="list-style-type: none">1. What is the scientific meaning of work?2. What units are used to measure work?3. How is work calculated?4. How does the use of simple machines affect force and distance when work is done?5. How can situations where force is applied but no work is done be demonstrated?	7.7 A

2nd Quarter

Resources:

Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS)
Week 1	Energy Changes Temperature	<ol style="list-style-type: none">1. Explain what energy is.2. Describe the forms energy takes.3. Compare and contrast potential energy and kinetic energy.4. Distinguish between temperature and heat.5. Identify important uses of heat.6. Explain how heat moves.	7.7 B



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2nd Quarter

Resources:

Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS)
Week 2	Organisms and Energy Transfer	<ol style="list-style-type: none"> 1. Determine where chemical energy is found. 2. How can transformations of energy in the body system be illustrated? 3. What processes during digestion transform energy stored in food to energy forms needed for bodily functions? 	7.7 B
Week 3	Plant Response Forces in everyday Life	<ol style="list-style-type: none"> 1. Identify the relation between a stimulus and a tropism in plants. 2. What is homeostasis? How does an organism's response to external or internal conditions relate to homeostasis? 3. How do plants and animals respond to external stimuli? 4. How do plants and animals respond to internal stimuli? 5. Can turgor pressure be used to illustrate and demonstrate the effect of force and motion in a plant? 6. What forces can affect motion in plants? 7. How can the upward push of a seedling through soil as a result of geotropism be used to illustrate and demonstrate the effect of force and motion in a plant? 	7.7C, 7.13A, B
Week 4	Interactions within communities How ecosystems change.	<ol style="list-style-type: none"> 1. What is Ecology? 2. Explain how organisms interact. 3. Recognize that every organism occupies a niche. 4. Diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids 5. Explain how ecosystems change over time. 6. Describe how new communities begin in areas without life. 7. Compare pioneer communities and climax communities. 	7.8A, 7.5C, 7.10 C



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2nd Quarter

Resources:

Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS)
Week 5	How ecosystems change. (cont.)	<ol style="list-style-type: none"> 1. Explain how climate influences land environments. 2. Identify seven biomes of Earth. 3. Describe the adaptations of organisms found in each biome. 4. Compare flowing freshwater and standing freshwater ecosystems. 5. Identify and describe important saltwater ecosystems. 6. Identify problems that affect aquatic ecosystems. 	7.8 A, 7.10A, B
Week 6		SCIENCE FAIR PREPARATION	
Week 7		SCIENCE FAIR	
Week 8	Review / Complete lessons and activities		
Week 9	Review Benchmark		



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3rd Quarter

Resources:

Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS)
Week 1	Catastrophic Events	1. What are catastrophic events/Natural Disasters?	7.8A
Week 2	Catastrophic Events Cont.	2. How can natural events such as floods, hurricanes, and tornadoes be predicted? 3. What are some catastrophic impacts on the ecosystem caused by floods? 4. What are some catastrophic impacts on the ecosystem caused by hurricanes? 5. What are some catastrophic impacts on the ecosystem caused by tornadoes?	7.8 A
Week 4	Weathering The Nature of Soil	1. Describe the difference between mechanical weathering and chemical weathering. 2. Explain the effects of climate on weathering. 3. Explain how soil develops from rock. 4. List and explain the agents of weathering.	7.8 B
Week 5	Erosion by Gravity	1. Explain the differences between erosion and deposition. 2. Describe evidence of glacial erosion and deposition. 3. Explain how wind causes deflation and abrasion. 4. List and explain the agents of erosion	7.8 B
Week 6	Watershed	1. What is a watershed? 2. What is groundwater and how does it relate to a watershed? 3. How can you use aquifers and subsidence issues to model the effects of human activity on groundwater resources? 4. How can you diagram or model the flow of water through a watershed from a field or mountain top to a lake or ocean? 5. How can you explain and model human impact on the ecosystem using examples of point source and non-point source pollution of surface water?	7.8C



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3rd Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS)
Week 7	Characteristics of Solar system.	<ol style="list-style-type: none"> 1. What characteristics of our solar system support the existence of life? 2. How have scientists gathered data about the characteristics of distant objects in our solar system? 3. How does the distance from the Sun affect the conditions necessary for life? 4. How does the presence and composition of an atmosphere affect the conditions necessary for life? 5. How does the presence of a magnetic field affect the conditions necessary for life? 6. How does the presence of water affect the conditions necessary for life? 	7.9 A
Week 7	Accommodations for space Explorations	<ol style="list-style-type: none"> 1. What are some of the extreme conditions in space that challenge manned space exploration? 2. What are some of the key life support systems built into a space suit? 3. How does the microgravity environment in space affect astronauts' bodies? 4. What are some of the accommodations that have been developed to help astronauts move and complete tasks when working in microgravity environments in space? 5. What are some examples of technology used by astronauts to communicate and perform a variety of tasks while in space? 	7.9B
Week 8	Identification of Organisms	<ol style="list-style-type: none"> 1. What tool is used to classify and identify the vast number of living organisms from one another? 2. How can dichotomous keys be used to classify organisms? 3. What are the characteristics of a dichotomous key and how do you use it? 	7.11 A



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3rd Quarter

Resources:

Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS)
Week 9	Adaptation of Species	<ol style="list-style-type: none"> 1. How have changes in inherited traits over generations enhanced the survival of a species? 2. How can structural changes over time in living organisms enhance the survival of a species? 3. What are some physical and behavioral adaptations that have enhanced a species survival? 4. What is natural selection and how can it change a species over time? 5. How has the process of selective breeding changed food crops and domestic animals? 6. How have the internal structures of organisms adapted over time to meet specific functional needs of animals? 	7.11BC, 7.12 A



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4th Quarter			
Resources:			
Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
Week 1	Cell Structure	<ol style="list-style-type: none"> 1. Identify names and functions of each part of a cell. 2. Differentiate between structures and function of plant and animal cell organelles. 3. Explain how important a nucleus is in a cell. 4. Differentiate between prokaryotic and eukaryotic cells 5. Recognize the order of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms 	7.12D
Week 2	Function of Cell		
Week 3	Organization in Plants and Animals	<ol style="list-style-type: none"> 1. What are the levels of organization in the structure of plants and animals in order from the simplest to the most complex? 2. Why is it important to discuss levels of organization in living systems in terms of both structure and function of each level? 3. What are the relationships among cells, tissues, organs, and organ systems in plant and animal organisms? 	7.12 BC
Week 4	Organization in Animals	<ol style="list-style-type: none"> 1. Identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, and digestive 	7.12 B
Week 5	Organization in Animals	<ol style="list-style-type: none"> 1. Identify the main functions of the systems of the human organism, including the excretory, reproductive, integumentary, nervous, and endocrine systems 	7.12 B
Week 6	Genetics	<ol style="list-style-type: none"> 1. What is the hereditary process and why is it important to living organisms? 2. How are external and internal characteristics transferred from one generation to the next? 3. What role do genes and chromosomes play in the hereditary process? 	7.14 A-C



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4th Quarter

Resources:

Week	Unit/Lesson	Learning Objectives	Reporting Categories (TEKS SEs)
Week 7		Review/Catchup/final projects	
Week 8	TESTING/ Wrap up Activities/make up work		
Week 9	Final Graduation		