KNOX COUNTY FIFTH GRADE PERFORMANCE INDICATORS

	Knox County Instructional Goal	State Performance Indicator	Essential Questions
Unit A: Plants **Primary Unifying Concept: Form and Function**			
Essential Performance Indicators: 1. The student will compare and contrast the basic structures of plant and animal cells.	2.1	4.1.2	How does the plant cell differ from the animal cell?
2. The student will collect, record, and interpret information about the way plants grow, substances they contain, and the role of plants in the food web.	2.1	5.2.2	
3. The student will explain the process of photosynthesis as the food manufacturing process in plants.	4.1	5.1.2 5.3.2	Why are plants essential to life on the Earth?
4. The student will observe a plant's parts and match it with its reproductive function.	2.2	4.4.2 5.5.2	How do plants reproduce?
5. The student will investigate the life cycle of seed plants and compare how different seed plants adapt to their surroundings by observing and graphing the growth of seedlings.	3.3	4.4.3	How do plants react to different environmental conditions such as light, water, and gravity?
6. The student will identify materials that plants use to manufacture food.	4.1	5.1.1 5.1.2 5.1.3	
7. The student will select the soil characteristics that best support plant growth.	3.1	5.10.2	How does photosynthesis allow a plant to get food and energy?
Important Performance Indicators: 8. The student will distinguish between single and multicellular organisms.	1.1	5.1.3	What is the best kind of soil for plant growth?
Compact Performance Indicators: 9. The student will experiment with leaves and analyze how plants sometimes adapt to different environmental conditions.	4.2	4.5.1	
10. The student will distinguish, draw, and label the different kinds of tropisms plants exhibit.	3.1	5.3.2	

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Unit B: Ecosystems **Primary Unifying Concepts: Conservation and Change, Interactions**			
Essential Performance Indicators: 1. The student will observe, examine, and record data about ecosystems to determine that all ecosystems include living and nonliving things that interact together.	3.3	4.2.2	How does the energy flow through an ecosystem?
2. The student will examine and differentiate the populations and communities that make up an ecosystem.	4.1	5.2.2 5.5.4	What is an ecosystem?
3. The student will examine and describe how organisms obtain energy.	3.1	4.3.2	
4. The student will classify relationships among organisms.	4.1	4.2.2 5.2.2	How do living and nonliving things adapt to changes in an ecosystem?
5. The student will compare and contrast the processes and key organisms involved in the nutrient cycles.	1.2	5.2.2	
6. The student will compare different ecosystems and describe how biodiversity is being reduced.	3.3 5.1	5.2.3	What reduces biodiversity?
7. The student will describe the role of plants in the water cycle.	3.1	5.2.1 5.8.2	
8. The student will compare changes in forest growth due to an increase in human population and graph the data.	4.3 5.2	5.2.3	How do plants contribute to the water cycle?
Important Performance Indicators: 9. The student will investigate and evaluate how ecosystems change.	4.2	4.6.2	
10. The student will investigate and describe the path of energy within a food chain.	1.3	5.2.2	

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Unit C: Energy **Primary Unifying Concepts: Interactions**			
Essential Performance Indicators: 1. The student will demonstrate that potential energy can change to kinetic energy and back to potential energy.	1.2	5.14.5	How does energy change forms? How does friction help or hinder movement and the ability to do work?
2. The student will analyze the effect of friction on moving objects and identify ways of increasing or decreasing friction.	1.1	4.11.4 5.14.7	
Important Performance Indicators: 3. The student will identify different forms of energy and compare the ways energy is transferred.	1.2	4.14.1 5.14.4	

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Unit D: Light and Sound **Primary Unifying Concept: Scale and Model**			
Essential Performance Indicators: 1. The student will investigate light waves to predict and record how light travels.	3.1	5.14.7	How does light travel?
2. The student will investigate and predict the reflection and refraction of light.	2.2	5.14.7	
3. The student will observe light passing through convex and concave lenses to explain the effect on light.	2.2	5.14.7	How does the shape of a lens affect light?
4. The student will observe and demonstrate how sounds are produced and move through matter.	2.1 1.5	4.14.2	
5. The student will compare high and low sounds and identify variables that affect pitch.	3.2 1.5	4.14.2	What is the difference between reflection and refraction?
Important Performance Indicators: 6. The student will observe, describe, and classify different types of light sources.	4.1		
Compact Performance Indicators: 7. The student will predict what colors are produced by combinations of primary colored lights and conclude that an object's color is based on the light it reflects and absorbs.	4.2		How do the different types of matter affect sound?
8. The student will investigate and identify how sound can be controlled and classify materials that can control sound.	4.4 5.3		
9. The student will identify the parts of the human body involved in hearing and analyze why people's ability to hear varies.	1.2 5.3		

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Unit E: Earth's Structure **Primary Unifying Concept: Conservation and Change**			
Essential Performance Indicators: 1. The student will investigate and identify mineral specimens based on hardness, luster, color, streak, and cleavage.	2.1		How are rocks and minerals identified and classified?
2. The student will investigate and describe igneous, sedimentary, and metamorphic rocks.	1.4		What conditions cause rocks to change form?
3. The student will identify the different forces that contribute to geological change.	1.2	4.9.2 5.9.1	
4. The student will construct a model of the Earth's layers and identify the characteristics of the Earth's layers.	2.1	4.9.3 5.9.3	How do layers of rock and embedded fossils provide a link to the past?
5. The student will examine fossils to determine what information they provide about the past.	2.1	4.6.1 5.6.2	How do changes in the Earth's crust create various landforms?
6. The student will construct a model showing layers in fossil formation and investigate how fossils form.	2.1	4.6.1 4.9.3 5.6.3 5.9.2 5.9.3	What are the characteristics of the Earth's layers?
7. The student will compare the effects of movement on rock layers and describe what rock layers will look like when forced together and seen in a cutaway view.	1.3	4.9.3 5.6.3	
Compact Performance Indicators: 8. The student will observe and predict the rate of crystal growth of minerals.	2.1		

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Unit F: Earth and Space Science **Primary Unifying Concept: Scale and Model**			
Essential Performance Indicators:			How do stars and planets differ? What are comets and how do they change? What causes the moon to appear to change shape during its different phases? What are the major components of our solar system? How do the rotation and revolution of the Earth affect the appearance of stars and other objects in the sky?
1. The student will distinguish between stars and planets.	1.2	5.7.2	
2. The student will describe the characteristics of comets and how they change.	4.2	5.7.2	
3. The student will differentiate between rotation and revolution within the solar system.	1.2	5.7.4	
4. The student will recognize the components of the solar system.	1.4	4.7.1 5.7.2	
5. The student will recognize that the moon appears to change shape during its different phases.	4.2	4.7.2 5.7.1	
Important Performance Indicators:			
6. The student will identify how size, movement, and distance affect the appearance of an object in the sky.	1.4	4.7.3 5.7.5	
Compact Performance Indicators:			
7. The student will observe and identify constellations.	1.4		
8. The student will describe how different telescopes work.	2.1		