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MSAD #54 Science Curriculum

Content Area: Science
Unit: Unifying Themes

Grade: Grade K
MLR Span: PreK-2

MLR Content Standard: **A: Unifying Themes**
Students apply the principles of systems, models, constancy and change, and scale in science and technology.

*Assessment

Unifying Themes:	MLR Performance Indicators	MSAD #54 Objectives	Instructional Resources/Activities
A1 Systems	1.Students recognize that parts work together, and make up whole man-made and natural objects.	Students will:	Standards A through C are unifying themes and should be embedded in D and E. Please work to accomplish these objectives when you complete the units in standards D and E.
	a.Explain that most man-made and natural objects are made of parts.		a.Trees Unit
	b.Explain that when put together, parts can do things they could not do separately.		
A2 Models	2.Students identify models and the objects they represent to learn about their features.	Students will	
	a.Describe ways in which toys and pictures are like the real things they model.		a1.Ladybugs Unit
	b.Use a model as a tool to describe the motion of objects or the features of plants and animals.		b1. Ladybugs Unit

A3 Constancy and Change	3.Students observe that in the physical setting, the living environment, and the technological world some things change over time and some things stay the same. a.Describe the size, weight, color, or movement of things over varying lengths of time and note qualities that change or remain the same.	Students will:	a1.Trees Unit a2.Ladybugs Unit
A4 Scale	4.Students observe differences in scale. a.Compare significantly different sizes, weights, ages, and speeds of objects.	Students will:	

DRAFT

MSAD #54 Science Curriculum

Content Area: Science
Unit: Skills & Traits

Grade: Grade K
MLR Span: PreK-2

MLR Content Standard: **B. The Skills and Traits of Scientific Inquiry And Technological Design**
Students plan, conduct, analyze data from and communicate results of in-depth scientific investigations; and they use a systematic process, tools, equipment, and a variety of materials to create a technological design and produce a solution or product to meet a specified need.

Skills and Traits	MLR Performance Indicators	MSAD #54 Objectives	Instructional Resources/Activities
B1 Skills and Traits of Scientific Inquiry	1.Students conduct and communicate results of simple investigations. a.Ask questions and make observations about objects, organisms and events in the environment. b.Safely conduct simple investigations to answer questions. c.Use simple instruments with basic units of measurement to gather data and extend the senses. d.Know what constitutes evidence that can be used to construct a reasonable explanation. e.Use writing, speaking, and drawing to communicate	Students will:	a-e.All Units

	investigations and explanations.		
B2 Skills and Traits of Technological Design	2.Students use a simple design process and basic tools and materials to solve a problem or create a product. a.Describe a design problem in their own words. b.Propose a way to build something or cause something to work better. c.Use suitable tools, materials, safe techniques, and measurements to implement a proposed solution to a design problem. d.Judge how well a product or design solved a problem. e.Present a design or solution to a problem using oral, written, or pictorial means of communication.	Students will	

DRAFT

MSAD #54 Science Curriculum

Content Area: Science
Unit: Scientific & Technological Enterprise

Grade: Grade K
MLR Span: PreK-2

MLR Content Standard: **C. The Scientific and Technological Enterprise**
Students understand the history and nature of scientific knowledge and technology, the processes of inquiry and technological design, and the impacts science and technology have on society and the environment.

Scientific & Technological Enterprise	MLR Performance Indicators	MSAD #54 Objectives	Instructional Resources/Activities
C1 Understandings of Inquiry	1.Students describe the use of questions and accurate communication in scientists' work. a.Describe how scientific investigations involve asking and answering a question. b.Point out the importance of describing things and investigations accurately so others can learn about them or repeat them.	Students will	a-b.All Units
C2 Understandings About Science and Technology	2.Students recognize that people have always engaged in science and technology and that there is a difference between the natural and designed worlds. a.Recognize that people have always had problems and invented tools and ways of doing things to solve problems. b.Distinguish between objects that occur in nature	Students will	

	and objects that are man-made.		
C3 Science, Technology, and Society	No performance indicator.		
C4 History and Nature of Science	No performance indicator.		

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MSAD #54 Science Curriculum

Content Area: Science
Unit: Physical Setting

Grade: Grade K
MLR Span: PreK-2

MLR Content Standard: **D. The Physical Setting**
Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.

Physical Setting	MLR Performance Indicators	MSAD #54 Objectives	Instructional Resources/Activities
D1 Universe and Solar System	1.Students describe the movement of objects across the sky, as seen from Earth. a.Describe how the sun and moon seem to move across the sky. b.Describe the changes in the appearance of the moon from day to day.	Students will	
D2 Earth	2.Students describe the Earth's weather and surface materials and the different ways they change. a.Explain that the sun warms the air, water, and land. b.Describe the way in which weather changes over months. c.Describe what happens to water left in an open container as compared to water left in a closed container.	Students will	

D3 Matter and Energy	3.Students use observable characteristics to describe objects and materials and changes to physical properties of materials. a.Describe objects in terms of what they are made of and their physical properties. b.Describe changes in properties of materials when mixed, heated, frozen, or cut.	Students will a.observe and describe the seasonal changes of leaves.	a1.See FOSS module (Trees) TM guide for instructional activities, strategies, and assessments.
D4 Force and Motion	4.Students describe how objects move in different ways. a.Describe different ways things move and what it takes to start objects moving, keep objects moving, or stop objects. b.Give examples of things that make sound by vibrating.	Students will	

DRAFT

MSAD #54 Science Curriculum

Content Area: Science
Unit: The Living Environment

Grade: Grade K
MLR Span: PreK-2

MLR Content Standard: **E. The Living Environment**
Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter an energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.

Living Environment	MLR Performance Indicators	MSAD #54 Objectives	Instructional Resources/Activities
E1 Biodiversity	1.Students describe similarities and differences in the observable behaviors, features, and needs of plants and animals.	Students will	
	a.Describe similarities and differences in the way plants and animals look and the things that they do.	a1.observe and note similarities and differences of trees in the schoolyard. a2.identify the parts of a tree (including the size, shape, texture, and colors of leaves).	a1-a2. See Foss module (Trees) TM guide for instructional activities, strategies and assessments.
	b.Describe some features of plants and animals that help them live in different environments.	b1.learn that a tree is alive and discuss what it needs to grow and stay healthy.	
	c.Describe how organisms change during their lifetime.	c1.observe seasonal changes in the life of schoolyard trees. c2.compare changes in parts of trees through the seasons.	
		a-c.learn about ladybug's body structure, life cycle, defensive behavior, and favorite foods.	a-c.See GEMS Ladybug kit TM guide for instructional activities, strategies, and assessments.
E2 Ecosystems	2. Students understand how plants and animals depend	Students will	

	on each other and the environment in which they live.		
	a.Explain that animals use plants and other animals for food, shelter, and nesting.	a1.learn the environmental role of ladybugs and the interdependence found in nature.	a1.See GEMS Ladybugs kit TM guide for instructional activities, strategies, and assessments.
	b.Compare different animals and plants that live in different environments of the world.	b1.learn about ladybug's body structure, life cycle, defensive behavior, and favorite foods.	
E3 Cells	3.Students describe parts and wholes of living things, their basic needs, and the structures and processes that help them stay alive.	Students will	
	a.List living things and their parts.	a1-d1.learn about ladybug's body structure, life cycle, defensive behavior, and favorite foods.	a1-d1. See GEMS Ladybugs kit TM guide for instructional activities, strategies, and assessments.
	b.Explain that parts of living things are so small we can only see them using magnifiers.		
	c.List the basic things that most organisms need to survive.		
	d.Identify structures that help organisms do things to stay alive.		
E4 Heredity and Reproduction	4.Students describe the cycle of birth, development, and death in different organisms and the ways in which organisms resemble their parents.	Students will	
	a.Give examples of how organisms are like their parents and not like them.	a1-b1.learn about ladybug's body structure, life cycle, defensive behavior, and favorite foods.	a1-b1. See GEMS Ladybugs kit TM guide for instructional activities, strategies, and assessments.

	b.Describe the life cycle of a plant or animal (including being born, growing, reproducing, and dying).		
E5 Evolution	5.Students describe similarities and differences between present day and past organisms that helped the organisms live in their environment. a.Describe some organisms' features that allow the organisms to live in places others cannot. b.Explain how some kinds of organisms that once lived on Earth have completely disappeared, although they were similar to some that are alive today.	Students will	