

## MSAD #53 Science Curriculum Grades PK and K

---

### Unifying Themes/Core Concepts Systems, Models, Constancy and Change, Scale

**Student Learning Goals: Students will understand that . . .**

- The earth, moon, sun, and other stars are part of a system with repeating patterns (including weather).
- Objects have observable characteristics that help us organize them.
- Certain forces cause objects to start, stop, or stay in place.
- There are similarities and differences between organisms.
- Plants and animals depend on each other and the environment in which they live.

<b>Skills and Processes of Science (MLR Standard B):</b> The following skills and processes should permeate all scientific learning in the classroom and the field.		
<b>Scientific Inquiry</b>	<b>Process Skills</b>	<b>Technological Design</b>
<p><b>Students conduct and communicate results of simple investigations.</b></p> <p><i>Students may . . .</i></p> <p>Ask questions and make observations about objects, organisms, and events in the environment.</p> <p>Safely conduct simple investigations to answer questions.</p> <p>Use simple instruments with basic units of measurement to gather data and extend the senses.</p> <p>Know what constitutes evidence that can be used to construct a reasonable explanation.</p> <p>Use writing, speaking, and drawing to communicate investigations and explanations.</p>	<p><i>Students will . . .</i></p> <p>Observe</p> <p>Classify &amp; sequence</p> <p>Communicate</p> <p>Predict, hypothesize, &amp; infer</p> <p>Define, control, &amp; manipulate variables in experimentation</p> <p>Design, construct, &amp; interpret models</p> <p>Interpret &amp; analyze data</p> <p>Reflect on data &amp; process; revise conclusions based on new evidence</p>	<p><b>Students use a simple design process and basic tools and materials to solve a problem or create a product.</b></p> <p><i>Students may . . .</i></p> <p>Describe a design problem in their own words.</p> <p>Propose a way to build something or cause something to work better.</p> <p>Use suitable tools, materials, safe techniques, and measurements to implement a proposed solution to a design problem.</p> <p>Judge how well a product or design solved a problem.</p> <p>Present a design or solution to a problem using oral, written, or pictorial means of communication.</p>

<b>Content &amp; MLR Alignment</b>	<b>Skills: students will . . .</b>	<b>Resources</b>
<b>The Universe &amp; Solar System (D1)</b>  Day & Night (Sun & Other Stars)	Describe the movement of objects across the sky, as seen from earth.  Describe the difference between day and night (i.e., the sun and sometimes the moon are visible during the day; the sun provides light; other stars and the moon are visible in the night sky).	Day/Night theme box
<b>Earth (D2)</b>  Weather	Describe the daily weather (e.g., sunny, warm, cold, rainy, snowy, etc.)  Identify the four seasons and describe general weather patterns in the seasons (Winter is cold, Summer is warm, etc.)	Daily weather/calendar  Read alouds:
<b>Matter &amp; Energy (D3)</b>  Classification of objects through observable features/attributes	Describe, sort, and organize (classify) various objects by observable features (e.g., color, shape, size, texture).	Sorting bags/boxes  Attribute blocks
<b>Force &amp; Motion (D4)</b>	Describe how objects move in different ways (e.g., slow/fast, backward/forward, up/down).  Describe the forces of push and pull.	cars balls pinwheel
<b>Biodiversity (E1)</b>  Classification of living organisms	Distinguish between living and nonliving.  Describe how organisms change during their lifetimes (life cycles).  Identify and describe features (body parts, habits, movements) of animals that help them survive in their environment (adaptation).	Caterpillars? Chicks?
<b>Ecosystems (E2)</b>  Food Webs  Interdependence	Explain that animals use plants and other animals for food, shelter, and nesting.	
<b>Living Things &amp; Their Parts</b>	List living things and their parts	

<b>(E3)</b>	and functions (human body, senses, how animals move).	
<b>Heredity &amp; Reproduction (E4)</b>	Describe the basic cycle of birth, growth/development, and death in different organisms and the ways in which organisms resemble their parents.  Examples:	
<b>Evolution (E5)</b>	Describe adaptation (see Biodiversity).	

**Interdisciplinary Connections:**

English/Language Arts -- reading nonfiction; identifying & using features of nonfiction (e.g., diagrams, illustrations or photos, glossary, etc.); writing or drawing observations in science journals; orally presenting findings of investigations/experiments; participating in small and large group discussions about science learning.

Social Studies – families, communities

Math – sorting and organizing; identifying patterns; pictographs (i.e., weather)

**Core Science Instructional Strategies:**

- Build & activate prior knowledge through read-alouds, videos, writing & discussion prompts, K-W-L; establish context with engaging scenarios.
- Develop vocabulary knowledge w/word walls, four square, list/group/label, concept definition mapping, and other activities involving concentrated word work.
- Establish purpose for reading or listening.
- Support reading comprehension through identification of nonfiction text features & their purposes.
- Map stories using the language of the scientific method.
- Use models, manipulative materials, and demonstrations to introduce and extend concepts.
- Take students into the field whenever possible.
- Structure scientific talk and argument using the features of the scientific method (asking questions, using evidence from research/experiments/observations, considering others' ideas, making predictions, drawing conclusions).
- Use science notebooks throughout a unit; have students record predictions, questions, observations, ideas, and reflections in words and images.

## **Essential Vocabulary:**

## **Differentiation Strategies:**

- Multiple texts with varying readability levels;
- Partner reading;
- Read alouds;
- Flexible grouping and/or centers for labs & projects w/multiple roles;
- Modified rubrics;
- Choice in content, process, or product

## **Essential Vocabulary:**

Earth

Sun

Stars

Weather and related terms

Seasons

Patterns

Adaptations – although the word *adaptations* may not be used at this level, begin to introduce the concept with key words like *habits*, *parts*, and *movements*

Push

Pull

Living

Nonliving

Five Senses – sight, hearing, taste, touch, smell

Shelter

Nests and nesting

Environment

Habitat