Marietta City Schools

2023–2024 District Unit Planner

Kindergarten Science

Theme	*Unit 4 Earth Materials*	**Unit duration**	*7 Weeks*

Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GaDoE Standards/3D Science Elements
SKE2. Obtain, evaluate, and communicate information to describe the physical attributes of earth materials (soil, rocks, water, and air). a. Ask questions to identify and describe earth materials—soil, rocks, water, and air. b. Construct an argument supported by evidence for how rocks can be grouped by physical attributes (size, weight, texture, color). c. Use tools to observe and record physical attributes of soil such as texture and color. **Unit Objectives:** Students will go outside and observe natural earth materials. Students will collect samples and sort them by type of earth material. Students will examine a soil sample and observe both the living and non-living objects that compose soil. Students will examine and sort rocks based on their physical attributes. Students will apply their knowledge of earth materials to make a habitat for an earthworm. **Unit Phenomena**: Bucket Wheel Excavator Have students wonder about the composition of materials collected by the bucket wheel excavator The video discusses soil and coal. Great opportunity to explain the differences. **Page Keeley Probes:** These probes can be used as phenomena. They are intended to elicit student understanding about science concepts. Starting a unit or lesson with a probe will help you uncover misconceptions and see what students already know about a topic. Using a probe at the beginning of a lesson and then at the end of the lesson serves the purposes of pretesting and then formatively evaluating student thinking. **Below is a list of probes from Page Keeley's book Uncovering Student Ideas in Primary Science, that are appropriate for this unit.** This book has been purchased for your grade level by the Office of Academic Achievement and can be found in your media center. • Is a Brick a Rock? • Describing Soil

Science & Engineering Practices:	Disciplinary Core Ideas:	Crosscutting Concepts:
• Asking questions and defining problems • Planning and carrying out investigations • Constructing explanations • Engaging in argument from evidence • Obtaining, evaluating, and communicating information	• Rocks, soils, and sand • Plants and animals (including humans) depend on the land, water, and air to live and grow. • Living things need water, air, and resources from the land, and they try to live in places that have the things they need.	• Patterns • Energy and Matter • Structure and Function

Misconceptions:
Students believe that soil is a homogeneous substance. In reality, soil composition varies. Living things (especially plants) absorb nutrients contained in soil (not the soil itself).

This unit allows the opportunity to teach students about what plants and animals need to survive and how the environment supplies these resources. This can be accomplished by teaching about different parts of plants and animals and how each part is responsible for obtaining the raw materials needed for survival (disciplinary core ideas)

Students believe that roots only hold plants in the ground; roots actually absorb water and nutrients. Students believe that stems keep plants upright; in reality, stems serve to transport water, food and other nutrients throughout the plant.

Math/ELA Connections/STEM Connections
ELAGSEKRI10 Actively engage in group reading of informational text with purpose and understanding.
ELAGSEKW2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
ELAGSEKW5 With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed.
Describe and compare measurable attributes.
MGSEK.MD.1 Describe several measurable attributes of an object, such as length or weight. For example, a student may describe a shoe as, “This shoe is heavy! It is also really long!”
MGSEK.MD.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.
Classify objects and count the number of objects in each category.
MGSEK.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the 3 categories by count.

STEM:
Engineering Challenge: How does your Garden Grow?
Two Scoops are Better than One: Engineering pollinators STEM challenge

Discovery Education Science Techbook (log into DE using your MCS Google credentials before accessing these links)
You will find station rotation activities on the Explore page of each Techbook unit.
What’s in the Soil? 5E Lesson
Reading Passage – This short passage with pictures can be used as a whole class mini lesson.
Rock Reading Passage – This short passage can be used before collecting or classifying rocks.

Other Digital Resources:
The Dirt on Dirt: Sid the Science Kid – 22 minute video – included teacher materials
Sorting Box: Sid the Science Kid – PBS Kids Lab – sorting rocks by color. Includes teacher materials.
BrainPOPJr. Activity

Hands-On Discovery Education Activities
Sort Rocks Activity
Soil Exploration
Looking at Layers
Dig In
Rock Classification

Essential Questions

Factual—

What is soil made of?
What are some physical attributes of rocks?

Inferential—

How does soil differ across the community?
What are the characteristics of rocks?

Critical Thinking-

How can we protect the soil?

Tier II Words- High Frequency Multiple Meaning	**Tier III Words-** Subject/ Content Related Words
color, texture, weight, size	rock, soil, plants, water

Assessments

We Rock
Below is a link for an anticipation guide. It is a word document and can be edited to suit the needs of your students.

What's in the Soil Constructed Response
Using Rocks, Soil, and Water to Make Things
Earth Materials Anticipation Guide

Teachers may access assessment documents in the OAA Course in the grade level folder.

Objective or Content	Learning Experiences	Differentiation Consideration
CLE 1: SKE2. Obtain, evaluate, and communicate information to describe the physical attributes of earth materials (soil, rocks, water, and air).	MCS Exploring Rocks and Soil Model Lesson In this 5E segment, students will explore and evaluate earth materials. Students will apply their knowledge of earth materials to make a habitat for an earthworm.	Student Choice Performance Tasks Reflection and Goal Setting Learning Stations Choice Boards Formative Probes Science Journaling Multi-sensory activities Assistive Technology Flexible Grouping Multiple Means of Representation
CLE 2: SKE2. Obtain, evaluate, and communicate information to describe the physical attributes of earth materials (soil, rocks, water, and air).	GaDOE Instructional Segment Students will go outside and observe natural earth materials, examine and sort materials based on their physical attributes.	
Recommended High Quality Complex Text By Lexile Band		
What Are Rocks Made Of? By Ellen Lawrence *Junior Scientists: Experiment With Rocks by Sophie Lockwood* *Step-by-Step Experiments With Soils by Gina Hagler* *What's Soil Made Of? By Ellen Lawrence* *Dirt or Soil - What's the Difference By Ellen Lawrence* *Explore Soil With 25 Great Projects By Kathleen M. Reilly* *Different Kinds of Soil By Molly Aloian* *Is All Soil the Same? By Ellen Lawrence* *Why Do We Need Soil By Kelley Macaulay*		