

The following instructional plan is part of a GaDOE collection of Unit Frameworks, Performance Tasks, examples of Student Work, and Teacher Commentary. Many more GaDOE approved instructional plans are available by using the Search Standards feature located on [GeorgiaStandards.Org](http://GeorgiaStandards.Org).

## Georgia Performance Standards Framework – Kindergarten

### Unit One Organizer: Rocks and Soil (6 weeks)

#### OVERVIEW:

In this unit, Kindergarten students have a natural interest in the world around them. In this unit on rocks, students will look and compare rocks and other earth materials by their physical attributes.

#### STANDARDS ADDRESSED IN THIS UNIT

#### Focus Standards:

SKCS1: Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.

SKE2. Students will describe the physical attributes of rocks and soils.

- a. Use senses to observe and group rocks by physical attributes such as large/small, heavy/light, smooth/rough, dark/light, etc.
- b. Use senses to observe soils by physical attributes such as smell, texture, color, particle/grain size.
- c. Recognize earth materials— soil, rocks, water, air, etc.

#### STANDARDS ADDRESSED IN THIS UNIT

#### Supporting Standards:

SKCS1: a. Raise questions about the world around you and be willing to seek answers to some of the questions by making careful observations (5 senses) and trying things out.

SKCS3. Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities.

<b>ENDURING UNDERSTANDINGS</b>	
Students will understand that: <ul style="list-style-type: none"> <li>• Earth is made of materials including rocks, soil, water and air.</li> <li>• Rocks can be recognized and grouped/sorted by physical properties.</li> <li>• Senses can be used to observe soil.</li> </ul>	
<b>ESSENTIAL QUESTIONS:</b>	
<ul style="list-style-type: none"> <li>• How can we use our senses to sort things from the earth?</li> <li>• How are rocks alike and different?</li> <li>• How are soils alike and different?</li> <li>• How can I describe a rock?</li> <li>• How can I describe soil?</li> </ul>	
<b>MISCONCEPTIONS</b>	<b>PROPER CONCEPTIONS</b>
Rocks do not change.  Rocks are all made of the same things.  All soil is the same.	Rocks can be changed naturally by water or weather.  There are different kinds of rocks often varying by location.  Soil has observable differences such as color and texture.

CONCEPTS	KNOW AND DO	LANGUAGE	EVIDENCE
Classify and Sort  Observe and Describe	Name earth materials Describe physical attributes of rocks and soil Name physical attributes of rocks including: large/small, heavy/light, smooth/rough, dark/light, etc. Understand that there are many different types of soil. Observe the physical attributes of soil such as: smell, texture, color, particle/grain size using our	Rock, soil, water, air, Large, heavy, dark, light, smooth, rough Smell, texture, grain, particle, color	Graphic Organizers: T CHART & Venn Diagrams,  Illustrations

**EVIDENCE OF LEARNING:**

**By the conclusion of this unit, students should be able to demonstrate the following competencies:**

- Identify differences between rocks and soil.
- Use attributes to classify and sort rocks and types of soil.
- Demonstrate knowledge of terms, Rock, soil, water, air, large, heavy, dark, light, smooth, rough, smell, texture, grain, particle, color

**Culminating Activity:**

GRASPS activity

**GRASPS**

**Goal:** Apply knowledge of earth materials and describe physical attributes of rocks and soil.

**Role:** You are a scientist on a nature walk.

**Audience:** You will collect samples of earth materials to create a picture.

**Scenario:** You will be showing incoming students incoming “new” kindergartners what is around your school. You will be creating a two dimensional picture for them to show them various things they can expect at their new school.

**Product:** You must draw a picture and ‘glue’ samples to show what earth materials are around your school

**Standard:** Your picture will have items that are earth materials found locally.

## TASKS

**The following collection of tasks represents the level of depth, rigor and complexity expected of all students to demonstrate evidence of learning.**

<b>Lesson 1:</b>	<b>Introduction to rocks 5-6 days</b>
<b>Description:</b>	<p>A. Introduce Standards. Begin using “language” from the standards during the unit. Create and refer to posted standard as necessary throughout unit.</p> <p>B. Use pictures of earth materials and discuss how these materials are different from other objects. Talk about attributes and how earth materials are non-living.</p> <p>C. Discuss similarities and differences in the earth materials.</p> <p>D. Create two (2) Frayer Models: one of the Word ROCK and one of the word SOIL. Discuss and hang in room to use a reference tool during the unit</p>
<b>Assessment:</b>	Selected Response, Informal Assessment
<b>Suggestions/Resources:</b>	<ul style="list-style-type: none"> <li>• Record and Post answers on butcher paper, poster board, etc. Use sticky notes to add student knowledge and understanding as lessons/unit progresses. Frayer Models also can be re-referenced when/as needed.</li> </ul>
<b>Lesson 2:</b>	<b>Earth materials video segments 1-2 days</b>
<b>Description:</b>	www.unitedstreaming.com keyword search: rocks and soil and earth materials. Make sure the film is short and informative, this video segment should explore most all of the key concepts that students will explore in unit activities.
<b>Assessment:</b>	Teacher observation and Oral Questioning after film – Refer to the chart from first lesson.
<b>Suggestions/Resources:</b>	Allow those students who may need review to see the clip again if a classroom computer is available to set up with headphones.

<b>Lesson 3: Nature Walk – Building Knowledge 3-5 days</b>	
<b>Description:</b>	<p>This activity can be done in one (1) or two (2) segments. If you wish to take two nature walks, one gathering rocks one day and another walk to gather soil, you may do so. Some may wish to gather BOTH rocks and soil samples on the same day.</p> <ul style="list-style-type: none"><li>A. Give each student five (5) “snack” size plastic bags for rocks and five (5) for soils samples. Also give one (1) small brown lunch sack. Using these bags, take students on a nature walk to gather earth materials, along with rocks and soil samples from the perimeter area of your school.</li><li>B. Have students place individual samples in each plastic bag, to keep items from mixing together. You may wish to invite parent volunteers to help with this activity, or if possible have a paraprofessional help you with supervision and safety.</li><li>C. When samples are collected, bring them back to class and organize (in baggies) onto white paper samples that are similar. Examine attributes and decide which are the same and different. Label samples and make a master list of what each student collected after samples have been labeled.</li></ul>
<b>Assessment:</b>	<p>Performance Assessment</p> <ul style="list-style-type: none"><li>A. Check for accuracy of collection of five (5) different samples.</li><li>B. Informal response as well as selected response.</li></ul>
<b>Suggestions/Resources:</b>	<p>You may be able to get a local pharmacy to donate plastic medicine bottles for soil samples.</p>

Lesson 4:	Rock-A-Lot – 2-3 Days
<p><b>Description:</b></p> <p><b>Assessment:</b></p> <p><b>Suggestions/Resources:</b></p>	<p>This activity is used to show how rocks are similar and different. Discuss the word attribute and teach what that means and relates to rocks. Use light, dark, shiny, sparkly, rough, smooth, big and small. Have students group rocks according to those attributes.</p> <p><u>Materials:</u> Rocks from previous lessons, purchased rocks (extra shiny) or other rocks that are unique in features and attributes.</p> <p><u>Directions and Discussion:</u></p> <ol style="list-style-type: none"><li>1. Spread white butcher paper out and have students get their rock samples from the previous nature walk.</li><li>2. Have students dump out rocks and then begin to classify and sort them according to their attributes.</li><li>3. Next, slowly begin incorporate the extra rocks you provided. *This really works best when lesson is continued on another day.</li><li>4. Check for understanding to see if students can pick out the “added” rocks that were not part of the nature walk.</li><li>5. <i>A balance scale can be used as an extension activity to discuss light/heavy.</i></li></ol> <p>Selected Response, Informal Assessment: Teacher Observation and Oral Questioning</p> <p>Consider borrowing a rock kit from a local middle school science teacher, or asking if they have an old kit they could donate. Your students won’t have to identify rocks by name as theirs would, so you may be able to use a partial set that no longer is helpful to a middle school teacher. Always check first with the middle school that your students will attend in the future.</p>

<b>Lesson 5:</b>	<b>Playing in the Dirt 2-3 Days</b>
<b>Description:</b>	<p>This activity is almost identical the above listed activity/lesson. This activity is used to show how soils and soil samples are similar and different. Revisit the word attribute and check for understanding of what that means and relates to soils. Use light, dark, smelly, gritty, wet, dry, soft and hard. Have students soil samples from the nature walk according to those attributes.</p> <p><u>Materials:</u> Soil samples from previous lessons, also purchased samples (potting soil, loam, clay and or sand) or other soils that are unique in features and attributes.</p> <p>Directions:</p> <p><u>Directions and Discussion:</u></p> <ol style="list-style-type: none"><li>1. Spread white butcher paper out and have students get their soil samples from the previous nature walk.</li><li>2. Have students take a sample from their bags and then begin to classify and sort them according to their attributes. Touch, smell and visually explore, but remind NOT to TASTE!</li><li>3. Next, slowly begin incorporate the extra samples you provided. *This really works best when lesson is continued on another day.</li><li>4. Check for understanding to see if students can pick out the “added” samples that were not part of the nature walk.</li></ol>
<b>Assessment:</b>	Informal Assessment: Teacher Observation and Oral Questioning
<b>Suggestions/Resources:</b>	<p>Extension – Measuring soil samples in balance can be done to explore the makeup of different types of soils.</p> <p>Think about having students and fellow teachers collect soil samples anytime they travel. Make a note to hand out with snack size bags attached, and ask for samples during breaks for holidays, spring break, or anytime people travel. The soil sample can come from a grandparents’ yard or even the beach.</p>

<b>Lesson 6: Alike and Different 2-3 Days</b>	
<b>Description:</b>	<p>A. Using two (2) hula hoops create a Venn diagram on both rocks and soils. Allow students to each place an example of both a rock and soil in the diagram. An example may be done at the beginning by the teacher to show how to correctly complete the diagram. Check for verbal reasoning skills at this time.</p> <p>B. When each student has successfully completed an example for the class, pass out individual Venn diagrams and allow students create their own example with glue and soil samples.</p>
<b>Assessment:</b>	<p>Formal Assessment: Teacher observation and check for understanding of correct Venn diagram as class discussion</p> <p>Constructed Response: individual Venn Diagrams</p>
<b>Suggestions/Resources:</b>	<p>If you do not have hula hoops, use colorful yarn or a piece of rope to create the large circles for the Venn Diagram. If you are doing this outdoors, use sidewalk chalk on a walkway.</p>

## LITERATURE

**Dave's Down to Earth Rock Shop** by Stuart J. Murphy  
**Magic School Bus: Inside the Earth (Big Book)** by Joanna Cole and Bruce Degen  
**Sylvester and the Magic Pebble** by William Steig  
**Everybody Needs a Rock (An Aladdin Book)** by Byrd Baylor and Peter Parnall  
**Let's Go Rock Collecting (Let's-Read-And-Find-Out Science. Stage 2)** by Roma Gans and Holly Keller  
**Rocksy** by Loris Lesynski

## QUALITY WEBSITE RESOURCES

<http://www.fi.edu/fellows/payton/rocks/> Kids can click along with Rocky the Rock Hound and learn how rocks are formed, take a quiz, read about safe collecting and see colorful photos of rock samples.

<http://www.rocksforkids.com/> This site is for kids of all ages who love rocks. Here you will find out stuff about rocks & minerals and where to go to find out more.

[http://www.yuprocks.com/mineral\\_pictures.shtml](http://www.yuprocks.com/mineral_pictures.shtml) Quality pictures of rocks and minerals

<http://www.ology.amnh.org/earth/> Animated pictures and photographs, and information from scientists to help students

<http://www.gamineral.org/> Need a guest speaker to talk about rocks? Scientists and amateur rock hunters from Georgia connect to schools through this site.