



AG IN THE BAG: Soil Lesson Plan (K-5)

Essential Question(s): What is soil and why is it important?		
Objective:	Materials/Resources	Essential Vocabulary
LS2.B: Cycles of Matter and Energy Transfer in Ecosystems - Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)	<ul style="list-style-type: none"> • chart paper • What is soil? • Why is soil important? • Soil³ • paper plate • cups • napkins, hand lens • craft sticks • Ziploc bags • Venn Diagram foldable • What's the Dirt on...Dirt? • Video notes 	<ul style="list-style-type: none"> • Soil • Environment • Organic • Biotic • abiotic • humus • dirt
Learning Experience		
Background Information: https://www.soils4teachers.org/files/s4t/soils-overview-for-teachers-2020.pdf Although the terms dirt and soil are often interchangeable, most scientist would agree that dirt is soil that is in the wrong place, like on your shirt, under your nails, or on the kitchen floor. Another difference is dirt is dead, soil is alive.	Engage: Activating Strategy: <ul style="list-style-type: none"> • As students enter the room or at the beginning of the lesson, teacher will dump a bag of Soil³ on the table in front of the room. After students have an opportunity to question the reason for the soil, they are asked to consider two questions; What is soil? Why is soil important? (Teacher – label one sheet of chart paper “What is soil?” and the second sheet of chart paper “Why is soil important?” These charts should be referred to throughout the lesson and unit.) • Think-Pair-Share: <ol style="list-style-type: none"> 1. Students will think about the two questions that were posed and then write their own ideas in their Science Notebooks. 2. Students will pair up and discuss their thoughts. 3. Students will share their ideas with the whole group. The teacher will write their ideas on an anchor chart that will be revisited at the end of the unit. (This can be used as a pre-assessment for the unit.) 	

<p>Soil – Organic Matter = Dirt</p> <p>Student Misconceptions:</p> <ol style="list-style-type: none"> 1. Soil can only be found in certain places. 2. All soil is brown. 3. Soil is nonliving. 	<p>Explore: Activities:</p> <ul style="list-style-type: none"> • Groups of students collect cups of Soil³ and spread it out on a lab tray (a paper plate will work fine for this). Have students write their observations of the soil in their science notebooks. What do you see in the soil? • Students use hand lenses and toothpicks to investigate the soil closely. Students will draw a picture of their soil in their student notebooks. • Students press the soil with a paper napkin. Is there water in the soil? • Students press the soil together. Is there air in the soil? • Why is this soil so dark? • Do you see any living or once living organisms? <p>(students return the Soil³ to the bag)</p> <hr/> <p>Explain: Results: <i>During this time, the teacher can introduce the vocabulary biotic and abiotic.</i></p> <ul style="list-style-type: none"> • Students will complete the What's the Dirt on Dirt video notes after viewing the video What's the Dirt on ... Dirt? • As a class, develop a working definition of soil that summarizes what they have learned about soil. Students should write this in their science notebooks and teacher will post it on the science vocabulary wall. • Is there anything that can be added to the charts from the beginning of the lesson? Add any new ideas or information on the chart using a different color marker. <hr/> <p>Elaborate: Extending: <i>(Get permission from administration prior to digging up soil around school. To get a good soil sample, students should dig 6 inches down.) Students will use this sample in a future lesson.</i></p> <ul style="list-style-type: none"> • Give each group a Ziploc bag, plastic cup, and craft stick (this can be used to help dig). If available, give students goggles and gloves. This may not be necessary, but it encourages students to take the task seriously and it promotes lab safety. • Students choose an area around the school to collect a soil sample. • When students return to the classroom, they will pour their sample onto a lab tray (paper plate) and observe. • Students compare and contrast their school soil sample to the previous SOIL³ sample using the Venn Diagram foldable. • Have students pour their school soil back into the Ziploc bag and save for a future lesson. <hr/> <p>Evaluate: Summarizing Strategy:</p> <ul style="list-style-type: none"> • Dish out the Dirt! In a quick summary, write what you have learned about soil. • Students crumple them into a “dirt ball”. Students then throw their “dirt ball” into the middle of the room. • Each student then picks up a dirt ball and shares the summary with the class. • (This formative evaluation helps the teachers assess what the class has learned while taking the pressure off of students.)
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Differentiation Strategies

Virtual Connections

STEAM Opportunities

-Design and create your own ***Dirt Shirt***.

- Do you have an old t-shirt at home that is very comfortable but has a stain? Use it to design and create your own shirt using dirt dye.
- Think of a clever “dirt” quote and image? Use permanent markers to add it to your “dirt shirt”.

Assessment(s) Options:

Teacher Reflection: (Next steps?) The next lesson is on composting. Collect materials to put into group sorting bags in Lesson 2.

Resources:

<https://www.soils4teachers.org/home>