Grade 1 Earth Systems, Structures and Processes

Focus on: Soil – Supporting Growth

This lesson is meant to support the unit on Earth Systems, Structures and Processes. It would be best to complete this lesson after completing the soil lessons in this unit and the garden lesson on water retention. How you guide your students will depend on the information you have already taught and the information you want to introduce.

Clarifying Objectives:

1.E.2.1 Summarize the physical properties of Earth materials including rocks, minerals, soils and water that make them useful in different ways.

1.E.2.2 Compare the properties of soil samples from different places relating to their capacity to retain water, nourish and support the growth of certain plants.

Key Vocabulary:

Definitions can be found at http://learnersdictionary.com

-Summarize
-Physical Properties
-Earth Materials
-Rocks
-Minerals
-Soil
-Water
-Compare
-Capacity
-Retain
-Nourish
-Support Growth

Focus Question(s):

Which soil type will be best for growing plants?

Materials:

- School Garden
- Science Notebooks
- Soil Samples – clay soil with very little organic matter, sandy soil with very little organic matter, soil from a woods or forest area, and soil from your school garden. (Although it would be best to use soil samples collected around the school grounds, it is more important to have the different types of soils even if that means bringing them in from outside the school grounds.)
- Seeds with a fast germination (Select seeds that grow in your school garden - perhaps marigolds or bean or pea seeds. Your garden coordinator may even have seeds you can use.)

Activities:

1. Ask students if they have ever planted a seed. *What did they plant? Where did they plant it? What type of soil did they use? What happened?*
2. Tell students we are going to conduct another experiment. We have learned about the different types of soil - what soil is made of and how it retains water. Now we are going to see which soil sample is best for growing plants.
3. Have students plant seeds in each of the soil samples. se 2-3 seeds in each soil sample as sometimes seeds just don't sprout.
4. Have students make drawings of the soil samples.
5. Check the soil samples daily and record the changes in the science notebooks.
6. After plants have grown, ask Guiding Questions.
7. (Typically the woods soil and garden soil will produce healthier plants. he clay soil and the sandy soil may have seeds that sprout, but typically the plants will not look as healthy and will not grow as well.)

8. Have students record the final results in their science notebooks.
9. Ask your garden coordinator if you can transplant the healthy plants to your school garden. If not, send them home to plant. Get plants used to being outside before you transplant them (harden them off).
10. Watch this Discovery Education video about the different types of soil: http://app.discoveryeducation.com/player/view/assetGuid/925C25E0-2D64-4EEC-B2E7-C94C1AA4A255

Guiding Questions:

- Which soil had seeds that sprouted first?
- Did all of the soils have seeds that sprouted?
- How well did the plants grow?
- Did any plants look healthier than the others?
- Did any plants grow better than others?
- Which soils grew the best plants?
- What is the same about the soils that grew the best plants?
- What is the same about the soils that did not grow the best plants?
- Why do you think that happened?
- What is the same about a woods and a garden habitat?
- What did both of those soils have in them? (humus – organic matter)

- Why would we want the garden soil to be like soil in the woods?
- What do we do to the soil in the garden to get it to be more like the soil in the woods? (add compost, leaves, etc)