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| **Section of Project** | **6th Grade Science: Plant + Soil Unit [Day 2]** |
| **Title** | *Soil Types* |
| **Introduction** | The purpose of this project (Cotton: From Dirt to Shirt) is two fold:   1. To show show the cycle of connectedness from science to economics, through use of Math and Language Arts. 2. To utilize cotton as a catalyst for comparison and discussion in all aspects of this project.   We understand that schools cannot solely devote their time to one crop for their source of material and discussion. We do recognize the importance of comparing crops through specific science units. Cotton is a versatile crop with a dynamic endurance to both natural change and economic change.  The purpose of this project is not to develop “extension lessons”, but rather to help students engage deeper into understanding of content already outlined in the NC Public School Systems. You will note that all of these activities and lessons are meant to partner with lessons you may have already created for your classroom. The best way to read these lessons is thru the lens of the lessons you have already created. How can you take portions, or all of what we have to offer here, and establish it into your lessons already made?? |
| **Cotton Connection** | Because of the vast variety of soils and climate cotton is produced in, the production of soil based on sand, silt, and clay can range. These factors will also affect the irrigation of the cotton crop itself.  Allow students to conduct experiments in Lesson #7 of planting cotton seeds (and other seeds) by utilizing different levels of sand, silt, and clay within the soil to see how it would affect the growth and production of the cotton plant. |

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| **Curriculum Alignment** | * 6.E.2.1 Summarize the structure of the earth, including the layers, the mantle and core based on the relative position, composition and density |
| **Learning Outcomes** | Participants will express their understanding of soil layers through observation  Participants will express their observations through art  Participants will compose a working model of soil layers  Participants will refine their definitions of each soil layer |
| **Time Required and Location** | One 50-minute class period |

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| **Materials Needed** | **FACILITATOR LIST**   * Container with a lid (make sure the lids can be applied tightly) * One,¼ scoop in each bucket at the table * One, ¾ cup at each table * One large beaker or container with water at each table * Set out three buckets on each table   + Clay bucket   + Silt bucket   + Sand bucket   **PARTICIPANT**   * Scissors (1/student) * Glue (1/student) * Black marker (1/student) * Four colors of construction paper (1/student)   + Light Brown   + Gray   + Dark Brown   + White |
| **Safety** | N/A |
| **Participant Prior Knowledge** | As previously discussed, these activities are meant to latch onto what you are already teaching in the classroom. This activity should coincide with your already required section and introduction of soil. |
| **Facilitator Preparations** | Be familiar with all terms (mentioned in “Materials Needed” section) and their definitions. |
| **Activities** | *In these lessons, these activities are built as add-ons and expansions of lessons you should already be teaching in your curriculum. We will be expressing the outline of the activity only. Please make certain that the activity you are performing matches the lesson of the unit you are teaching*.   1. Have several images of sand, silt, and clay ready to be displayed on the board/screen as you discuss each one of these layers 2. Have students use the white paper to cut out the background in the shape of the container they are using (ex: if using mason jars, students should trace and cut out the shape of a mason jar)    1. Students should make these cut outs as large as possible 3. Have students take one scoop of each sample and place it into their container. 4. Have students take the ¾ cup and pour water into it. Then, place water into the container filled with the three samples. 5. Have students place lids tightly onto beaker and shake container for up to 20 seconds. Set container down on table once complete. 6. Allow for approximately 15-20 minutes for sediments to settle. 7. Come back to the containers and allow students to make immediate observations. 8. Ask each table to make a list of 4 major observations they immediately see. 9. Students then take each piece of construction paper and cut a thick piece that will fit on their white sheet. 10. Have students glue each color, one overlapping the other just slightly. On each piece of paper, students should take the black marker and create a symbol that will go across the strip and represent that layer (ex: creating circles that sit together to represent sand; small dots to represent silt) 11. On the back of each flap, students should label each layer 12. Ask students to work together at their tables and come up with a working definition for each of the three layers |
| **Assessment** | 1. Since you are allowing 15-20 minutes to pass in between the setup and the observation, this allocates time for you to go over your lesson and introduce further the concept of sand, silt, and clay. Upon returning to the containers after time has allowed the sediment to settle, you can make an immediate assessment based on student observation and inferencing. 2. Provide students with a set of golf balls, marbles, and beads. Ask them to create a visual model that displays sand, silt, and clay, similar to what they observed in their first container. They should be able to explain what each object is meant to represent as they create their visual model. |

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| **Critical Vocabulary** | * Sand * Silt * Clay |

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| **References** | National Cotton Council of America. *Cotton: From Field to Fabric*. National Cotton Council of America. Memphis: n.d. Print. |
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