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| **Section of Project** | **6th Grade Science: Plant + Soil Unit #3** |
| **Title** | *Stream Tables (LAB)* |
| **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??  \*NOTE: Anything with the word “LAB” in the title signifies that this activity will take up a large(r) portion of class time than other activities. |
| **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 compose a working model of how sand, silt, and clay work  Participants will refine their definitions of each soil layers, as well as sand, silt, and clay |
| **Time Required and Location** | Two or more 50-minute class period |

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| **Materials Needed** | **\* DEPENDING ON YOUR ACCESS TO RESOURCES, YOU MAY ONLY HAVE THE OPTION TO HOST THREE STREAM TABLES IN YOUR LAB, AS OPPOSED TO SEVERAL PER CLASS. FEEL FREE TO ALTER THIS BASED ON YOUR CLASS RESOURCE AVAILABILITY. YOU CAN ALSO ALTER THIS ACTIVITY BY USING SMALLER BOXES/BUCKETS AND HAVE ENOUGH FOR EACH STUDENT. BEAR IN MIND, THE SMALLER THE BOX, THE HIGHER THE POTENTIAL TO SKEW ANTICIPATED OUTCOMES.**  **FACILITATOR LIST**   * Any tray that is at least two feet long or larger; painters trays also work * Bag of Sand * Bag of Silt * Bag of Clay   **PARTICIPANT**   * Scissors (1/student) * Roll of string * 2 liter soda bottles (1/stream table made) * Any object to prop up each tray/box * Science notebooks * Pencil/Pen * Pitcher with water (1/student)   \* **DEPENDING ON WHAT TYPE OF BOX YOU USE WILL DETERMINE HOW SLANTED IT MUST SIT. YOU MAY CONSIDER CUTTING OFF, OR SHORTENING, THE BOTTOM LIP OF THE BOX TO MAXIMIZE RUNOFF RESULTS. YOU MAY ALSO CONSIDER POKING HOLES AT THE END OF THE BOX AS WELL TO ASSIST THE RUNOFF.** |
| **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. Provide each student with a box/tray 2. Have them set up their tray by propping it at an angle to facilitate runoff 3. Have them cut off the bottom quarter of the 2 liter bottles 4. Puncture several holes (approximately 3-4) at the top of the cut off bottle; this is where the string will later be placed 5. At each hole, an individual string should be tied off. Have the students tie them off good and tight. 6. Puncture a hole at the bottom of the tray/box. Bring all 3-4 string ends together thru this one punctured hole and tie a tight knot so the string does not slip thru, even when wet. 7. Have students fill up the top HALF ONLY of their tray with one of the three sediments (sand, clay, silt). 8. Make sure they pat down the sediment tightly so it doesn’t fall down out of the tray. 9. Once done, have students pour water slowly onto the sediment in the tray to observe what happens. 10. While observing, in their journals, have students answer the questions:     1. What do you observe happening to the sediment?     2. Why is this happening?     3. Is this a good thing or is this a problem? Justify your reasoning. |
| **Assessment** | 1. You can expand the activity by having students place a line of playdough or clay at the bottom of the tray. As students pour out the water again, have them assess what is happening. Have them respond to the questions in their journals:    1. What do you observe happening to the sediment?    2. Why is this happening?    3. Is this a good thing or is this a problem? Justify your reasoning.   Hopefully, students will focus on the water and the color that it is changing to, due to the combination of sediment and clay/playdough coloring. |

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

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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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