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| **Section of Project** | **6th Grade Science: Plant + Soil Unit #3** |
| **Title** | *Soil Samples (LAB #2)* |
| **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. |

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| **Curriculum Alignment** | * 6.E.2.3 Explain how the formation of soil is related to the parent rock type and the environment in which it develops. * 6.E.2.4 Conclude that the good health of humans requires: monitoring the lithosphere, maintaining soil quality and stewardship. |
| **Learning Outcomes** | Participants will express their understanding of erosion through observation  Participants will express their observations of erosion through writing |
| **Time Required and Location** | One 50-minute class period |

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| **Materials Needed** | **FACILITATOR LIST**   * 3 pans (make sure they have a lip at the bottom to prevent spillage   + depending on class size, you might do 6 pans, 2 of each station * Sand   + you only need enough sand to pack together at the top of each pan, about a ¼ of the whole pan * 1 spray bottle * Pack of ice cubes   + The bigger the ice cubes, the better * Extra large straws * Goggles |
| **Safety** | * You will want to remind students that the straws are only for blowing on the experiment and not blowing in each other’s face |
| **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 “Critical Vocabulary” section) and their definitions.  Locate as dry a spot as possible for soil collection in your area. If you do not have a spot to take students, you will need to collect enough soil for the experiments in the class. You may choose to purchase the soil, or manually gather it yourself from a specified location. |
| **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*.  ***PRIOR TO THE LESSON, YOU WILL NEED TO SET UP EACH STATION***  *Students should be placed into small groups for this activity, and should be working together to make observations of what is occurring. Students should be answering three specific questions during these activities, per station:*   1. *What is happening to the soil??* 2. *Why do you think this is happening??* 3. *What do you think this type of reaction would do the soil over a period of years??*   *Station #1*   * *Students will take the water spray bottle and will continually spray the water onto the soil until it has made a change.*   *Station #2*   * *Students will take the ice cubes and place them at the top of the soil pile.* * *In order to move the process along, you may need to use a blow dryer at a very low speed, but high temperature to make the ice melt faster.*   *Station #3*   * *Students will take their straws and blow through them onto the soil from the top, aiming toward the bottom of the pan*   Following the stations, have the students share their observations with the class. During discussion, begin giving them the vocabulary words. Instead of outright giving them the words, however, allow them to use their logical reasoning and experience through observation to take guesses at which vocabulary word belongs with which definition. |
| **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. |

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| **Critical Vocabulary** | * Erosion * Other erosion concepts will be taught during this lesson, only **after** observations have been made * Mudslide * Landslide * Rockslide * Mass Movement |

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