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| **Section of Project** | **6th Grade Science: Plant + Soil Unit #3** |
| **Title** | *Seed Dissection* |
| **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 (Required)** | 6.L.1.1 Summarize the basic structures and functions of flowering plants required for survival, reproduction and defense. |
| **Learning Outcomes** | Participants will experience understanding parts of a seed through dissection.  Participants will deepen their understanding of parts of a seed through dissection.  Participants will make hypotheses about plant growth through the dissection of a seed and prior content knowledge. |
| **Time Required and Location** | One 50-minute class period |

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| **Materials Needed** | **FACILITATOR LIST**  ***YOU WILL MOST LIKELY CHOOSE TO CUT THE SEEDS BEFOREHAND, JUST TO PREVENT POTENTIAL CUTTING HAZARDS***  ***YOU WILL NEED TO GAME PLAN AHEAD OF THIS, BY PLANTING THE SEEDS IN A PLASTIC BAG, COVERED BY A DAMP CLOTH. YOU WANT THE SEED TO HAVE A SMALL SPROUT FOR THIS DISSECTION ACTIVITY.***   * Cotton seeds (1/student) * Lima bean (1/student) * Another 2 seeds of choice (1/student) * Microscope or magnifying glasses (1/student) * Construction paper (any color) (2/student) * White printer paper (2/student) * Black marker (1/student) * Science journals * Pen/pencil |
| **Safety** | * Remind students that using the sharp blade on the exacto knife can make deep cuts. Review with them safety tips and rule for using |
| **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.  See two notes above in “Materials” section. |
| **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*.  ***SETUP THE SEEDS IN 3 STATIONS. DEPENDING ON CLASS SIZE, YOU MAY CONSIDER DOING 2 STATIONS OF EACH SEED, FOR A TOTAL OF 6 STATIONS. STUDENTS WILL ROTATE AROUND EACH STATION. STUDENTS PERFORM THE SAME TASK AT EACH STATION.***   1. At the station, have students observe the seed with a magnifying glass or a microscope. Students need to look specifically at the differences in each seed, searching for:    1. Epicotyl    2. Embryo    3. Cotyledons    4. Seed Coat    5. Radicle    6. Endosperm    7. Hypocotyl 2. As students move from station-to-station, they will need to take their science journals and quickly outline the seed they are observing under the microscope 3. Once back at their table/seat, they may take the construction paper and begin to construct one of the seeds components by cutting out the seed. 4. Have the student represent each piece with a different color (ex:cotyledon - red, seed coat - green, etc.) 5. Once completed, have the students glue their seed construction in their science journals. They must then label each piece |
| **Assessment** | 1. Have students create their own vocab quiz using Quizlet, Google Forms, or another tool that utilizes the major vocabulary for this segment. Assess their use of the vocabulary to determine mastery, before they “quiz a friend.” |

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| **Critical Vocabulary** | * Epicotyl * Embryo * Cotyledons * Seed Coat * Radicle * Endosperm * Hypocotyl |

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| **Author Info** | Kenan Fellow:   * Douglas Price, Voyager Academy Middle School [Charter], Durham County * 6th Grade Core Connections   + Find out [more about my class here](http://dprice1.wix.com/coreconx6)! * dprice@voyageracademy.net   Mentor:   * Externship at Cotton Inc. * Kater Hake, Ph.D., Vice President of Agriculture and Science Research * KHake@cottoninc.com |