*Growing Vegetables: 3-5*

No. of students/teachers: No. of staff:

**Time: 2 hours**

| **Lesson Overview**:  **Growing Vegetables**  How do farmers always have fresh produce ready throughout the season? Why do we plant cover crops? And are green peppers really just unripe? Get up close and personal with the 40+ varieties of crops in our fields and greenhouses, and learn what it takes to produce healthy, organic food year after year – from compost tea to soil pH – before putting their skills to work. | | |
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| **Outcomes:**   * Students describe the needs of plants and give evidence as to how specific habitats meet those needs. How are the 2 interconnected? * Identify plant structures that help them to grow and reproduce. * Students give evidence of understanding that plants convert sunlight, water and soil nutrients into food. | | |
| **Evidence of Learning:**Planting a seed and supplying it with all it needs to grow | | |
| **Vocabulary:** Compost, Decomposition, Temperature, Photosynthesis | | |
| **Learning Standards:**  ***NGSS:***  **3-LS4-3.** Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.  **4-LS1-1.** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction  **5-LS1-1.** Support an argument that plants get the materials they need for growth chiefly from air and water.  **Big Ideas of Sustainability**  Interdependence  Cycles  Place  **Social Studies Standards**  Distinguish human activities and human-made features from “environments” (natural  events or physical features—land, air, and water—that are not directly made by humans) and describe the relationship between human activities and the environment. | | |
| Places of Engagement used to enhance the relevance of the experience:  Hilltop Hanover decides where to conduct the inquiry | | |
| *Timing* | *Plan* | *Notes & who* |
| **15 min** | **Welcome:**  Guidelines for Program  Tone Setter: Farmer and Seed game |  |
| **20 min**  *Engage:*  Where do we plant? | **Students observe** soil at the compost area: rake, identify recipe. Notice what is in the compost, hypothesize about difference from soil in the field. Have the students take the temperature of the compost, and compare it to the air temp. What is happening?  **Working in groups,** students walk around a designated area and decide where would be the best place to plant a seed. As a group they explain why they chose this place.  **Students explore and discuss** what makes up soil, and why plants need it. | * compost rakes * thermometers * compost recipe sign? |
| **40 min**  *Inform*:  Farm tour | **Students tour the farm**  Before setting off on the tour, put a leaf inside a clear plastic bag. This can be done in the late spring or fall before the leaves turn. **(Make sure the leaf is in the sun)**  **Station 1:** seeds and plant parts  Have a bin of different types of seeds for students to explore   * Students describe the differences between the seeds in color, size, and other factors * Have students put the seeds into groups based on their characteristics * Have students break open a larger seed. What is inside? * Visit the heritage seed plot. Why is it important to have a variety of seeds?   **Station 2:**  Students travel to the fields and greenhouse to view different types of plants   * Go back to the leaf in the plastic bag. What happened inside the plastic bag? Why is there condensation? What process is going on in the leaf? * How does the seed grow into a plant? What parts of the plant are needed to help it grow? How does this connect with what we saw happening inside the plastic bag? | * seed bins * magnifying glasses * tables |
| **40 min**  *Apply:* | **Station 3: field work & activity**  Seasonally relevant (i.e.,  plant a seed (spring) or collect seeds (fall))  Notice: how do farmers maximize growth? |  |
| **5 min**  *Wrap Up:* | Questions?  Distribute Teacher takeaway material |  |
| Departure: |  |  |