Birds and Bees of Plants (Plant Reproduction)

Grade Level: 6th – 8th Grade

Approximate Length: 125 – 180 minutes

Objectives:

- Learn the importance of plant reproduction
- Understand the key role insects play in survival of plants
- Learn the positive impacts of honey bees
- Understand the difference between self-pollination and cross-pollination
- Explore ways that artificial selection can make a positive difference in raising healthy and productive plants

Science Standards Available (Teacher will identify which standards to bundle):

- ESS3-3 Human Impacts on the environment
- ESS3-4 Human consumption of natural resources
- LS1-4 Animal behavior and plant structures
- LS1-5 Environmental and genetic growth factors
- LS1-6 Photosynthesis: Matter cycling – energy flow
- LS2-1 Effects of resource availability
- LS2-2 Interdependent relationships in ecosystems
- LS2-3 Matter cycling and energy flow in ecosystems
- LS2-5 Biodiversity and ecosystem services solutions
- LS4-4 Natural selection
- LS4-5 Artificial selection

Outline for Program:

- **Interest Approach (5-10 min):** Students will start the lesson by working as a team in small groups to create a definition of a seed and a description of what a healthy person looks like. Then as a whole group we will come together to share our answers, to see how each groups perception might differ.
- **Opening Activity (15-20 min):** During this time, students will learn about the parts of a flower and how pollination and fertilization occur. Then the small groups will label the parts of the flower correctly and discuss the difference between a complete flower and an incomplete flower. When the groups are all done, we will go over the answers as a large group and discuss the difference between self-pollination and cross-pollination.
- **Presentation (45-60 min):** The students will learn about the importance of bees not only to environment, but to the humans as well. We will go through what bees do for the pollination of plants, how efficient bees are as compared to other pollinators and why we need to take care of the bees. Then students will learn about the differences between artificial selection and natural selection. They will understand that while bees play a huge role in feeding the world, scientist can also help by increasing the productivity of plants. The final discussion will cover the possible reasons why apple cider is more expensive than apple juice. Students will get a chance to give their opinions and ask questions about bees, cider, juice and visiting a working apple orchard.
- **IQhub Scavenger Hunt (45-60 min):** The IQhub is an interactive museum, that will help the students build on topics they have already learned and grab their attention for some new ones as well. Students can work individually or in small groups to explore the IQhub and learn about agriculture and the environment. This museum incorporates Science, Technology, Engineering and Math (STEM) to give students a well-rounded and fun learning experience.
- **Closing Activity (15-30 min):** During this time, students will play fruit and veggie bingo. This activity will help students to realize the nutritional value of foods and the variety of plants raised in a garden. When the groups are all done, we will go over the answers as a large group.

Additional Resources on YouTube:

https://youtu.be/aIvWjDmZ8hY