



2nd Grade: Our Green Friends

Course Description: In this module we will discuss what plants need to have in order to grow and thrive and how they are pollinated. We also discuss the importance of plant insect interactions and how to assess whether an insect is a beneficial or pest species. Lastly, we discuss the overall importance of biodiversity in an environment and amongst the pollinators that are pollinating a particular plant species

Day 1: We will talk about all of the important things that a plant needs to grow and how they actually grow. We will look at what can happen to a plant if it is missing any of the most vital things that they require – water, sun, carbon dioxide, and minerals from the soil. We will give a general overview to explain how it is the roots that obtain the mineral and the water, and how it is the leaves and the stems that are able to absorb the sun, the carbon dioxide, and make the food that the plant needs to survive.

Demonstration: *We will begin a small experiment today, to look at how important both light and water are in the life of a plant. We will plant milkweed seeds and store some plants with light and water, some with only light, some with only water, and some with neither light or water so that the students can observe how important both are to the survival of a plant. We will observe the growth over the next few class periods and decide if any of these things are more important in seed sprouting or plant growth.*

Day 2: During this class we are going to talk about how the plant uses its flowers in order to attract pollinators. We can explain how animals are able to find other animals to make offspring, but that this is not possible for plants since plants are not able to move. The flowers perform the task of recruiting different pollinators to help them to make offspring. There are more insect groups beyond just bees and butterflies that pollinate flowers. There are actually many fly, beetle, wasp, and even mosquito pollinators that are just as important as the bees and the butterflies.

Demonstration: *We will then have the students play the Skittle Pollination game where students draw different colored flowers that use skittles to represent the pollen. Each student is then assigned to be a particular type of butterfly that will only pollinate flowers that are a certain color. They will go around pollinating the flowers and show how some flowers are pollinated by many different butterflies while others are only pollinated by a few and how it is a benefit for a plant to have many different pollinators.*

Day 3: Pollinators play a large role in the lives of plants, as they would be unable to reproduce without their help, but those plants play a large role in the lives of pollinators too. Animals that are pollinating plants are generally doing so by accident while they are trying to either collect the nectar or the pollen itself from inside the plant as a food source for themselves or their offspring. There are many insects that rely on nectar as a significant food source – making the insects just as reliant on the flowers as the flowers are on the insects.

Demonstration: *We will take some time to observe some of the other insects and animals that are not thought of as pollinators. We will play a game to have students assess whether a*

particular insect is a beneficial insect or if it is a pest insect by talking about how that particular insect interacts with the plant.

Day 4: Biodiversity is having a diverse range of organisms living in any particular ecosystem. It is important for a lot of reasons, but in concert with the current topic they are important to the maintenance of food webs and food chains. It is not a good idea for any plant to be completely reliant on one animal or animal group to fulfill the role of pollinator. There are plenty of very specialized relationships where only one type of pollinator pollinates a particular type of plant, but this is the exception and not the norm. Generally, plants and pollinators are more successful if they have partnerships with multiple other organisms as this means they are not reliant on any specific one.

Demonstration: *To demonstrate the importance of biodiversity the students will play a game in which they will compete to add as much diversity to an environment as they can before the end of the game. We will then have another discussion using specific examples from the game to explain why the environments with the most biodiversity are the healthiest.*