



5th Grade: I-Ecosystem

Course description: Throughout this lesson, students will explore the parts of an ecosystem and how they interact with each other. By the end of the lesson, students will be able to show, tell, and give examples of ecosystems and their inner workings, including a cause to restore the local ecosystem where it is disrupted.

Day 1: Students will learn that an ecosystem is a geographic area where plants, animals, and other organisms, as well as weather and landscape, work together to form a bubble of life. Every factor in an ecosystem depends on every other factor, either directly or indirectly. A change in the temperature of an ecosystem will often affect what plants will grow there, for instance. Animals that depend on plants for food and shelter will have to adapt to the changes, move to another ecosystem, or perish.

Demonstration: Students will be assigned groups and a place in the world with a particular ecosystem. Students will also be presented with different plants, animals, and natural materials that they will have to sort out into their most fitting ecosystem as they learn about them. This will include living plants and insects! We will bring different insects that exist within different ecosystems to discuss the roles they play in different ecosystems!

Day 2: Students will learn that a terrarium is a closed environment of living things that can show us how an ecosystem works. With the right balance, once the jar is closed the plant uses the water, sunlight, and nutrients from the soil to survive. As the plant loses some leaves, they are broken down by bacteria and become nutrients in the soil. With the right balance, the ecosystem inside the terrarium can survive for years.

Demonstration: Students will be presented with each layer of the terrestrial ecosystem. As they watch the demonstration, students will reason and question why each layer is needed and what it brings to the ecosystem. We will bring in an example terrarium with live plants and insects for students to observe and interact with.

Day 3: We will provide students with both abiotic and biotic factors that students will need to form their own ecosystem. Students will then combine all the necessary components for a self-sustaining plant ecosystem that's calibrated to effectively replicate all the necessary natural cycles for a thriving community of organisms.

Demonstration: Students will select and systematically assemble their own ecosystem in a glass container with keeping the demonstration from the other day in mind. We will bring in some decomposers and detritivores to discuss their essential roles in maintaining balance within ecosystems. Students will consider how the addition of these insects will help their closed ecosystem to thrive.

Day 4: Students will discuss invasive species and learn about how they affect an environment. Students will develop creative solutions to mitigate their invasive species and save their ecosystem! Students will understand how human impact can disrupt an ecosystem and how bugs remain hard at work to protect and preserve the ecosystems they are a part of! Students



will also discuss preventative measures they can practice when exploring new wilderness areas to ensure they don't spread invasive species.

Demonstration: Oh no! A student's ecosystem is under pressure from invasive species! We will discuss some of the invasive species native to PA. Students will have to come up with ways to protect their ecosystems. At the end of this lesson, students will venture outside and see if they can spot any invasive species in action.