



Ecosystem Investigators - Kindergarten

Summary

Students will observe, analyze, and interpret patterns between what plants, animals, and humans need to survive. As they hike through our trails they will learn how humans and animals interact with their environment and how to conserve natural resources. Students will also learn about various seasonal weather patterns. *This program is 1 hour 15 minutes.*

Objectives

- Students will understand that humans and animals have an **impact on their environments**
- Students will understand what **natural resources** are and the importance of conservation
- Students will determine how to **reduce the amount of trash** they send to the landfills
- Students will determine the various factors that go into specific **weather patterns**
- Students will determine the **needs for survival** for both plants and animals

Key Terms

Natural Resources – things found in nature that we use for food, clothing, tools, and supplies

Weather – how the temperature, precipitation, and winds change throughout the year, and from day to day

Survival – continuing to live/thrive

Habitat – a living thing's home; there are many different kinds of habitats on planet Earth, such as a desert, a forest, or a coral reef bed

Compost – nature's recycling; anything that grows out of the earth can be left to rot in a central location and over time this stuff will turn back into soil, which can grow more plants

Recycling – a complicated process of burning, melting down, or shredding old products in order to turn them into those same types of products again

Landfill – a giant hole in the ground where all of our trash goes.

Background Information

Compost

Composting is a great way to divert waste from a landfill. Our landfills are made up of finite space and eventually we will run out of room there. It is also important to note that nothing truly breaks down in a landfill. Imagine a cardboard box – if you were to bury this box underground, the paper fibers would start to break down immediately and after a few months it would be almost completely disintegrated. This is because underground there are decomposers like worms, bacteria, and fungus which expedite this process. In a landfill, trash is just piled on top of trash and none of the items in a landfill are touching any actual organic material like soil. Without any close contact to these microbes, decomposition slows down tremendously. Landfills are also required to place 'liners' in the dump, to ensure that harmful chemicals can't leach into our water supply. These liners are important but further prevent our trash from breaking down. Compost is a way to recycle and break down trash that originally grows out of the Earth – produce scraps, lawn clippings, paper, etc. By composting as much of our waste as possible, we divert it from the landfill and completely re-cycle those resources into something else.

Recycling

Many people think of recycling as the best solution to Earth's problems, but the truth is it is problematic. The only consumer products that are 100% recyclable are glass and metal. These items can be melted down and turned back into the products they started out as. This is a costly process and requires feats of engineering, but it can work well if the right systems are in place. Plastics cannot be recycled – once a single-use plastic bottle is placed into a recycling bin, it goes to a sort facility which will bale up plastics of the same type. These bales may be purchased by manufacturers that will 'down-cycle' this product into fleece or carpeting. Once plastic has been down-cycled to fleece or carpeting, it is at the end of its life. Teaching children to recycle is still important, because recycling is better than not recycling. Recycling delays the arrival of trash to a landfill.

Natural Resources

Humans use the Earth in so many different ways; our ingenuity knows no bounds as we engineer creative ways to make what we need from nature. Most of what we use every day comes from 4 different categories – plants, animals, rocks, and water. (We use natural gas and petroleum-based products as well, but in this program we focus on more tangible things). Plants give us furniture, books, clothing, lumber, and food. Animals give us food, leather, and textiles. Rocks give us building materials, jewelry, and tools. Water gives us the liquid necessary for personal sanitation, irrigation, and recreation. It is important to think about how we can take these resources from the Earth sustainably. If we like to eat a particular animal so much that we hunt it to extinction, then we will not be able to enjoy it anymore. That is why farming practices were developed – so that we can keep using those animal resources far into the future.

Animal Needs for Survival

All animals need food, water, shelter, and air to survive. These needs vary greatly per species, but the basic needs remain the same. Some animals get their water by absorbing it through their skin (amphibians); some animals get their air through special organs in their body (lungs or gills); some animals hunt for their food while others collect it (predators vs. prey animals); some animals live in simple shelters like under a leaf or a rock (insects), while others construct complex structures (nesting birds or bees). ALL animals have special body parts and behaviors that help them to survive in their natural habitats. Here are some examples of how animals can change their habitats to meet their needs:



Human Needs for Survival

Humans are animals too, and as such they require the same things to survive (food, water, shelter, air). Some humans manipulate the environment to make their own shelters and some hunt for or grow their own food. Some humans are not so fortunate as to have access to clean air and water and must take measures to clean or filter these resources. Humans are constantly changing habitats all over the Earth in order to suit their needs. There are very few places on Earth that have been 'untouched' by humans. Even Antarctica, which has no permanent residents, has researchers, film makers, and tourists visiting every year. Humans also have special body parts and behaviors that help them to survive on Earth (like our opposable thumbs and large brains). Here are some examples of how humans change the environment to meet our needs:

