



# Nature Programs

TEACHER ENRICHMENT RESOURCE PACKET



## Nature Safari & Lab

*Nature is defined as the natural physical world, including plants, animals, and landscapes. Its diversity ranges from the smallest microbes to the giant Sequoias. But all these living things depend on an environment in order to survive. Since people, animals and plants live in the same environment, they must share natural resources and as a result, this has an impact on the environment.*

Learning objectives:

- Different types of plants and animals inhabit the earth and meet their needs in different ways.
- Adaptations in physical structure or behavior may improve an organism's chance for survival.
- Living organisms depend on one another and on their environment for survival.

Think it.  
Try it.  
Explorit.

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## Background Information

Like a tightly woven fabric, everything on the planet is bound together through complex and dynamic interconnections. These networks connect living and nonliving things. These different connections create a variety of unique environments. The study of these connections is called ecology and is important in helping us understand how different parts of the natural world relate to one another. An ecologist is a scientist who studies the interrelationships of living things to one another and to their environment.

Every organism belongs to an ecosystem. An ecosystem includes all the plants, animals, and non-living things, such as sand, rocks, soil, water, and air, in a certain area. Some common ecosystems are oceans, estuaries, freshwater areas (such as lakes and rivers) and terrestrial areas (such as rainforests, grasslands, mountains and valleys).

Every organism needs a place to call home. This place is called a habitat, which is where a plant or an animal normally lives. It may be large, such as an entire ocean for a migrating whale or it may be very small, like the intestine of an insect for a bacterium. A habitat provides all the things an organism needs to survive. These are generally categorized as food, water, shelter or cover, air, and space.

All organisms develop characteristics and behaviors (called adaptations) that allow them to survive in a particular environment. Adaptations are the result of an organism's ability to adjust to changes in its surroundings over time. Some examples are how the thick fur of an otter helps it to live in cold water and how the beak of a bird allows it to eat certain types of food. Many animals are able to blend in with their surrounding. They may use colors and patterns that help them disguise themselves to avoid being seen by their predators or prey. This is called camouflage.

Plants native to Northern California are adapted to survive the hot, dry summers and cool, wet winters. Some native plants have deep roots to reach water far down in the soil. Other plants are dormant during the summer, losing their leaves until the rains come in the fall. Some plants have strong chemicals that make them taste bad or thorns to discourage herbivores.

In addition, animals often help plants by pollinating their flowers and spreading seeds. Some seeds have spikes or hooks that make them stick to animal hair. In this way, seeds are carried far from the parent plant. Take a look at the organisms that live around you. How are they adapted to live there?



## Classroom Activity

### AMAZING ANIMAL ADAPTATIONS

*Objective:* To understand animal adaptation and discuss the variety in animal life.

*Materials:* clock, tape measure, scale

*Procedure:*

1. Discuss the diversity of animal life. Animals come in all shapes and sizes with all kinds of adaptations. Remind the students that humans are animals, too.

2. Have a “contest” to see how your students stack up against other animals. Add other events as you learn about many other animals.

a. Bountiful Breath: Have the students hold their breath for as long as they comfortably can. Record the amount of time. How long can each student hold his or her breath? What is the average length of breath holding? The sperm whale can hold its breath for about an hour and 15 minutes. Sperm whales live in the ocean and get their food from the ocean floor so they have to dive over 3,000 feet. This breathing adaptation is critical to their survival.

b. Wing Workout: Have the students hold out their arms to the sides as birds’ wings and have them flap their arms as fast as they can. How fast can they flap? Time them to see how many flaps they can make in ten seconds. A crow flaps its wings about 20 times every 10 seconds, a pigeon 30 times and a chickadee 270 times. Try again. Can your students flap as fast as these birds? A hummingbird flaps 700 times every 10 seconds.

c. Flea Jump: Have your students try a standing broad jump (i.e. jump far as they can from a standstill). Measure how far each student jumps. Compare the ratio of the jump length to the student’s height. You may even want to take an average of all the students’ jumps and compare it to the average height. A tiny flea can jump about 200 times the length of its body. How do your students’ jumps compare to a flea’s jump?

d. Weight-a-Minute: Discuss which animals might be some of the heaviest animals in the world. The largest land mammal is the African elephant, which weighs up to 6.5 tons (13,000 lbs). Weigh each student in your class. Have the students add all their weights together. Does the whole class weigh as much as an African elephant? Do all the students in their grade level weigh as much as the elephant? All the students in the school? What are the advantages of being so large? Disadvantages?

3. This activity helps students understand some amazing animal adaptations. Clearly, humans cannot hold their breath as long as a whale, flap their arms as fast as birds can flap their wings, jump comparatively as far as a flea or weigh remotely as much as an elephant. Talk with your students about whether humans need to be able to do these things. What human adaptations allow us to survive in our habitat/environment?

## Science Standards

This program reinforces and is aligned the following CA STANDARDS:

K-2a  
1-2abc  
2-2d  
3-3a  
4-3ab  
5-2a

## Explorit Programs for Schools and Groups

### At Explorit's Sites

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**Nature Safaris & Labs** Fall and spring visits to Explorit's outdoor spaces at Mace Ranch Park

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**Science in Your World** The ultimate family science night  
**Science Assembly** A multi-media presentation for the whole school

**Reservations required.**  
**For information please call**  
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