

LIFE SCIENCE

GRADE 1

ASSESSMENT PACKET

This course teaches the big ideas behind Life Science. Beginning with plant science, you'll discover the science behind the barely visible parts of life and the environment, such as plant structure, plant processes, tiny insects, and more. Construct and use apparatuses such as a water cycle column, a terrarium column and a carnivorous greenhouse to investigate and identify components of different ecosystems.



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This curriculum is aligned with the National State Standards and STEM for Science.

Educational Goals

Animals are all around us. As we walk through our neighborhood, we likely see animals being kept as pets, insects crawling on the ground, and birds flying through the trees. Depending on where you live, you may also see animals living in rivers, lakes, and swamps. How are these animals similar? How are they different? Why do they behave in the ways they do? How do their actions affect the environment in which they live? These are big questions that we'll be answering.

You will get to observe and identify the behaviors of various plants and animals in various components of an ecosystem: the aquarium, the decomposition unit, the plant/animal chamber, and the precipitation funnel. You can also identify the role of different plants and animals in their eco column: producers, consumers, and decomposers. Specifically, look for how animals eat plants or other animals for food, if they use plants or even other animals for shelter and nesting; producers and consumers (herbivores, carnivores, omnivores, and decomposers) and how they are related in food chains and food webs. Also see if you can determine how they compete with each other for resources in an ecosystem, and how matter is transferred from one organism to others in the food web over time. You'll want to get a feel for the relationships between the organisms and the physical environment in the big picture.

Here are the scientific concepts:

- Use appropriate tools to perform tests, collect data, and display data.
- Different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places.
- Plants and animals both need water; animals need food, and plants need light.
- Animals eat plants or other animals for food and may also use plants or even other animals for shelter and nesting.
- Roots are associated with the intake of water and soil nutrients, green leaves with making food from sunlight.
- All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.
- Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.
- Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.
- Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents.
- Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.

By the end of the labs in this unit, students will be able to:

- Design and build several different types of scientific observational experiments including a water cycle column, insect aspirator, waterscope, and more to observe animals and plants in their natural habitat.
- Differentiate observation from inference (interpretation) and know scientists' explanations come partly from what they observe and partly from how they interpret their observations.
- Measure and estimate the weight, length and volume of objects.

Life Science Grade 1 Evaluation

Teacher Section

Overview: Kids will demonstrate how well they understand important key concepts from this section. Some kids at this level are not reading quite yet, so you'll need to work together with them and observe them carefully as you go in order to understand what they know as they may not be able to tell you directly.

Suggested Time: 20-30 minutes

Objectives: Students will be tested on the key concepts:

- Different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places.
- Plants and animals both need water; animals need food, and plants need light.
- Animals eat plants or other animals for food and may also use plants or even other animals for shelter and nesting.
- Roots are associated with the intake of water and soil nutrients, green leaves with making food from sunlight.
- Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents.

Life Science Grade 1 Explorations

Teacher's Outline with Answers

Teacher/Parent: This is not a quiz. This is a chance for you to explore the key concepts with your student to you can understand what they know and where they still need work. Read each question aloud and do the action and invite the students discuss their answers with you to help them answer the questions. Answers and/or experiment references given in parenthesis.

Questions to Explore Together:

1. When birds and animals drink from lakes, rivers, and ponds, how pure is it? Are they getting the water they need, or are they getting something else in the water? (Refer to *Water Cycle Column: Is Rain Pure?* Experiment and discuss the results with your student.)
2. How does water affect land and animals? (Refer to *Terraqua Column* Experiment and discuss how things like salt and fertilizer affect plants and insects.)
3. What color light do plants like best? (Different colors of light have different energy levels. If you think of a rainbow, these are all the colors included in white light. The highest energy light is violet light, and red is the lowest energy. The light that gives plants the most energy are the ones at the violet end of the spectrum.)
4. How does an insect aspirator work? (Refer to *Making an Insect Aspirator* Experiment and discuss how when you remove air from the container with one straw, it creates a partial vacuum (no air) space in the container. When this happens, the air outside the container rushes in through the second straw to equalize the pressure in the container, and if it's close enough to an insect, it goes in also.)
5. Name two different insects and describe how each one builds their home, find food, and protect themselves. (Refer to *Eco-Column* Experiment or just your own observational experience.)
6. Families share similar features like eye and hair color. What features does your family share? (Refer to *Tracking Traits* Experiment.)

Life Science Grade 1 Evaluation

Student Worksheet

(Teacher: You'll need to go over the instructions with the kids and work with them on this part.)

Overview: You're going to show your teacher how much of this science stuff you already know. Choose one of the following activities:

- a. Make up a short story about your favorite plant or animal. You can act it out if you want to with costumes and everything.
- b. Design a garden and label its parts on a poster. Your drawing must include: plants, insects, decomposers, as well as water, light and nutrients. When you're finished, you'll use it to teach your parent or teacher and demonstrate what you've learned.