

LIFE SCIENCE

GRADE 4

ASSESSMENT PACKET

Discover the primary source of matter and energy in food chains, learn about herbivores, carnivores, omnivores, and decomposers and how they are related in food chains and food webs, and how decomposers like fungi, insects, and microorganisms recycle matter from dead plants and animals.



Created by Aurora Lipper, Supercharged Science

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

Educational Goals

Students discover the primary source of matter and energy in food chains, learn about herbivores, carnivores, omnivores, and decomposers and how they are related in food chains and food webs, and how decomposers like fungi, insects, and microorganisms recycle matter from dead plants and animals. Students will also build observational ecosystems to not only study organisms in their natural habitat, but also make changes that model real world problems like acid rain and salt levels.

Here are the scientific concepts:

- All organisms need energy and matter to live and grow.
- Plants are the primary source of matter and energy entering most food chains.
- Producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs, and may compete with each other for resources in an ecosystem.
- Decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.
- Living organisms depend on one another and on their environment for survival.
- Ecosystems can be characterized in terms of their living and nonliving components.
- For any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.
- Many plants depend on animals for pollination and seed dispersal, while animals depend on plants for food and shelter.
- Most microorganisms do not cause disease and many are beneficial.
- Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.
- Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their perceptions and memories to guide their actions.

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

- Design and build a working terrestrial and aquatic ecosystem.
- Understand how bacteria can be helpful and useful in everyday life.
- 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.
- Formulate and justify predictions based on cause-and-effect relationships.
- Follow a set of written instructions for a scientific investigation.

Life Science Grade 4 Evaluation

Teacher Section

Overview Kids will demonstrate how well they understand important key concepts from this section.

Suggested Time 45-60 minutes

Objectives Students will be tested on the key concepts of Life Science:

- All organisms need energy and matter to live and grow.
- Plants are the primary source of matter and energy entering most food chains.
- Producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs, and may compete with each other for resources in an ecosystem.
- Decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.
- Living organisms depend on one another and on their environment for survival.
- Ecosystems can be characterized in terms of their living and nonliving components.
- For any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.
- Many plants depend on animals for pollination and seed dispersal, while animals depend on plants for food and shelter.
- Most microorganisms do not cause disease and many are beneficial.
- Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.
- Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their perceptions and memories to guide their actions.

Students will also demonstrate these principles:

- Design and build a working terrestrial and aquatic ecosystem.
- Understand how bacteria can be helpful and useful in everyday life.

Lab Preparation

1. Print out copies of the student worksheets and quiz.

Lesson

The students are taking one test today, which is a quiz. The quiz takes about 20 minutes, and you'll find the answer key to make it easy to grade.

Homework Assignment

Students will also be completing a homework assignment. You'll find this in the next setion.

Life Science Grade 4 Evaluation

Student Worksheet

Overview Today you're going to take a quiz and also complete a homework assignment. You're going to take the written quiz first.

Lab Test & Homework

After the quiz, you can get to get started on your homework assignment. The assignment is due next week, and half the credit is for creativity and the other half is for content, so really let your imagination fly as you work through it.

Choose one:

- a. Design a garden and label its parts. Your drawing must include: plants, insects, decomposers, as well as water, light and nutrients. Use arrows to show the transfer of energy. You must also include a detailed written description of at least one page, explaining the science that is happening in the garden.
- b. Write a short story or skit about bacteria from the perspective of being blamed for diseases. You'll read this aloud to your class.
- c. Make a poster that teaches one of the main concepts of the food chain (including the producers and consumers) you enjoyed most. When you're finished, you'll use it to teach to a class of younger students and demonstrate the principles that you've learned.

Life Science Grade 4 Quiz

Teacher's Answer Key

1. Describe the function of each plant part below:

- Root: *takes in water and nutrients.*
- Stem: *transports water and nutrients.*
- Leaf: *allows for photosynthesis and transpiration. (takes in sunlight and lets out water!)*
- Flower: *attracts animals to help plants reproduce.*

2. What is the primary source of matter and energy in most food chains? *Plants.*

3. What is grafting, and how it is useful? *Grafting is when a tree branch is cut off and replaced with a branch of a different tree. It allows growers to produce a tree with more than one type of fruit. Some fruit have no seeds and cannot reproduce naturally, so people use grafting to help with this.*

4. What are parts of the eco system, and give examples of each. *Water, producers, decomposers, consumers. Water-precipitation from rain water; producers-fruit; decomposers-fruit flies; predators- insects.*

5. Name four types of consumers. *Herbivores, carnivores, omnivores, and decomposers.*

6. Give an example of how living organisms need each other to survive. *Answers will vary.*

7. Do most bacteria cause disease? *No, most do not and in fact many are beneficial.*

8. What are three types of worms, and how can you tell them apart? *Flat, round, segmented. Flat worms have an incomplete digestive system and no body cavity; round worms have a body cavity and a complete digestive system; and segmented worms have a body cavity and repeating segments.*

9. Why would you want worms in your garden? *They churn the soil; they decompose plant matter into fertilizer; they dig tunnels allow roots to plant themselves more easily.*

10. What do decomposers do? *Decomposers eat plant matter and turn it into waste, thereby decomposing the plant.*

11. What is a carnivorous plant? *A plant that gets its energy from insects.*

12. How do predators and prey change over time? *They develop physical traits and behaviors to help them survive (ie eat or avoid being eaten).*

Life Science Grade 4 Quiz

Name _____

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 - Root:
 - Stem:
 - Leaf:
 - Flower:
2. What is the primary source of matter and energy in most food chains?
3. What is grafting, and how it is useful?
4. What are parts of the eco system, and give examples of each.
5. Name four types of consumers.
6. Give an example of how living organisms need each other to survive.
7. Do most bacteria cause disease?

8. What are three types of worms, and how can you tell them apart?

9. Why would you want worms in your garden?

10. What do decomposers do?

11. What is a carnivorous plant?

12. How do predators and prey change over time?