

# Life Sciences 11

## LG 14

### *Kingdom Plantae: Mosses and Ferns*

Mosses and ferns introduce us to some of the earliest plants to successfully adapt to life on land. These organisms represent important stages in plant evolution and provide insight into how plants gradually developed the structures needed to survive outside aquatic environments. Often found in damp forests, wetlands, and shaded habitats, mosses and ferns thrive in areas where moisture is readily available. Although they may seem small or simple compared to flowering plants, these organisms possess unique adaptations that have allowed them to survive for hundreds of millions of years.

Mosses belong to a group of non-vascular plants called bryophytes. Because they lack specialized tissues for transporting water and nutrients, mosses remain small and grow close to the ground where moisture is available. Instead of true roots, they use rootlike structures called rhizoids to anchor themselves to surfaces. Mosses reproduce using spores rather than seeds, and their reproduction depends heavily on water because sperm must swim to reach the egg. Despite their simplicity, mosses play important ecological roles by helping retain moisture, preventing soil erosion, and creating habitats for tiny organisms.

Ferns represent a major evolutionary advancement over mosses because they are vascular plants. This means they possess specialized tissues, called xylem and phloem, that transport water, minerals, and nutrients throughout the plant. Ferns have true roots, stems, and leaves, allowing them to grow much larger than mosses and compete more effectively for sunlight. Like mosses, ferns reproduce using spores instead of seeds or flowers. Their spores are often produced in clusters called sori, which can usually be found on the undersides of their fronds. Ferns were especially abundant during prehistoric times and helped form many of the coal deposits we use today.

Studying mosses and ferns helps us understand the gradual transition of plants from aquatic environments to life on land. These organisms highlight key evolutionary developments such as vascular tissue, structural support, and reproductive adaptations. They also continue to play vital roles in modern ecosystems by cycling nutrients, providing shelter, and contributing to biodiversity. Although they are sometimes overshadowed by larger plants, mosses and ferns remind us that even the oldest and simplest plant groups have shaped Earth's history in significant ways. What did the fern say to its friend? "I be-leaf in you!"

**LG 14 Hints:** Read the assigned sections carefully and **take detailed notes as you go**. A portion of (LG) mark will be based on the notes you submit.

*Reading and taking organized notes helps you to process information, so focus on identifying the most important ideas rather than copying everything word-for-word. Aim to summarize key concepts in your own words. A helpful strategy is to use clear headings and subheadings to organize your notes. This can make the material easier to review later. Ultimately, choose a note-taking style that works best for you, but make sure your notes are clear, organized, and show thoughtful engagement with the reading.*

Name:

Due Date:

TA:

**Instructions: Use your Biology 11 Life Sciences textbook to complete the sections below.**

You can also use the following link:

**1. Read pages 448 - 451**

- a) Take notes on the above reading.
- b) Answer questions 1-2 on page 451

**2. Read pages 451 - 454**

- a) Take notes on the above reading.
- b) Answer questions 1-2 on page 454

**3. Read pages 455 - 459**

- a) Take notes on the above reading.
- b) Answer questions 1-2 on page 459

**4. Read pages 460 - 461**

- a) Take notes on the above reading.
- b) Answer questions 1-2 on page 461

**4. Complete questions 1-8 (multiple choice) on page 464**

**5. Watch the \_\_\_\_\_ video on \_\_\_\_\_ before completing this guide.**

**Title: \_\_\_\_\_**

<https://www.youtube.com/????>

- a) List 2 interesting facts you learned from the above video**