

# Life Sciences 11

## LG 13

### *Kingdom Plantae: Algae*

Kingdom Plantae introduces us to a diverse and essential group of organisms that form the foundation of nearly every ecosystem on Earth. From towering trees in ancient forests to tiny mosses growing on rocks, plants play a critical role in supporting life. Through the process of photosynthesis, plants capture energy from sunlight and convert it into chemical energy, producing oxygen and food that sustain countless other organisms. Although they are often viewed as passive or motionless, plants possess highly specialized structures and adaptations that allow them to survive, reproduce, and thrive in a wide variety of environments.

All plants share several defining characteristics, including multicellularity, eukaryotic cells, and cell walls made primarily of cellulose. Most plants contain chlorophyll (the green pigment that absorbs sunlight for photosynthesis). Over time, plants evolved specialized tissues for transporting water and nutrients, as well as structures such as roots, stems, and leaves that increased their success on land. Reproductive adaptations, including spores, seeds, flowers, and fruits, allowed plants to spread into nearly every habitat on Earth. These innovations have made plants one of the most successful kingdoms in the history of life.

Closely related to plants are algae, a diverse group of mostly aquatic organisms that also perform photosynthesis. Algae range from tiny single-celled phytoplankton drifting in oceans and lakes to giant kelp forests stretching beneath coastal waters. Unlike true plants, many algae lack specialized roots, stems, or leaves, yet they are incredibly important to life on Earth. In fact, algae produce a large portion of the oxygen found in our atmosphere and form the base of many aquatic food webs. Different groups of algae, such as green algae, brown algae, and red algae, display a wide variety of colors, structures, and adaptations.

Studying plants and algae helps us better understand the evolution of photosynthetic organisms and the interconnectedness of ecosystems around the world. These organisms influence climate, provide habitats, stabilize soils, and supply humans with food, medicine, and raw materials. Despite their quiet appearance, plants and algae are constantly interacting with their environment and shaping the planet in powerful ways. They remind us that some of the most important forms of life are also the ones we may overlook the most. Why did the algae blush? Because it saw the ocean's bottom.

***LG 13 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 430-435**

- a) Take notes on the above reading.
- b) Answer questions 1 on page 435

**2. Read pages 435 - 441**

- a) Take notes on the above reading.
- b) Answer questions 1-2 on page 441

**3. Read pages 442 - 443**

- a) Take notes on the above reading.
- b) Answer questions 1-3 on page 443

**4. Complete questions 1-8 (multiple choice) on page 446**

**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