

# Life Sciences 11

## LG 11 & 12

### *Kingdom Protista & Kingdom Fungi*

**Kingdom Protista and Kingdom Fungi** introduce us to two incredibly diverse and fascinating groups of organisms that don't quite fit neatly into the categories of plants or animals. While they are often less familiar than mammals, trees, or insects, these kingdoms contain organisms that play essential roles in ecosystems across the planet. From microscopic pond dwellers to mushrooms pushing up through forest soil, protists and fungi quietly shape the living world in powerful ways.

**Kingdom Protista** is sometimes described as the “catch-all” kingdom of eukaryotic organisms that are not animals, plants, or fungi. Most protists are microscopic and live in water or moist environments, though some are large and visible to the naked eye. They can be incredibly varied: some move like tiny animals, some photosynthesize like plants, and others behave more like decomposers. This kingdom highlights the incredible flexibility of life, showing that the boundaries between major groups are not always clear-cut. Protists remind us that life is not always simple to categorize and that diversity often thrives in the in-between.

**Kingdom Fungi**, on the other hand, includes organisms such as mushrooms, molds, and yeasts. Although fungi may look plant-like at first glance, they are fundamentally different. Unlike plants, fungi do not photosynthesize. Instead, they absorb nutrients from their surroundings, often breaking down dead organic matter in the process. In doing so, fungi act as nature's recyclers, returning essential nutrients to the soil and making life possible for countless other organisms. Without fungi, ecosystems would quickly become overwhelmed with undecomposed material.

Together, Protista and Fungi demonstrate that life is far more complex than simple categories like “plant” or “animal.” They challenge us to think more deeply about how organisms survive, interact, and evolve. By studying these kingdoms, we gain a greater appreciation for the hidden, often microscopic forces that keep Earth's ecosystems balanced and thriving, because sometimes the smallest or strangest organisms have the biggest impact. Why did your Biology teacher get invited to every party? Because he was a real **fungi**! And if he didn't get invited... there wasn't *mushroom* for him anyway...

**LG 11 & 12 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.*

**Instructions: Use your Biology 11 Life Sciences text book to complete the following:**

**1. Read pages 380-383**

- a) Take notes on the above reading.
- b) Answer questions 1 & 2 on page 383

**2. Read pages 384-394**

- a) Take notes on the above reading
- b) Answer questions 1 & 2 on page 394

**3. Read pages 394-401**

- a) Take notes on the above reading.
- b) Answer questions 1 – 3 on page 401

**4. Complete the following questions from the Chapter Review**

- a) Complete the multiple-choice questions (#'s 1-8) on page 404
- b) Complete the “concept mastery” questions (#'s 1-4) on page 405

**5. Read pages 406-416**

- a) Take notes on the above reading
- b) Answer questions 1-4 on page 416

**6. Read pages 417-423**

- a) Take notes on the above reading
- b) Answer questions 1-5 on page 423
- c) Complete the multiple-choice questions (#'s 1-8) on page 426

**7. Use your research skills to complete the following:**

1. **Mushroom Diagram:** Find a diagram of a mushroom online and label the following structures: **cap, gills, basidia, basidiospores**, and **mycelium**. You may either draw the diagram yourself and label it or insert a labeled image from your search.
2. **Hyphae in Fungi:** What are *hyphae*? Describe their structure and explain their role in the growth and function of fungi.
3. **Chitin:** What is *chitin*? Explain why it is an important component of fungal cell walls. Do any fungi have **cellulose** (like plants) in their cell walls?
4. **Saprophyte vs. Parasite:** Compare and contrast a *saprophyte* with a *parasite*. Then explain whether fungi are typically saprophytic or parasitic (or both), and why.
5. **Fairy Rings:** What is a *fairy ring*? Describe what it looks like and where you would typically find one.
6. **Lichens:** What is a *lichen*? Is it a fungus? Explain your reasoning. In your answer, identify which part of the lichen is the **mycobiont** and which part is the **photobiont**.

**8. Watch the Amoeba Sisters video on fungi before completing this guide.**

**Title: Protists and Fungi** <https://www.youtube.com/watch?v=zK7Ckmxxqds>

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