Name: Due Date: TA:

Life Sciences 11

LG 15

Kingdom Plantae: Angiosperm & Gymnosperm Plants

Angiosperms and gymnosperms represent the most advanced and successful groups of plants on Earth. Together, they dominate most terrestrial ecosystems and provide humans and animals with food, oxygen, shelter, medicine, and countless natural resources. Unlike mosses and ferns, these plants reproduce using seeds rather than spores, an evolutionary advancement that greatly increased their ability to survive in diverse environments. Seeds protect and nourish the developing embryo, allowing plants to spread farther and reproduce more successfully on land.

Gymnosperms, meaning “naked seeds,” are plants whose seeds develop exposed on the surface of cone scales rather than inside fruits. Common examples include conifers such as pine, spruce, fir, and cedar trees. Gymnosperms reproduce using separate male and female cones. Male cones produce pollen, which contains the male reproductive cells, while female cones contain ovules that develop into seeds after fertilization. Wind often carries pollen from male cones to female cones, making pollination possible even over large distances. Most gymnosperms are evergreen plants with needle-like leaves adapted to conserve water and survive in harsh climates.

Angiosperms, meaning “covered seeds,” are flowering plants whose seeds develop inside protective fruits. They are the largest and most diverse plant group on Earth, including grasses, shrubs, trees, vegetables, and flowering garden plants. Flowers are specialized reproductive structures that contain both male and female parts. The male part, called the stamen, produces pollen, while the female part, called the pistil or carpel, contains the ovary where ovules develop into seeds after fertilization. Many angiosperms rely on pollinators such as bees, butterflies, birds, or bats to transfer pollen between flowers, while others use wind or water for pollination. Fruits help protect seeds and aid in their dispersal by animals, wind, or water.

Both angiosperms and gymnosperms possess highly specialized roots, stems, and vascular tissues that allow them to grow much larger than earlier plant groups. Roots anchor plants in the soil while absorbing water and minerals. Stems provide structural support and contain vascular tissues called xylem and phloem that transport water, nutrients, and sugars throughout the plant. Leaves carry out photosynthesis, converting sunlight into usable energy. Plant growth occurs in regions called meristems, where cells continuously divide and differentiate into new tissues. In woody plants, secondary growth increases stem thickness and produces annual growth rings that can reveal a tree’s age and environmental history.

Humans have also developed methods of artificial plant reproduction to produce desirable traits more quickly and reliably. Cuttings involve taking part of a stem or leaf and encouraging it to grow into a new plant genetically identical to the parent. Grafting joins tissues from two different plants so they grow together, often combining strong roots from one plant with desirable fruit or flowers from another. Budding is a form of grafting in which a single bud from one plant is

inserted into another plant. These techniques are widely used in agriculture, forestry, and horticulture to improve crop quality, disease resistance, and plant productivity.

Studying angiosperms and gymnosperms helps us understand how plants evolved increasingly efficient methods of reproduction, growth, and survival. These seed plants transformed Earth's ecosystems and continue to shape human civilization through food production, medicine, construction materials, and environmental stability. From towering conifer forests to colorful flowering gardens, angiosperms and gymnosperms demonstrate the incredible adaptability and diversity of plant life. Why did the flower get promoted? Because it was outstanding in its field! What did one flower say to the other during class? "I'm pollen asleep."

LG 15 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 textbook to complete the sections below.

You can also use the following link:

1. Read pages 466 - 470

a) Take notes on the above reading.
b) Answer questions 1-3 on page 470

2. Read pages 471 - 475

a) Take notes on the above reading.
b) Answer question 1 on page 475

3. Read pages 476 - 481

a) Take notes on the above reading.
b) Answer questions 1-3 on page 481

4. Complete questions 1-8 (multiple choice) on page 484

5. Read pages 486 - 489

a) Take notes on the above reading.
b) Answer questions 1-3 on page 489

6. Read pages 490 - 493

a) Take notes on the above reading.
b) Answer question 2 on page 493

7. Read pages 494 - 498

a) Take notes on the above reading.
b) Answer questions 2 - 4 on page 498

8. Read pages 498 - 502

a) Take notes on the above reading.
b) Answer questions 1-3 on page 502

9. Read pages 502 - 505

a) Take notes on the above reading.
b) Answer questions 2 on page 505

10. Read pages 505 - 508

c) Take notes on the above reading.
a) Answer questions 1-2 on page 508

11. Read pages 508 - 511

c) Take notes on the above reading.
a) Answer question 1 on page 511

12. Complete questions 1-8 (multiple choice) on page 515

13. Read pages 516 - 521

c) Take notes on the above reading.
a) Answer question 1 on page 521

14. Read pages 521- 540

c) Take notes on the above reading.
a) Answer questions 1-2 on page 540

15. Read pages 540- 542

a) Take notes on the above reading.
b) Answer questions 1-3 on page 542

16. Read pages 542- 545

a) Take notes on the above reading.
b) Answer questions 1-3 on page 545

17. Complete questions 1-8 (multiple choice) on page 548

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