

Chapter 13: Introduction to plants

Name of the student: _____

Question & answers:

- 1. What are some structures in plant cells that are not in animal cells?**

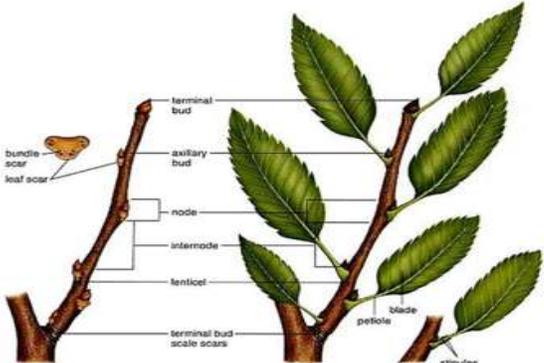
A. Cell wall and chloroplast
- 2. Why are fibrous roots better at absorbing water while prop roots are better at supporting a plant?**

A. Fibrous roots better at absorbing water because its root anchor a plant in the soil and consists of many small branching roots.
Prop roots are better at supporting a plant because these are additional small roots present above the ground.
- 3. How do plant structures such as roots, stems, and leaves ensure a plant's survival?**

A. **Stems:** Support, help carry water and minerals by the roots to plant leaves.
Leaves: leaves are the major sites for photosynthesis. In addition to making food, leaves also are involved in the exchange of gases with the environment.
Roots: Roots anchor a plant in the soil and enable it to grow upright and not be blown by wind or carried away by water. Roots also absorb water and minerals from the soil.
- 4. How did horsetails get their name?**

A. Horsetails get their name from a stage of their life cycle that looks like a horse's tail.
- 5. Differentiate between woody and herbaceous stems.**

A.

Woody Stem	Herbaceous stem
A woody stem is rigid and brown.	Herbaceous stem is flexible and green.
	

6. How do asexual and sexual reproduction in plants compare and contrast?

A.

Asexual Reproduction	Sexual Reproduction
1) It occurs when only one parent organism or part of that organism produces a new organism.	1) It produces individuals that have a genetic makeup than the parent organism or organisms.
2) Some plants can be grown from a leaf, a stem, or another plant part	2) Sperm + egg \longrightarrow Zygote This process is called Fertilization
3) Farmers and florists often use asexual reproduction to produce multiple plants with desired traits	3) Both seedless plants and seed plants can produce sexually.

7. Name the two stages in the life cycle of a plant?

A.

Gametophyte	Sporophyte
It begins with a spore or haploid cell. Through mitosis and cell division, spore produces a plant structure or an entire plant called Gametophyte.	It begins with diploid cell. This cell divides through mitosis and cell division and forms sporophyte.

8. What is the relationship between photosynthesis and cellular respiration?

- A. **Photosynthesis:** Plant absorb light energy from the sun and convert into chemical energy.
Cellular Respiration: It is the process of releasing energy by breaking down food.

9. Where are the chloroplasts located in plant cells?

- A. Some leaf cells contain chloroplasts.

10. Write the equation for photosynthesis using words?

- A.
$$\begin{array}{c} \text{Light energy} \\ \text{carbon dioxide + water} \longrightarrow \text{glucose + oxygen} \\ \text{Chlorophyll} \end{array}$$

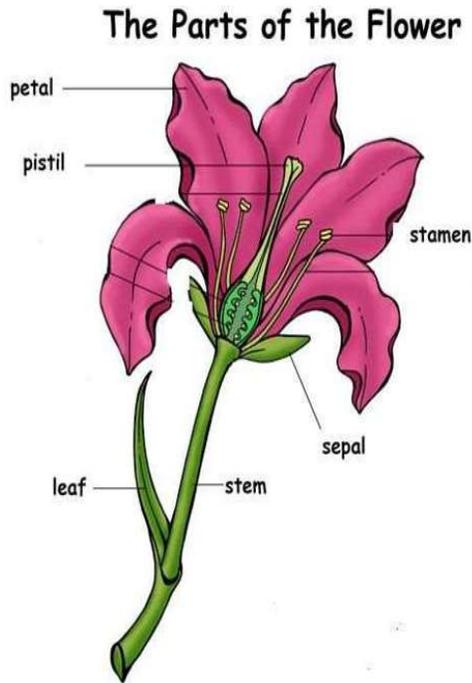
11. Compare the equation for photosynthesis and cellular respiration?

A.

Photosynthesis	Cellular respiration
$\begin{array}{c} \text{Light energy} \\ 6\text{CO}_2 + 6\text{H}_2\text{O} \longrightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \\ \text{Chlorophyll} \end{array}$	$\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \longrightarrow 6\text{CO}_2 + 6\text{H}_2\text{O} + \text{ATP (energy)}$

12. Illustrate and label the parts of a flower.

A.



13. How do water and nutrients move in a nonvascular plant? In a vascular plant?

A.

Nonvascular plants	Vascular plants
Movement or transport water and nutrients occurs through diffusion and osmosis in nonvascular plants	Water and nutrients move inside specialized tissues.

14. How do plants respond to environmental changes?

A. Stimuli: are any changes in an organism's environment that cause a response.

Two types of stimuli:

External stimuli: light, touch and gravity

Internal stimuli: These are chemicals called hormones, that plant produce. These hormones can affect growth, seed germination, or fruit ripening.

15. Use the diagram below to answer question



The diagram shows the path water takes in moving through a plant. Describe what happens to CO₂ in the plant. Use the terms sunlight, sugar, leaves, and cellular respiration in your answer.

A. Carbon dioxide is taken into the plant through the leaves. Together with water, sunlight, and chlorophyll, it is converted into sugar and oxygen through photosynthesis. The sugar and oxygen from photosynthesis is used during cellular respiration to produce carbon dioxide, water, and ATP (energy).

16. Which structures in a plant contain vascular tissue? What is their function?

A. Vascular tissue is located in the roots, stems, and leaves. It is specialized to carry water and nutrients from the soil up to the leaves.

17. How are the life cycles of a fern and a pine similar? How are they different

A. Both types of plants have a gametophyte stage and a sporophyte stage. Ferns are seedless plants and produce spores; pines are seed plants and produce seeds.

18. How do offspring produced by asexual reproduction differ from offspring produced by sexual reproduction?

A. Offspring produced by asexual reproduction are genetically identical to each other and to the parent. Offspring produced by sexual reproduction are not genetically identical to each other or to the parent plant(s).