



CHAPTER EIGHT

The Potter's Master

...and doors that weren't

...It was also

...because it all

...the ghosts kept

...the coats of

WONDERS

UNDER

THE

MICROSCOPE

VOLUME - 1 | ISSUE - 9

BY FARIHA ZAMAN

strongly believe
the moment you de
...ch

Welcome to

WONDERS
UNDER THE
MICROSCOPE

VOLUME - 1 | ISSUE - 9

V O L U M E - 1 | I S S U E - 9

your Question Of the last Month

What is the fastest
land animal?



Here's the Answer

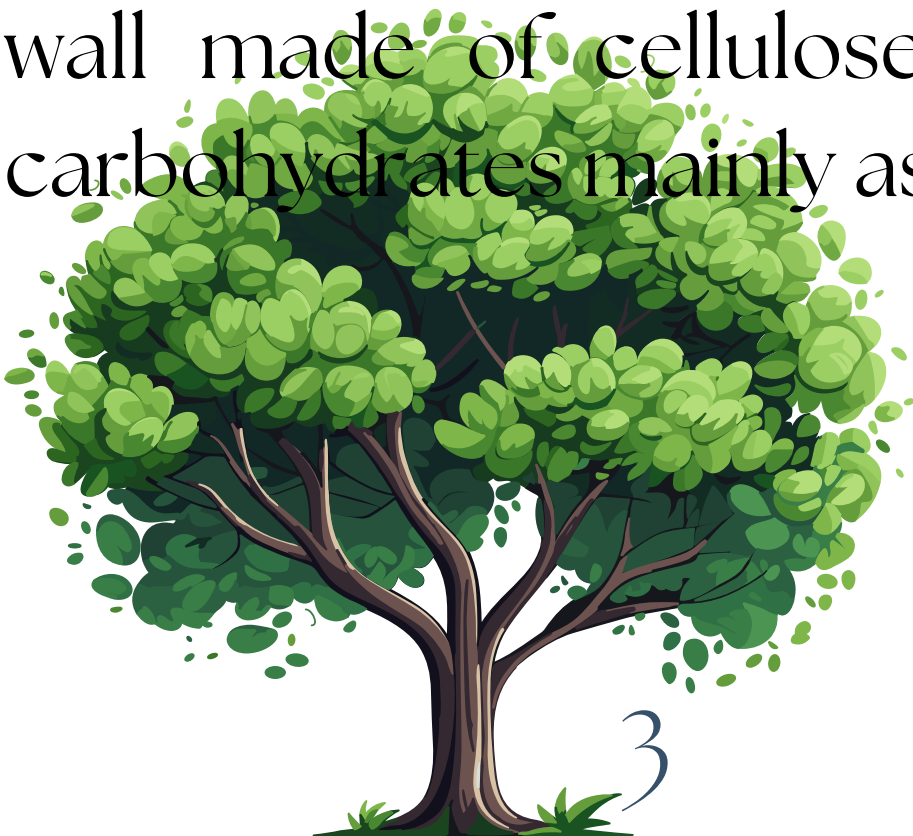


The cheetah (*Acinonyx jubatus*) — it can reach speeds of up to 110–120 km/h (68–75 mph) in short bursts, making it the fastest land animal on Earth.

The Plant Kingdom

The Plant Kingdom, or Kingdom Plantae, consists of multicellular, eukaryotic, autotrophic organisms that perform photosynthesis using chlorophyll a and b.

Plants are primarily terrestrial, though some live in aquatic environments. Their cells have a cell wall made of cellulose and store carbohydrates mainly as starch.



Key Characteristics of Plants

- Cellular Structure: Eukaryotic cells with chloroplasts (organelles containing chlorophyll and carotenoids).
- Nutrition: Autotrophic; synthesize food via photosynthesis ($6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$) using sunlight.
- Reproduction: Both sexual (gametes) and asexual (spores, vegetative propagation).
- Alternation of Generations: Plants have a life cycle alternating between haploid gametophyte and diploid sporophyte phases.
- Cell Wall: Made of cellulose; provides structural support.
- Vacuoles: Large central vacuoles maintain turgor pressure.



Plants are classified into the following major groups based on the presence or absence of vascular tissues and seeds:

1. Bryophytes (non-vascular plants)

- Examples: Mosses (Funaria), Liverworts (Marchantia), Hornworts.
- Lack true roots, stems, leaves; no xylem or phloem.
- Dominant gametophyte stage; water is essential for fertilization.

2. Pteridophytes (vascular, seedless plants)

- Examples: Ferns (Pteris), Horsetails (Equisetum), Lycopodium.
- Have true roots, stems, and leaves; possess vascular tissues (xylem and phloem).
- Dominant sporophyte stage; reproduce via spores.

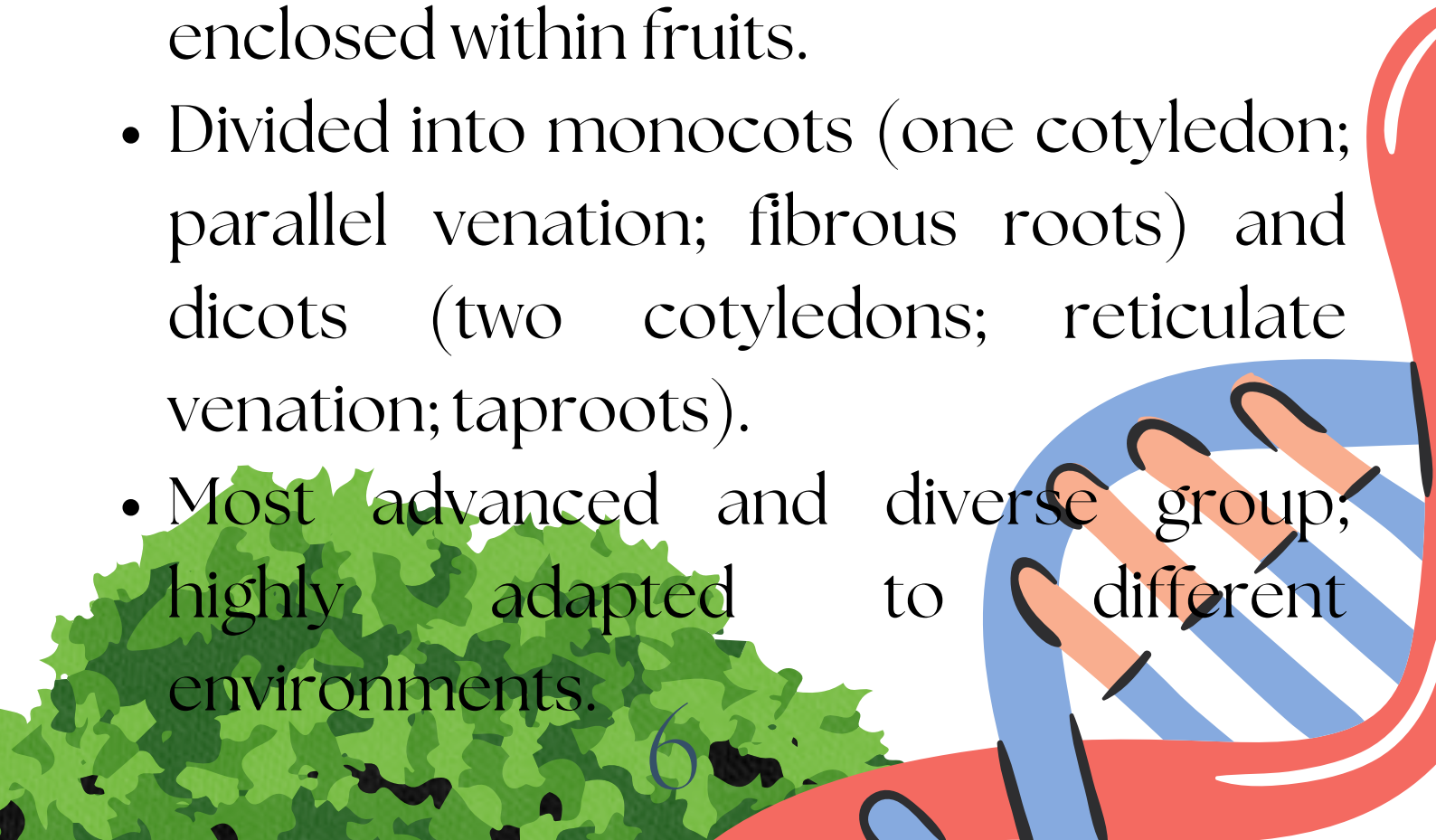


3. Gymnosperms (vascular plants with naked seeds)

- Examples: Pines (Pinus), Cycads, Ginkgo.
- Produce seeds not enclosed in fruit; usually woody plants.
- Cones bear reproductive structures; mostly wind-pollinated.

4. Angiosperms (flowering plants with enclosed seeds)

- Examples: Mango, Wheat, Sunflower.
- Produce flowers and fruits; seeds enclosed within fruits.
- Divided into monocots (one cotyledon; parallel venation; fibrous roots) and dicots (two cotyledons; reticulate venation; taproots).
- Most advanced and diverse group; highly adapted to different environments.

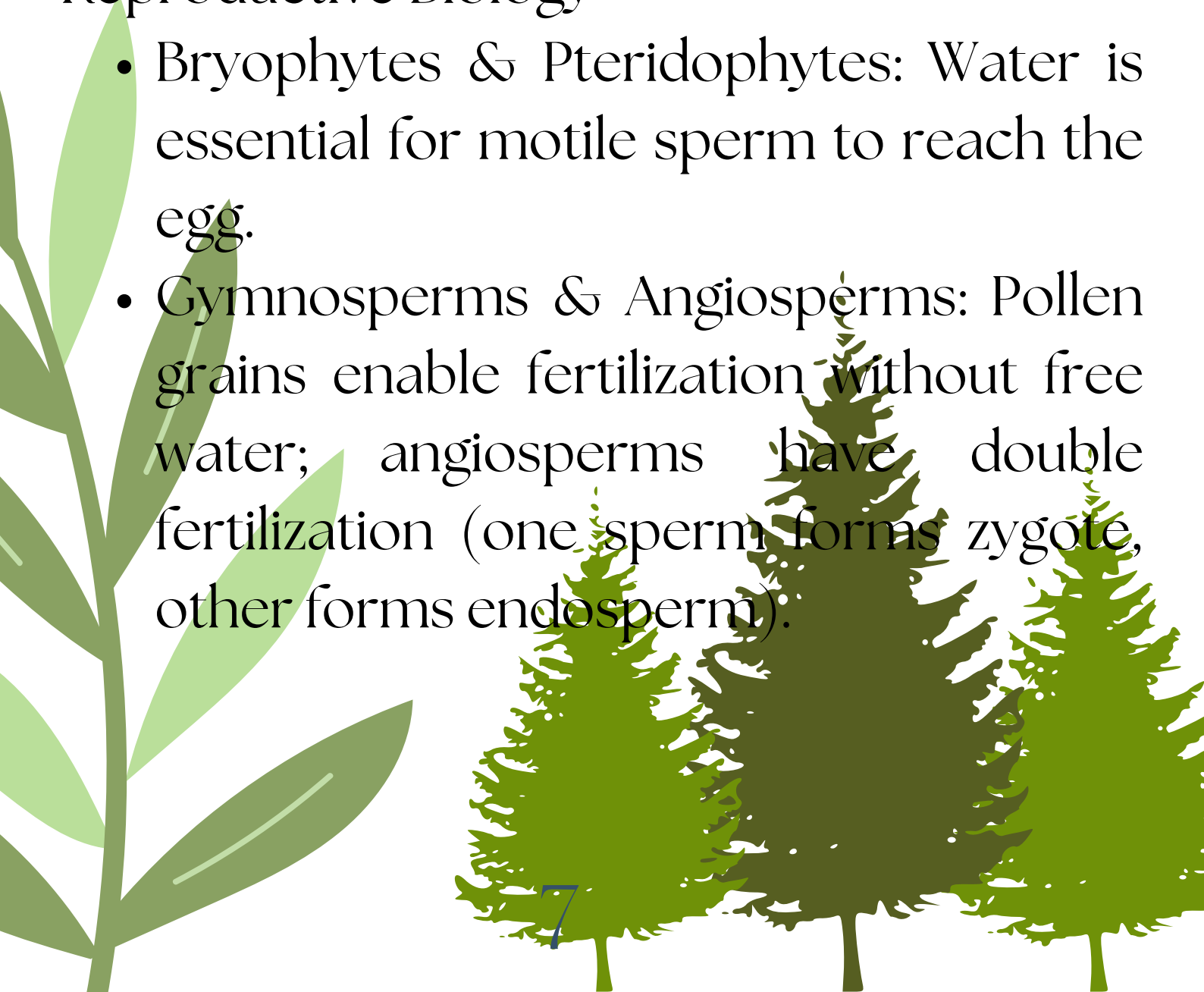


Vascular Tissue System

- Xylem: Conducts water and minerals from roots to aerial parts; contains tracheids, vessels, fibers.
- Phloem: Transports sugars and organic compounds; consists of sieve tubes, companion cells, phloem fibers.

Reproductive Biology

- Bryophytes & Pteridophytes: Water is essential for motile sperm to reach the egg.
- Gymnosperms & Angiosperms: Pollen grains enable fertilization without free water; angiosperms have double fertilization (one sperm forms zygote, other forms endosperm).



Vascular Tissue System

- Xylem: Conducts water and minerals from roots to aerial parts; contains tracheids, vessels, fibers.
- Phloem: Transports sugars and organic compounds; consists of sieve tubes, companion cells, phloem fibers.

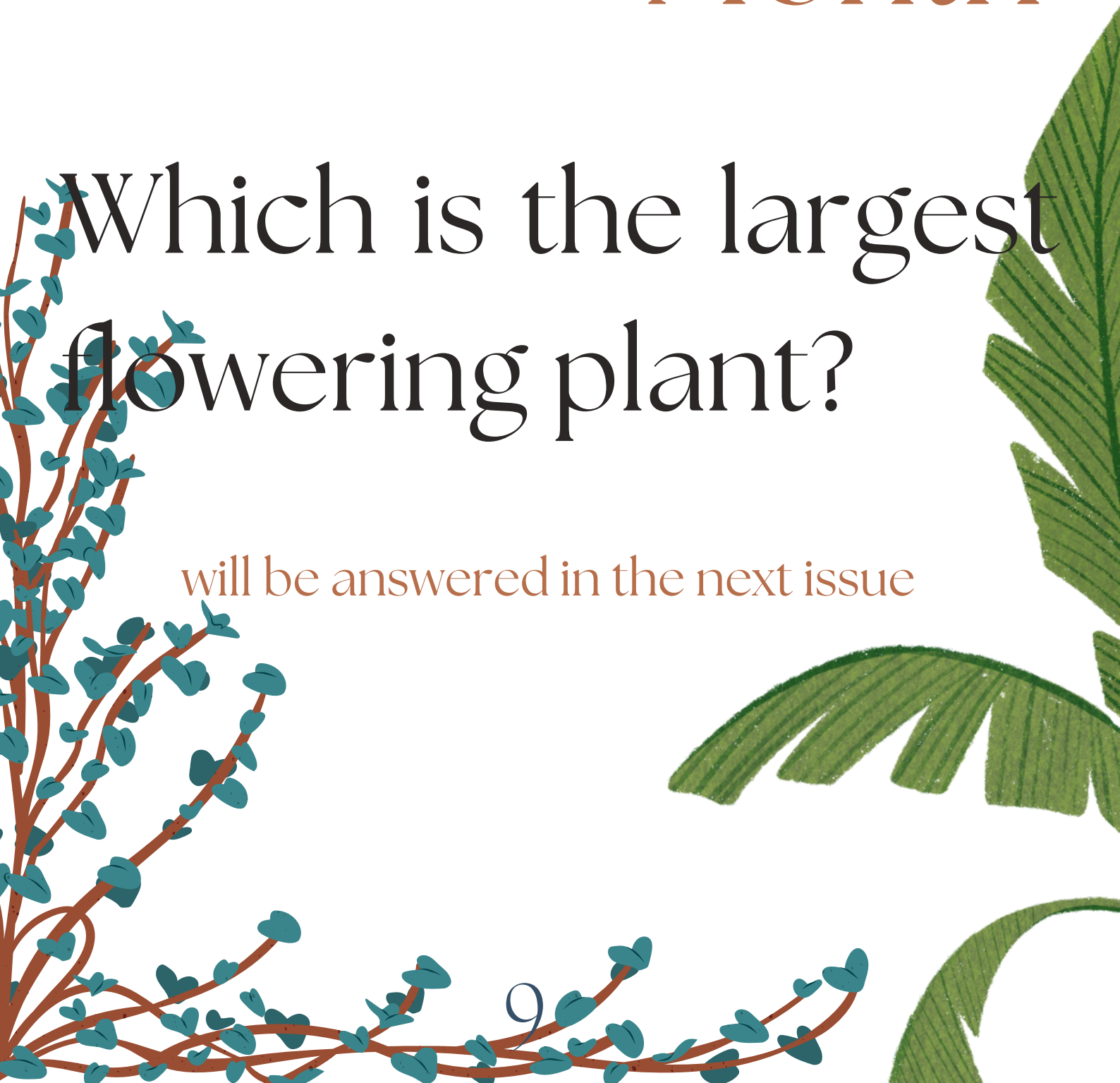
Reproductive Biology

- Bryophytes & Pteridophytes: Water is essential for motile sperm to reach the egg.
- Gymnosperms & Angiosperms: Pollen grains enable fertilization without free water; angiosperms have double fertilization (one sperm forms zygote, other forms endosperm).

Question for the Month

Which is the largest
flowering plant?

will be answered in the next issue



Thank
you

Instagram:

@wonders_under_the_microscope

