What is Plant Growth and Development?

Worksheet

Plant growth is an irreversible increase in size or mass, while development includes all the structural and functional changes - germination, vegetative growth, flowering, and senescence - that occur across a plant's life cycle.

Questions

1. A plant grows from 12 cm to 27 cm in 5 days. What is its growth rate?

A) 3 cm/day
B) 5 cm/day
C) 15 cm/day
D) 2 cm/day

2. Which hormone is primarily responsible for stem elongation and phototropism?

A) Cytokinin
B) Auxin
C) Ethylene
D) Abscisic acid

3. Where in a plant does active cell division for growth occur?

A) Xylem
B) Meristems
C) Epidermis
D) Mature leaves

4. Which stage comes right after germination in the typical plant life cycle?

A) Senescence
B) Fruiting
C) Vegetative growth
D) Seed dispersal

5. A seedling grows from 8 cm to 20 cm in 6 days. Find its growth rate.

6. A sunflower is 30 cm tall on day 10 and 90 cm tall on day 25. What is its average growth rate?

7. A bean plant grows at 1.5 cm/day for 20 days starting at 5 cm. What is its final height?

8. Define: What is the difference between plant growth and development?

9. Define: What are the main stages of plant development?

10. Define: Which plant hormone promotes cell elongation and stem growth?

Answer Key

1. A) 3 cm/day - (2712)/5 = 15/5 = 3 cm/day.
2. B) Auxin - Auxin promotes cell elongation and bends stems toward light.
3. B) Meristems - Meristematic tissue at root/shoot tips (and cambium) is where active cell division happens.
4. C) Vegetative growth - After the seedling emerges, the plant enters vegetative growth before flowering.
5. H = 8 cm, H = 20 cm, t = 6 days Growth rate = (H H)/t = (20 8)/6 Growth rate = 12/6 = 2 cm/day
6. H = 30 cm, H = 90 cm, t = 25 10 = 15 days Growth rate = (90 30)/15 = 60/15 Growth rate = 4 cm/day
7. H = H + (rate t) H = 5 + (1.5 20) H = 5 + 30 = 35 cm
8. Growth is an irreversible increase in size/mass; development includes all structural and functional changes across the life cycle.
9. Germination, vegetative growth, flowering, fruiting/seed set, and senescence.
10. Auxin - it drives phototropism and elongation growth.