PLANT HORMONES

Life Sciences

Key Points: Plant Hormones

- **FUNCTIONS OF 3 PLANT HORMONES**
- Auxins
- Gibberillins
- Absiscic Acid
- **PLANT HORMONES as WEED KILLERS**
- **TROPISMS**
- Phototropism and Geotropism and the role of Auxins
- **PLANT DEFENCE**: Chemicals and Thorns

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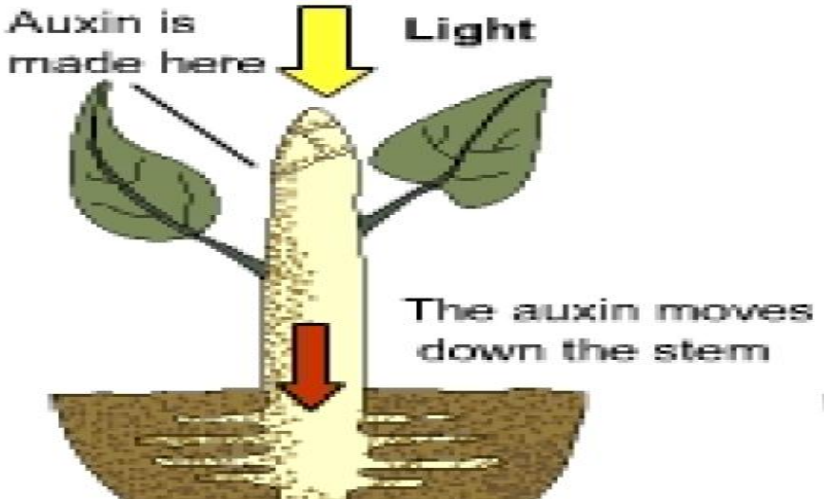
1. AUXINS



Found in Shoot and Root Tips

a. **Stimulate Cell Division and Elongation in Stems**
b. **Responsible for Tropisms (Growth Movements)**
c. **Apical Dominance**

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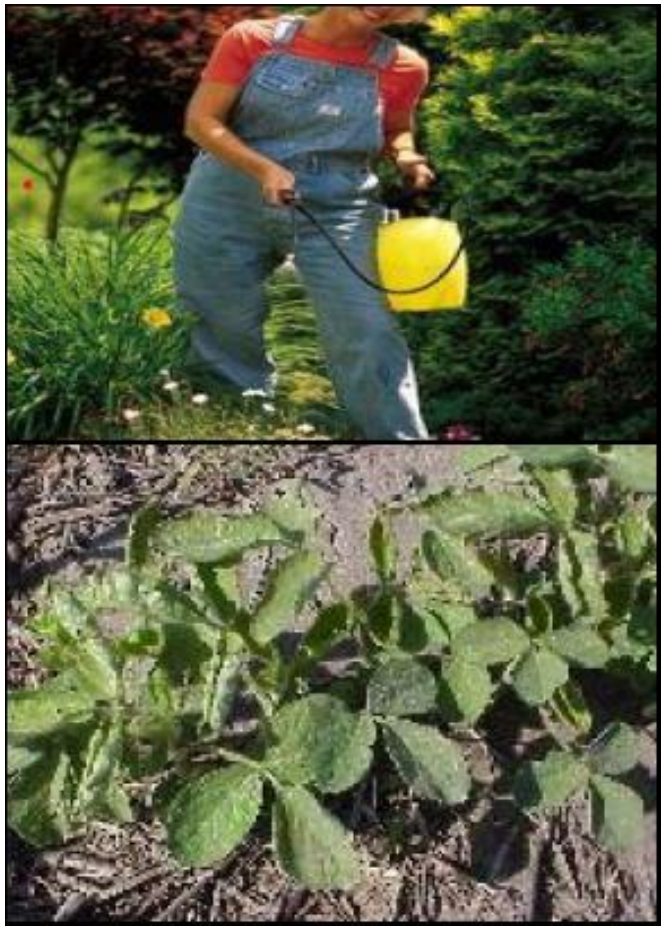
Auxins as Herbicides:

- Auxins accelerate the growth of plants

- Weeds sprayed with auxins grow so fast that they cannot keep up with water absorption

- These plants weaken and die



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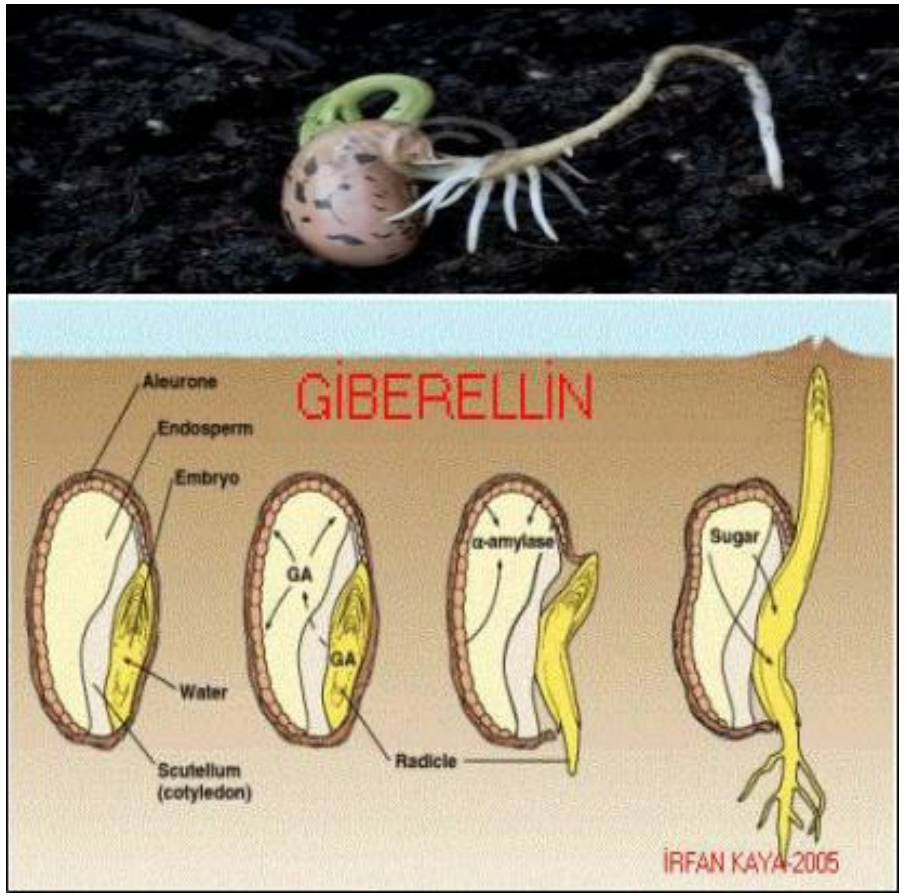
2. GIBBERELLINS

a. Gibberellins stimulates seed germination
b. Controls Flowering
c. Development of Fruit



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3. ABSCISIC ACID (ABA)

1. Accelerates abscission in leaves and fruit. ABA is produced in ripe fruit and induced fruit fall
2. ABA stimulates the closing of stomata
3. Inhibits Growth

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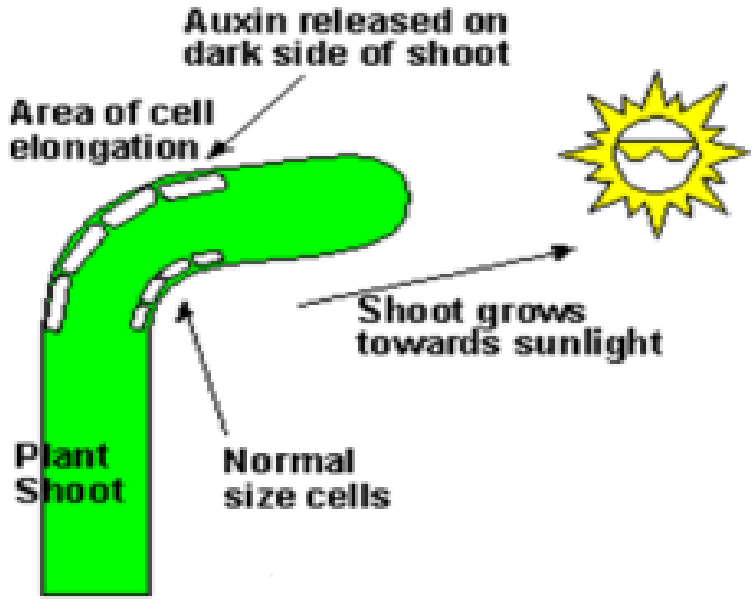
The Role of Auxins in Phototropism

- Phototropism refers to the growth movement of plants as a result of light stimuli.
- Leaves and stems always grow towards light.
- These growth movements are controlled by Auxins.
- Auxins gather in the dark where they stimulate growth.
- The shoot bends toward the light.



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The Role of Auxins in Geotropism

- Geotropism refers to the growth movement of roots as a result of gravity.
- Roots always grow towards the stimulus of gravity.
- These growth movements are controlled by Auxins.
- Auxins gather on the lower side of roots where they INHIBIT growth.
- The roots bend toward the stimuli of gravity.

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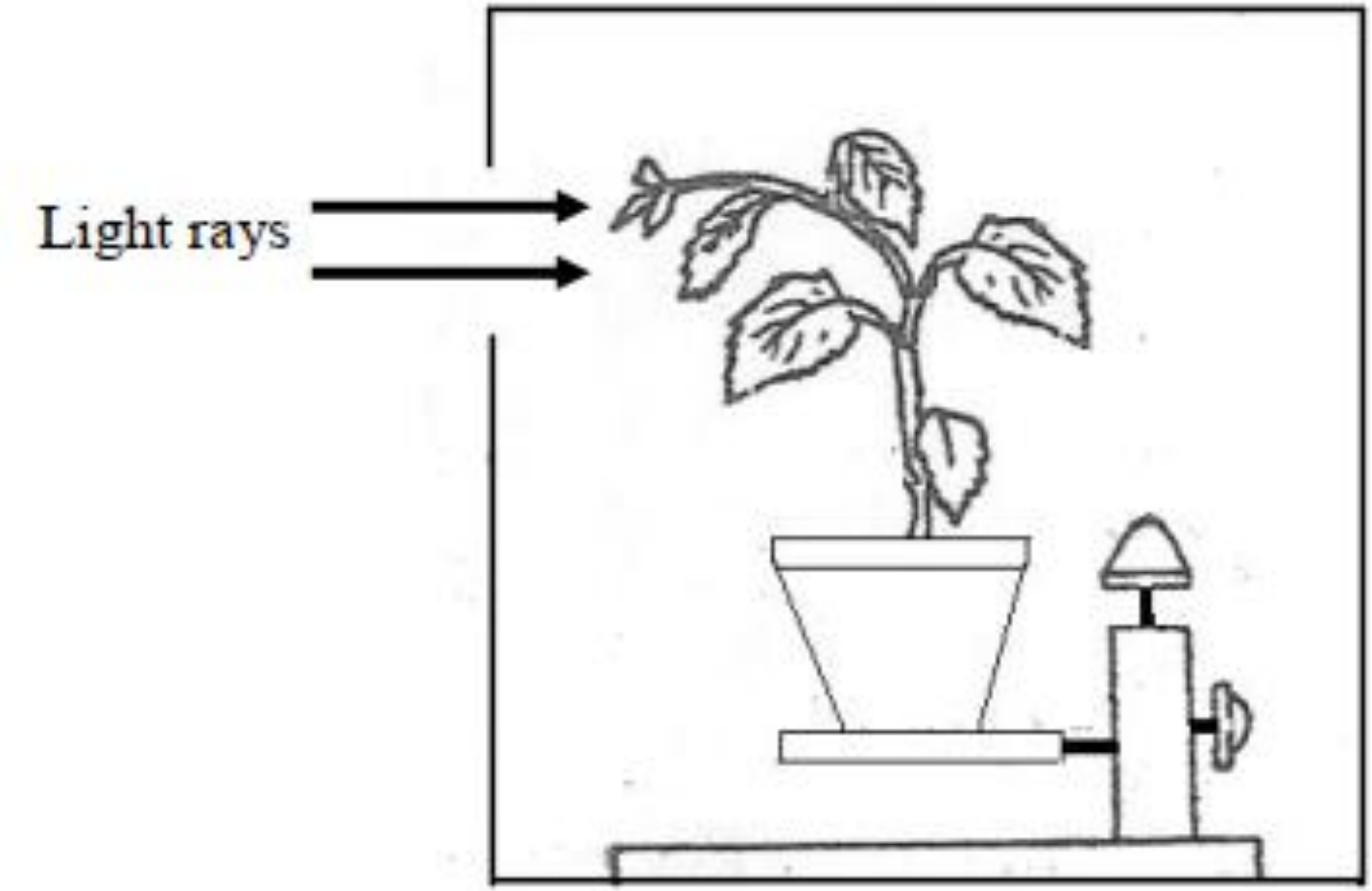
Exam Questions



Increase Validity:
Keep all factors constant, only change what we test.

Increase Reliability:
Repeat / More Plants

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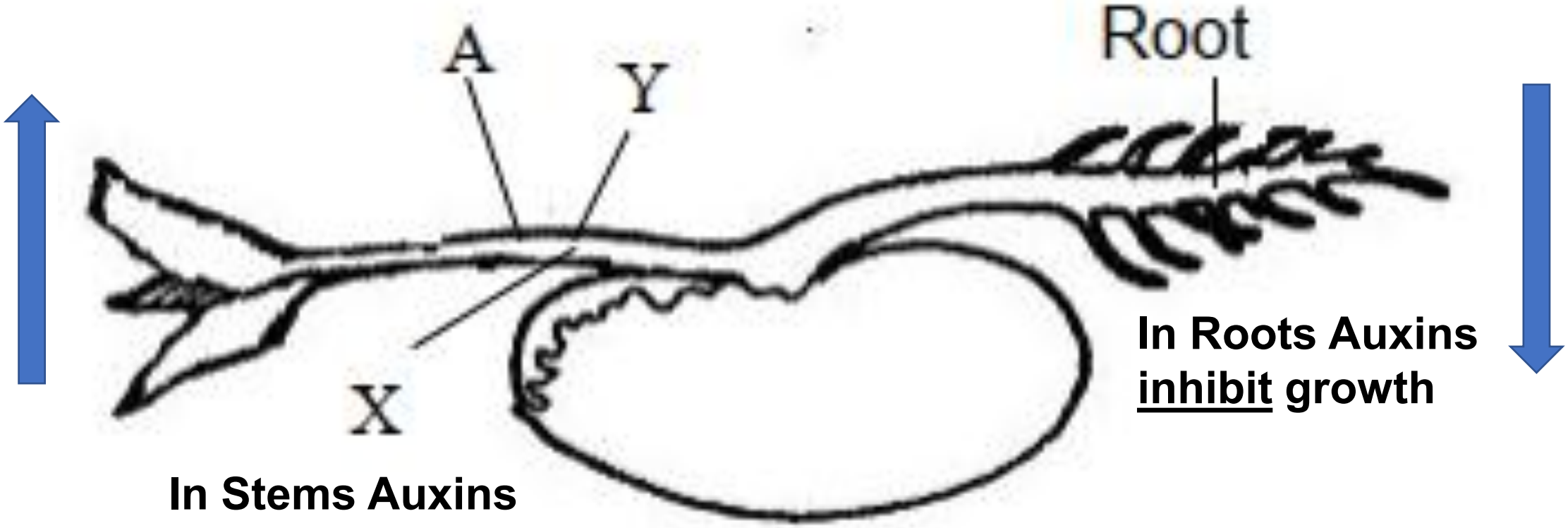
Exam Questions



In Stems Auxins <u>stimulate</u> growth

In Roots Auxins <u>inhibit</u> growth

PLANT DEFENCE MECHANISMS

1. **Mechanical – Thorns**
2. **Chemical**

Calculate % Increase

- **Question:** The length of a shoot is 5cm. A week later the shoot was 8cm long. Calculate the % increase in the growth of the plant.

$$\frac{\textbf{Difference}}{\textbf{Start}} \times 100$$

$$\frac{3}{5} \times 100 = 60\% \text{ increase}$$

Calculate **% Decrease** in the **same way**