





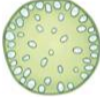





Characteristics of Monocots and Dicots		
	Monocots	Dicots
Seeds	Single cotyledon 	Two cotyledons 
Leaves	Parallel veins 	Branched veins 
Flowers	Floral parts often in multiples of 3 	Floral parts often in multiples of 4 or 5 

Pg 570

Characteristics of Monocots and Dicots		
	Monocots	Dicots
Stems	Vascular bundles scattered throughout stem 	Vascular bundles arranged in a ring 
Roots	Fibrous roots 	Taproot 

Chapter 25 Section 25-2

Tropisms

What are plant tropisms?

☼ Plants change their patterns and directions of growth in response to a multitude of cues.

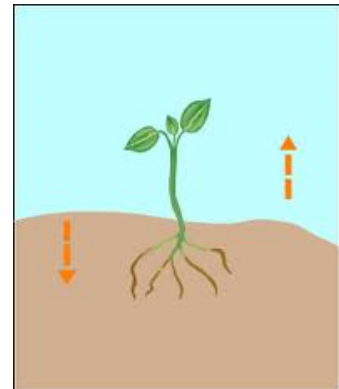
☼ *The responses of plants to external stimuli* are called tropisms.

Plant tropisms include:

- 1. gravitropism [response to gravity]**
- 2. phototropism [response to light]**
- 3. thigmotropism [response to touch]**

Gravitropism

- ☼ Gravitropism, the response of a plant to gravity, is controlled by auxins. *[plant hormones]*
- ☼ Gravitropism causes the shoot of a germinating seed to grow out of the soil—against the force of gravity.
- ☼ It also causes the roots of a plant to grow with the force of gravity and into the soil.



Phototropism

- ☼ Phototropism, the response of a plant to light, is also controlled by auxins.
- ☼ This response can be so quick that young seedlings reorient themselves in a matter of hours



Thigmotropism

- 🌻 **Thigmotropism** is the response of plants to touch.
- 🌻 An example of thigmotropism is the growth of vines and climbing plants.



- The stems of these plants do not grow straight up.
- The growing tip of each stem points sideways and twists in circles as the shoot grows.
- When the tip encounters an object, it quickly wraps around it.



Rapid Responses



Not all plant responses involve growth.



One example is the rapid closing of leaflets that occurs in the *Mimosa pudica*.



If you touch the leaves of a mimosa plant, within seconds, the leaves snap shut.



- ❁ The secret to this movement is changes in osmotic pressure.
- ❁ The leaves are held apart due to osmotic pressure where the two leaflets join.
- ❁ When the leaf is touched, cells near the center of the leaflet pump out ions and lose water due to osmosis.
- ❁ Pressure from cells on the underside of the leaf, which do not lose water, forces the leaflets together

Photoperiodism

What is photoperiodism?

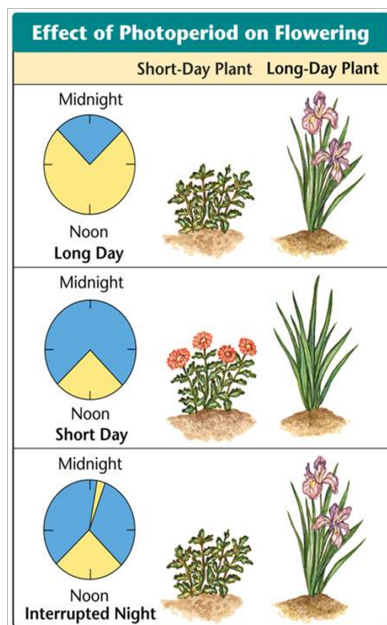
Plants such as chrysanthemums and poinsettias flower when days are short and are therefore called **short-day plants**.



Spinach and irises flower when days are long and are therefore known as **long-day plants**.

Photoperiodism is the response to periods of light and darkness.

Photoperiodism in plants is responsible for the timing of seasonal activities such as flowering and growth.



- ☼ **Photoperiodism controls the timing of flowering and seasonal growth.**
- ☼ The response of flowering, shown here, is controlled by the amount of darkness plants receive.

How do deciduous plants prepare for winter?

↳ leaves



As cold weather approaches, deciduous plants turn off photosynthetic pathways, transport materials from leaves to roots, and seal leaves off from the rest of the plant.

Leaf Abscission

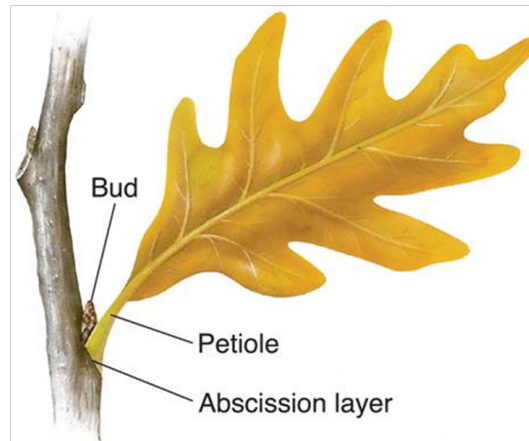
At summer's end, the phytochrome [a pigment that plants use to detect the light] in leaves absorbs less light as days shorten and nights become longer.

←
cell elongation
Auxin production drops, but the production of ethylene increases.

The change in the relative amounts of auxin and ethylene hormones starts a series of events that gradually shut down the leaf.

1. First chlorophyll synthesis stops.
2. Light destroys the remaining green pigment.
3. Other pigments—including yellow and orange carotenoids—become visible for the first time.
4. Finally, an **abscission layer** of cells at the petiole seals the leaf off from the plant's vascular system. Before long, the leaf falls to the ground, a sign that the tree is fully prepared for winter.

Page 642 ques 1-5 } Test Outline



Attachments

introduction notes.notebook

notes.notebook