



FOUNDATION
Minnesota Nursery and Landscape Association (MNL) Foundation

BOTANY, PLANT PHYSIOLOGY AND PLANT GROWTH

LESSON 3 - PLANT PARTS AND FUNCTIONS

OVERVIEW AND STEMS

PART 1





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Plant Parts and Functions

Part One – Overview and Stems

Part Two – Leaves

Part Three – Roots

Part Four – Flowers and Fruits

Plant Parts and Functions

Part One – Overview and Stems

1. Plant Parts and Functions

2. Parts of the Stem

- Interior
- Exterior

3. Modifications of the Stem

- Above-ground modifications
- Below-ground modifications

Part Two – Leaves

Part Three – Roots

Part Four – Flowers and Fruits

Overview – Classifications by Life Cycle

Annuals	One growing season
Biennials	Two growing seasons
Perennials	Many growing seasons

Overview – Classification by Scientific Division

Kingdom: Plants

Division: Ferns

Division: Conifers (Gymnosperms)

Division: Ginkgo (Gymnosperm)

Division: Flowering Plants (Angiosperms)

Class: Monocots

Class: Dicots

Overview – Classifications by Seed Leaf

	<u>Monocots</u>	<u>Dicots</u>
Cotyledons	2	1
Leaf Venation	Parallel (usually)	Netlike (usually)
Flower Parts	3's (usually)	4's or 5's (usually)
Vascular Tissues	Scattered Bundles	Rings

Segment One - Plant Parts and Functions

Reproductive Parts

Flowers

Fruits

Flower buds

Seeds

Vegetative Parts

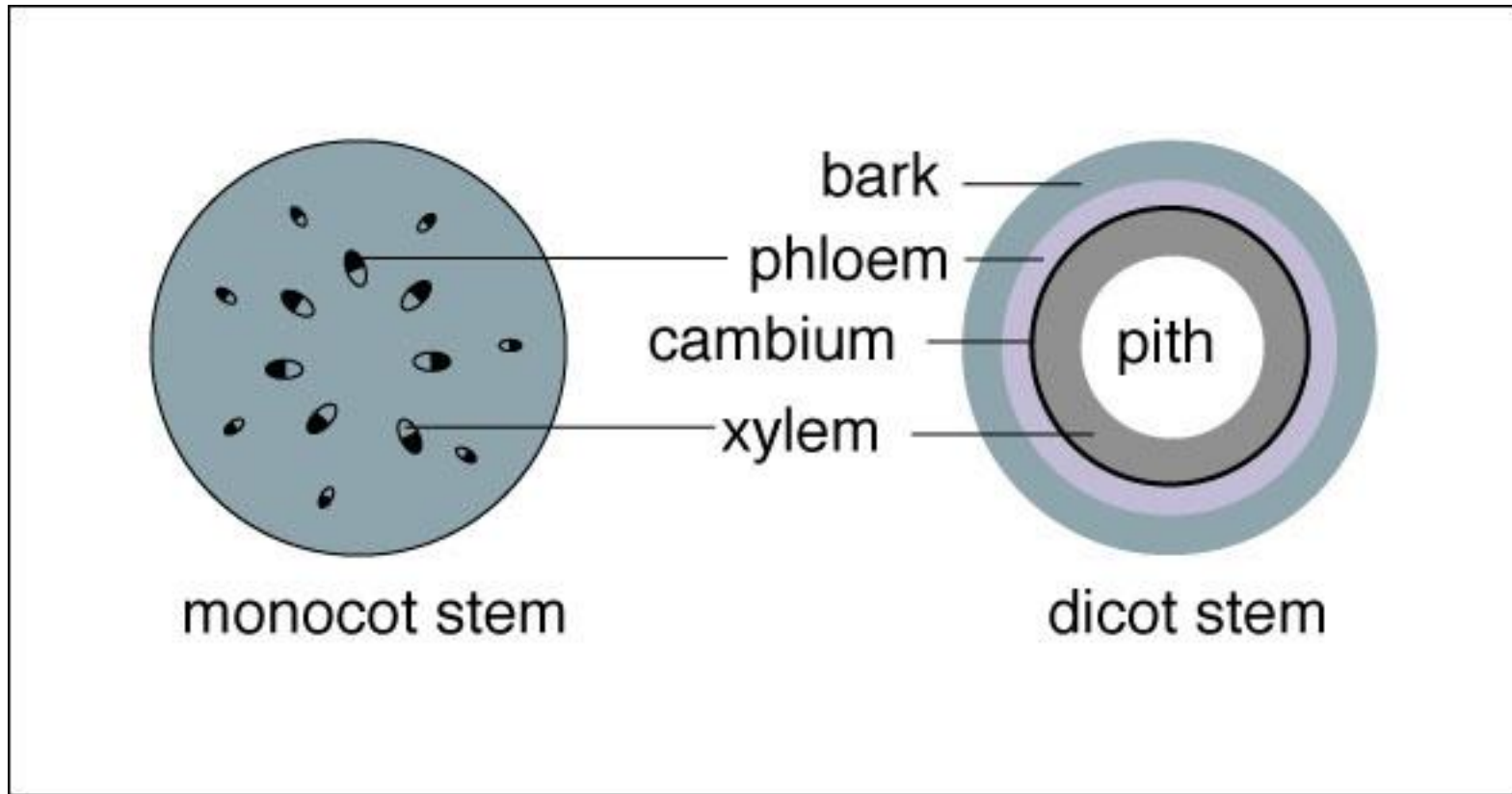
Leaves

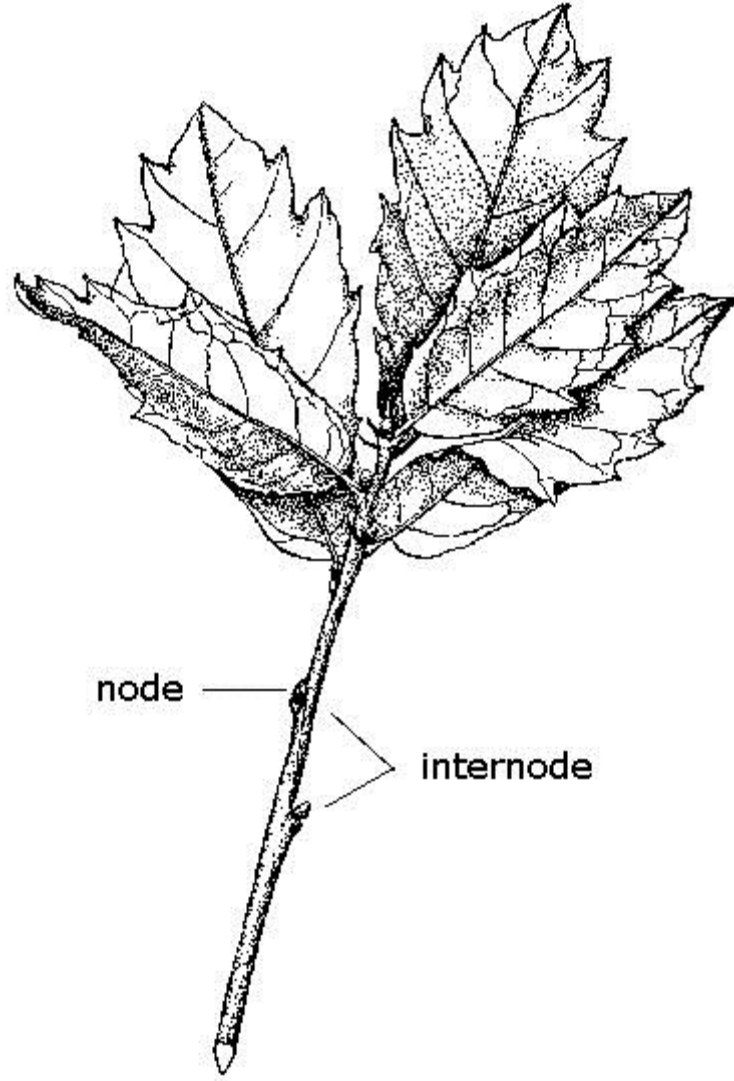
Roots

Shoot buds

Stems

Segment Two – Parts of the Stem





node

internode

Types of Stems

Trunk

Branch

Twig

Shoot

Shrubs vs. Trees

- Shrubs: Branch from or near base (usually multi-stemmed)
- Trees: Branch from well-defined trunk (usually single-stemmed)

Vines

- Twining
- Honeysuckle
- Climbing
- Aerial roots
- English ivy
- Tendrils
- Cucumber
- Holdfasts
- Virginia creeper
- Clasp ing leaf stalks
- Clematis
- (Petioles)

Segment Three – Modifications of the Stem

Above-ground modified stems:

- Spurs
- Crowns
- Stolons

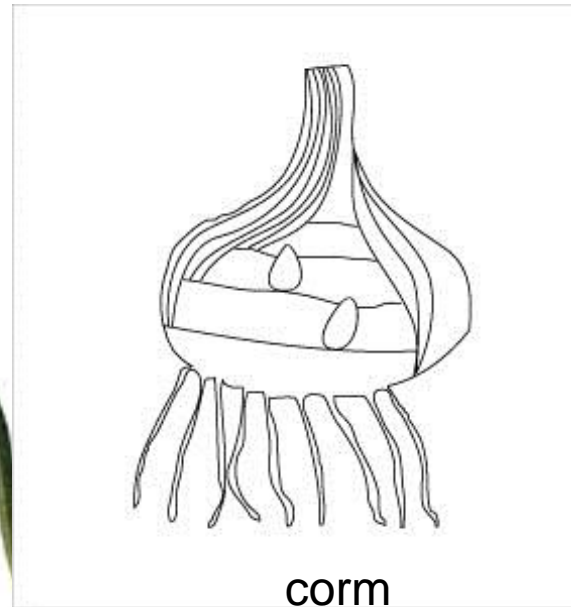
Below-ground modified stems:

- Tubers
- Rhizomes
- Bulbs
- Corms

Above-ground stem modifications



Below-ground stem modifications

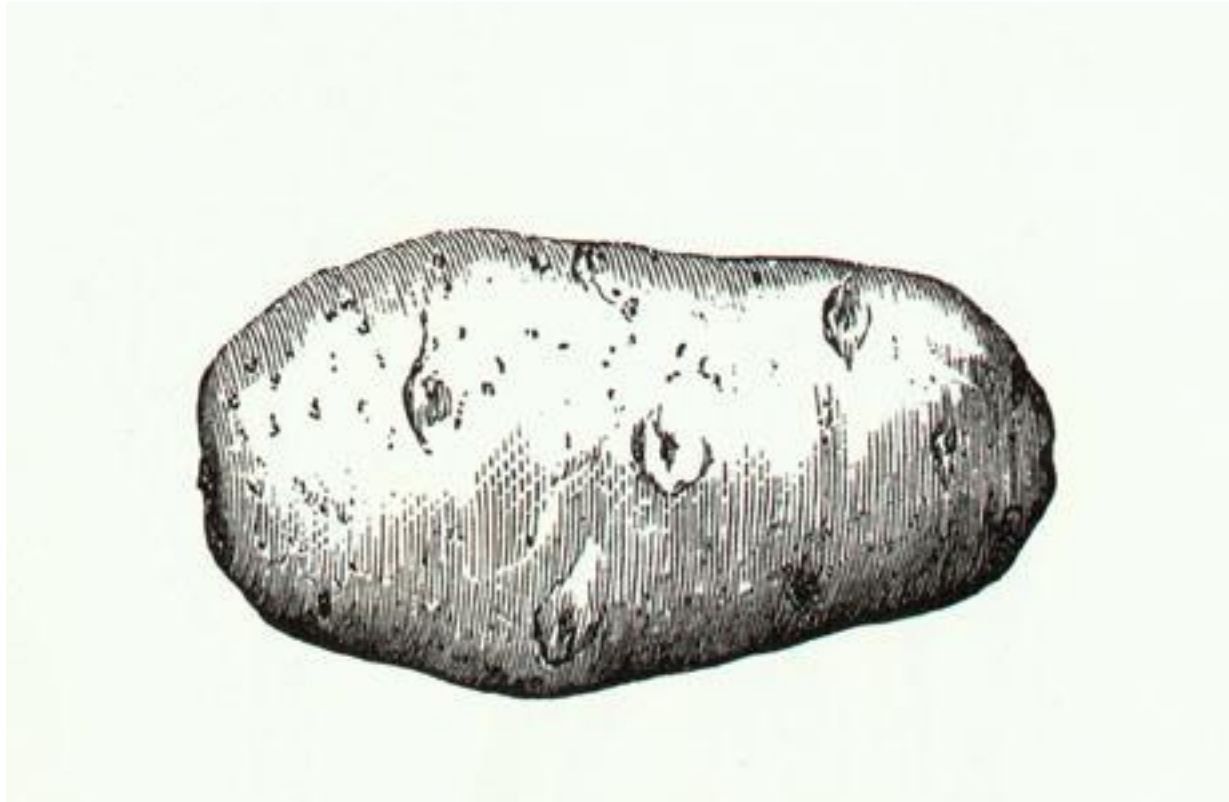


Stems vs. Roots

Stems: Have nodes

Roots: Have no nodes

Stems as Food



Review

Segment One - Plant Parts and Functions

Segment Two – Parts of the Stem

Interior

Exterior

Segment Three – Modifications of the Stem

Above-ground modifications

Below-ground modifications

Review

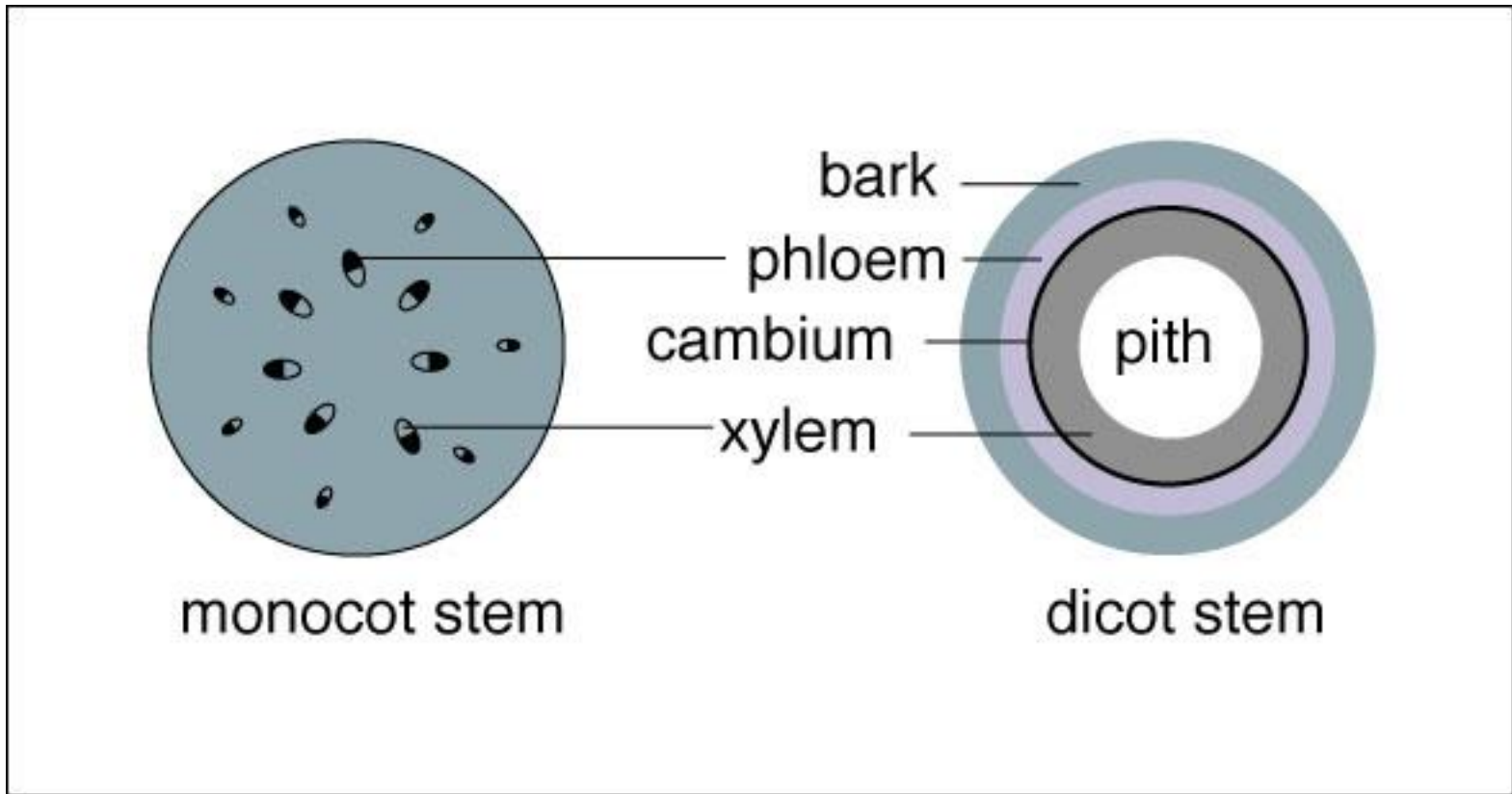
Reproductive parts

- Flowers
- Fruit
- Flower buds
- Seeds

Vegetative parts

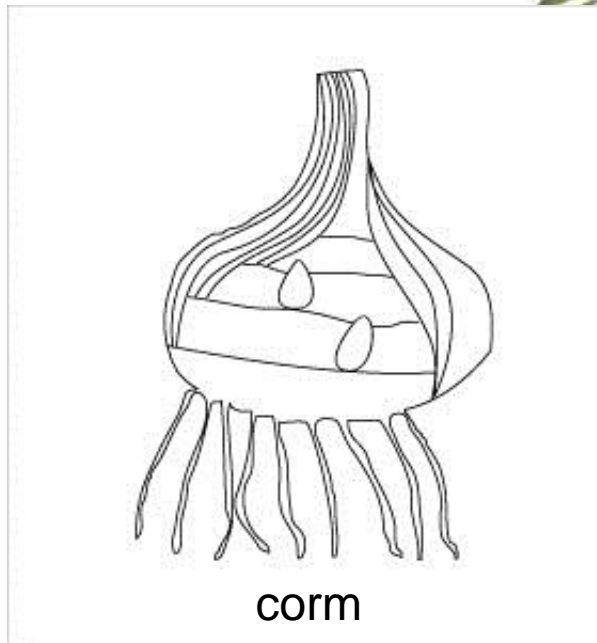
- Leaves
- Roots
- Shoot buds
- Stem

Review



Review

Below-ground stem modifications



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