

Botany

Science

Grade(s) 11th - 12th, Duration 1 Semester, .5

Credits

Elective Course

Course Overview

GENERAL DESCRIPTION: Students enrolled in Botany will explore the importance, structure, function, reproduction, and responses of plants. This class will experiment with plants in the greenhouse and produce plants for the annual spring sale along with the experimental plants.

HOMEWORK OR READING NECESSARY: Daily reading and class assignments.

FORMAT: Lecture, lab activities and research projects.

TESTS: Tests will follow each chapter.

Scope And Sequence

Timeframe	Unit	Instructional Topics
2 Week(s)	Unit 1 Cells & Seeds	
2 Week(s)	Unit 2 Roots & Shoots, Inside Stems	
3 Week(s)	Unit 3 Inside Roots & Leaves	
2 Week(s)	Unit 4 Adaptations for Protection	<ol style="list-style-type: none">1. The Garden Habitat2. Environmental Modification3. Limiting Factors4. Protection in Extreme Environments5. Protection against Animals6. Protection by Camouflage7. Protection by Ants8. Wound Healing9. Chemical Protection10. Mode of Operation of Chemical Protectants11. Other Methods of Defense
2 Week(s)	Unit 5 Adaptations to Fulfill Basic Needs	<ol style="list-style-type: none">1. Competition Between Plants2. Reaching toward the Sun3. Spreading Stems4. Climbing Structures5. Lianas & Epiphytes6. Supportive Roots7. Special Methods of Water Uptake8. Adaptations for Water Storage9. Underground Food & Water Storage Organs10. Saprophytes & Parasites11. Mycorrhizae & Root Nodules12. Insectivorous Plants
3 Week(s)	Unit 6 Control of Growth & Development	<ol style="list-style-type: none">1. Growth Responses to Light2. Responses to Gravity & Touch3. Other Growth Movements in Plants4. Hormones & the Aging Process5. Control of Branching and Adventitious Root Formation6. Other Hormone Effects: synthetic Growth Factors7. Environmental Control: Temperature8. Vernalization9. Environmental Control: Photoperiod
2 Week(s)	Unit 7 The Uptake and use of Water, Minerals, and Light	
2 Week(s)	Unit 8 Reproduction: From Flowers to Fruits	<ol style="list-style-type: none">1. Flower Parts and their Functions2. Pollination by Animals3. Road Maps & Rewards4. Inflorescences5. Pollination by Wind & Water6. Pollination Alternatives7. The Reproductive Process8. Seedless Fruits & Unusual Embryos9. Fruit Types10. Seed Dispersal11. The Cost of Reproduction

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Materials and Resources

Outdoor, working clothes.

Prerequisites

PREREQUISITE: Biology

Course Details

Unit: Unit 1 Cells & Seeds

Duration: 2 Week(s)

Topic:

Duration:

Unit: Unit 2 Roots & Shoots, Inside Stems

Duration: 2 Week(s)

Topic:

Duration:

Unit: Unit 3 Inside Roots & Leaves

Duration: 3 Week(s)

Topic:

Duration:

Unit: Unit 4 Adaptations for Protection

Duration: 2 Week(s)

Topic: The Garden Habitat

Duration: Ongoing

Topic: Environmental Modification

Duration: Ongoing

Topic: Limiting Factors

Duration: Ongoing

Topic: Protection in Extreme Environments

Duration: Ongoing

Topic: Protection against Animals

Duration: Ongoing

Topic: Protection by Camouflage

Duration: Ongoing

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Topic: Protection by Ants **Duration:** Ongoing

Topic: Wound Healing **Duration:** Ongoing

Topic: Chemical Protection **Duration:** Ongoing

Topic: Mode of Operation of Chemical Protectants **Duration:** Ongoing

Topic: Other Methods of Defense **Duration:** Ongoing

Unit: Unit 5 Adaptations to Fulfill Basic Needs **Duration:** 2 Week(s)

Topic: Competition Between Plants **Duration:** Ongoing

Topic: Reaching toward the Sun **Duration:** Ongoing

Topic: Spreading Stems **Duration:** Ongoing

Topic: Climbing Structures **Duration:** Ongoing

Topic: Lianas & Epiphytes **Duration:** Ongoing

Topic: Supportive Roots **Duration:** Ongoing

Topic: Special Methods of Water Uptake **Duration:** Ongoing

Topic: Adaptations for Water Storage **Duration:** Ongoing

Topic: Underground Food & Water Storage Organs **Duration:** Ongoing

Topic: Saprophytes & Parasites **Duration:** Ongoing

Topic: Mycorrhizae & Root Nodules **Duration:** Ongoing

Topic: Insectivorous Plants **Duration:** Ongoing

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Unit: Unit 6 Control of Growth & Development

Duration: 3 Week(s)

Topic: Growth Responses to Light **Duration:** Ongoing

Topic: Responses to Gravity & Touch **Duration:** Ongoing

Topic: Other Growth Movements in Plants **Duration:** Ongoing

Topic: Hormones & the Aging Process **Duration:** Ongoing

Topic: Control of Branching and Adventitious Root Formation **Duration:** Ongoing

Topic: Other Hormone Effects: synthetic Growth Factors **Duration:** Ongoing

Topic: Environmental Control: Temperature **Duration:** Ongoing

Topic: Vernalization **Duration:** Ongoing

Topic: Environmental Control: Photoperiod **Duration:** Ongoing

Unit: Unit 7 The Uptake and use of Water, Minerals, and Light

Duration: 2 Week(s)

Topic: **Duration:**

Unit: Unit 8 Reproduction: From Flowers to Fruits

Duration: 2 Week(s)

Topic: Flower Parts and their Functions **Duration:** Ongoing

Topic: Pollination by Animals **Duration:** Ongoing

Topic: Road Maps & Rewards **Duration:** Ongoing

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Topic: Inflorescences **Duration:** Ongoing

Topic: Pollination by Wind & Water **Duration:** Ongoing

Topic: Pollination Alternatives **Duration:** Ongoing

Topic: The Reproductive Process **Duration:** Ongoing

Topic: Seedless Fruits & Unusual Embryos **Duration:** Ongoing

Topic: Fruit Types **Duration:** Ongoing

Topic: Seed Dispersal **Duration:** Ongoing

Topic: The Cost of Reproduction **Duration:** Ongoing