

BOTANY

STRAND 1: Structures, Functions, and Processes in Plants

Priority Standards

- **Ask questions to investigate** and provide explanations about basic plant structures and their related functions.
- **Construct an explanation** supported by evidence relating plant structures to plant processes.
- **Develop and use models** to explain the cause for how plants sense and respond to external stimuli in their environment.

Strand 2: Plant Evolution and Taxonomy

Priority Standards

- **Construct an explanation** based on evidence to compare patterns observed in structures, functions, and processes of different kinds of plants.
- **Construct an argument** based on evidence to classify plants into major plant divisions by observing patterns in physical or chemical characteristics.
- **Develop and use models** to explain the origin of changes in major plant structures and organs through geologic time in response to environmental changes.
- **Construct an explanation** about the coevolution (change) of plant structures with animals and other plants.

Strand 3: Plants and Their Environment

Priority Standards

- **Plan and carry out an investigation** to explain how plants depend upon their environment to obtain the matter and energy necessary for survival.
- **Develop a model** to explain how plants affect their environment by providing diverse habitats for other organisms.
- **Construct an argument based on evidence** to predict which plant adaptations have led to (caused) increased survival rates in different stressful environments.
- **Analyze and interpret data** from investigations or models to describe how changes and disruptions in major nutrient cycles might affect plants.
- **Evaluate** current plans to manage the control of an invasive plant species in Utah or to manage the conservation of native plant species in Utah focusing on the population's proportion and quantity.
Define the problem, identify criteria and constraints, analyze available data on proposed solutions, and determine if the plan is an optimal solution.



Strand 4: Human and Plant Interactions

Priority Standards

- **Construct an explanation** for how plants and their structures are used in different societies.
- **Plan and carry out investigations** to determine effective techniques that cause improved plant growth and/or fruit production.
- **Analyze and interpret data** to determine how plants are affected by insect pests, competing weeds, and diseases.
- **Construct an argument based on evidence** for or against the use and effects of genetically modified plants.

Science and Engineering Practices

- Asking questions or defining problems
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations and designing solutions
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

