

Module 10: Classification - Diversity in the Six Kingdoms
Topic 2 Content: Vascular Plants Notes

Introduction



Vascular Plants

Click *NEXT* to begin.

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Vascular Plants

Have a vascular system

Lack rhizoids

Have a root structure



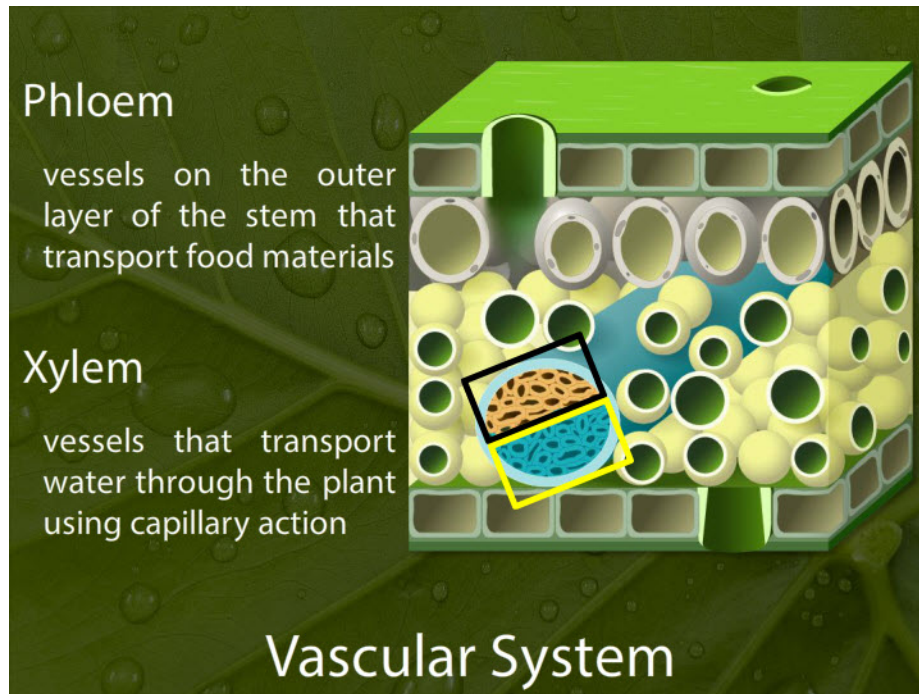
Vascular Plants Characteristics

Vascular plants, such as trees and flowers, have a vascular system to transport water and food throughout the plant. The vascular system is composed of vessels that are found in the roots, stems, and leaves. Vascular plants lack the rhizoids observed in nonvascular plants. Instead, vascular plants have a root structure.

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Vascular System

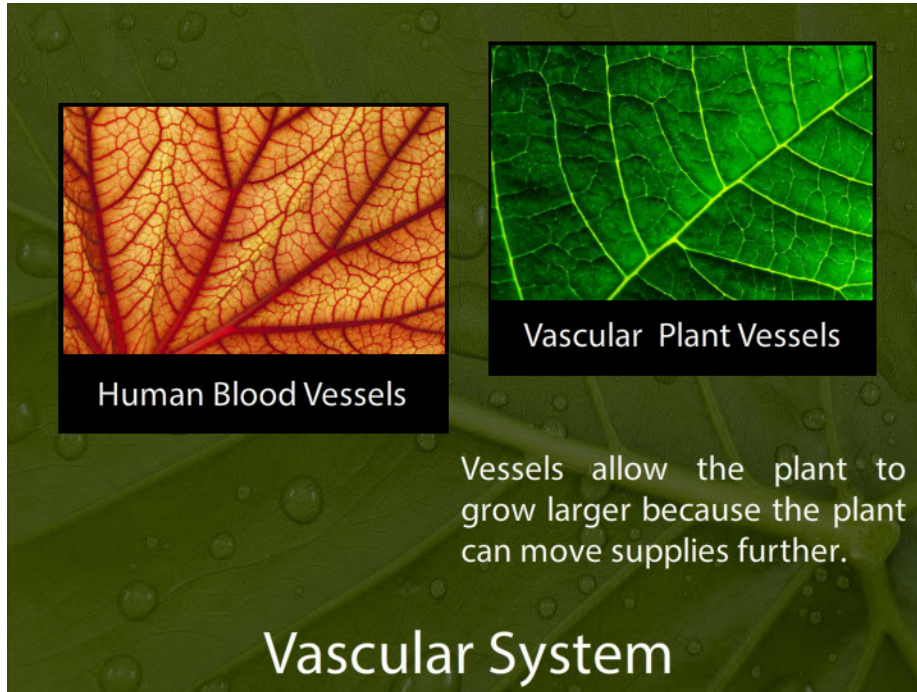


The vascular vessels are divided into two types, based on the type of material they transport. The phloem are vessels on the outer layer of the stem that transport food materials, such as sugars from the leaves where they are produced, or from storage tissues, to the rest of the plant. If a tree is cut, you can often see sap seep out of the tree, and this is the contents of the phloem. The xylem are vessels that transport water through the plant. The xylem vessels use capillary action to transport water from the roots through the plant and up to the leaves. Through the use of capillary action, the plant is able to move water against the flow of gravity.

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Vascular System

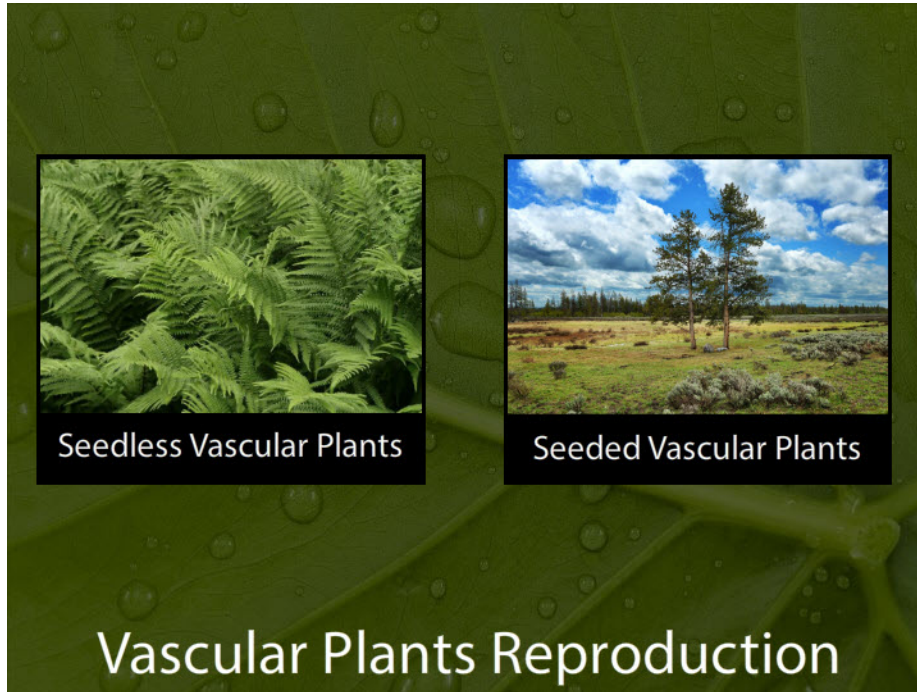


Not only do vascular vessels help move water and food more efficiently throughout the plant, they also make it possible for the plant to grow larger. By having these vessels, plants can move necessary supplies farther and therefore grow larger. These vascular vessels are similar to the closed circulatory system of humans, in that both systems transport nutrients and allow the organisms to grow larger due to the ability to transport farther.

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Reproduction



Common examples of vascular plants include trees, shrubs, grasses, flowering plants, and ferns. Because vascular plants encompass a broad range of plants, these plants can be divided further into more specific categories. Vascular plants are categorized based on their method of reproduction. Some vascular plants reproduce using spores (seedless); others use cones or flowers to protect the seed (seeded).

Click each image to explore seedless and seeded vascular plants.

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Seedless Vascular Plants



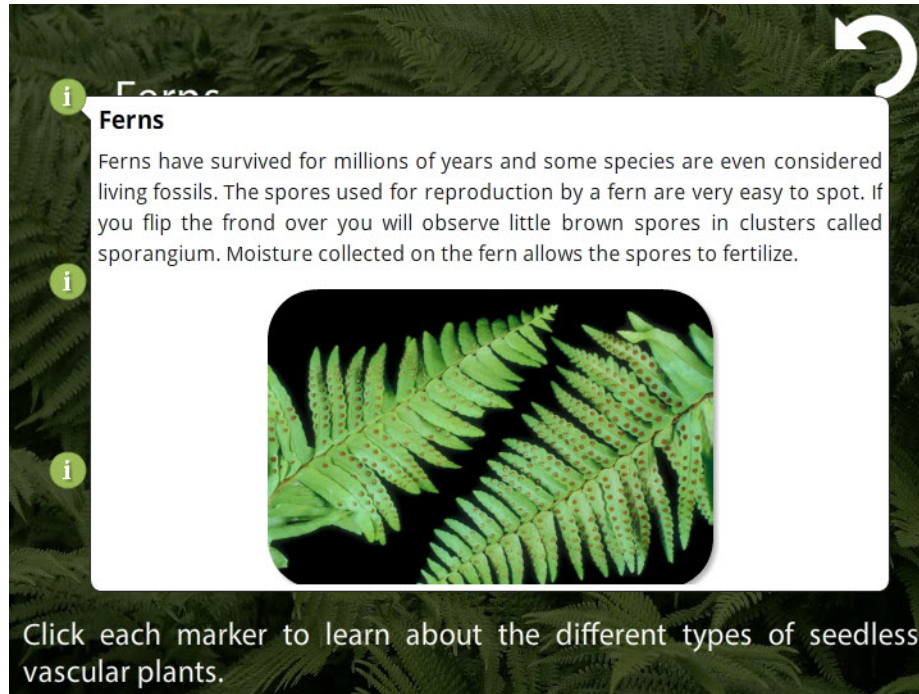
Vascular plants that reproduce by the use of spores are characterized as either ferns, horsetails, or club mosses. These examples of vascular plants are often referred to as seedless vascular plants.

Click each marker to learn about the different types of seedless vascular plants.

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Ferns



Ferns

Ferns have survived for millions of years and some species are even considered living fossils. The spores used for reproduction by a fern are very easy to spot. If you flip the frond over you will observe little brown spores in clusters called sporangium. Moisture collected on the fern allows the spores to fertilize.



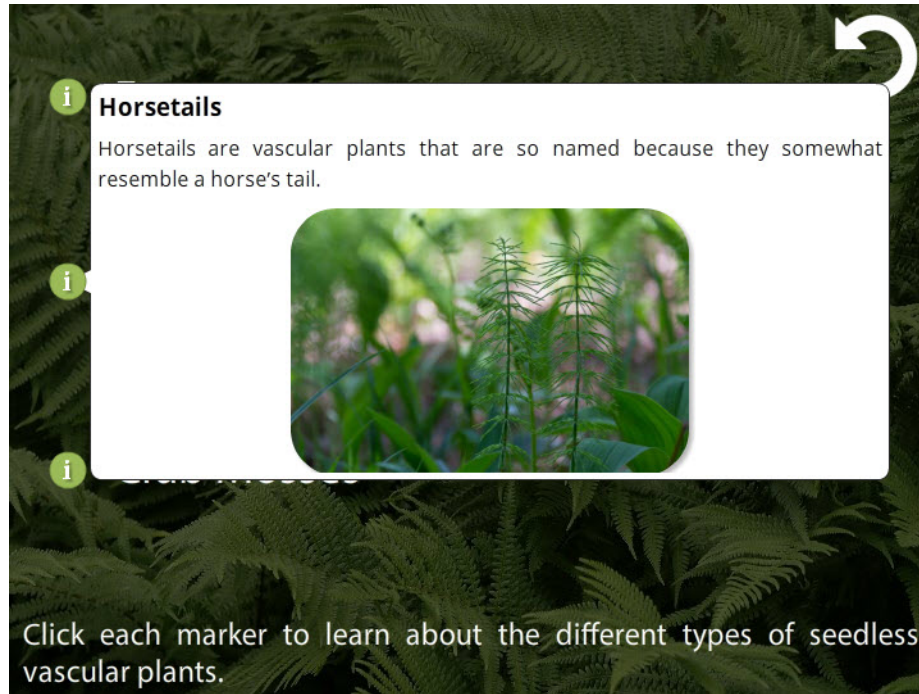
Click each marker to learn about the different types of seedless vascular plants.

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Horsetails



Horsetails

Horsetails are vascular plants that are so named because they somewhat resemble a horse's tail.



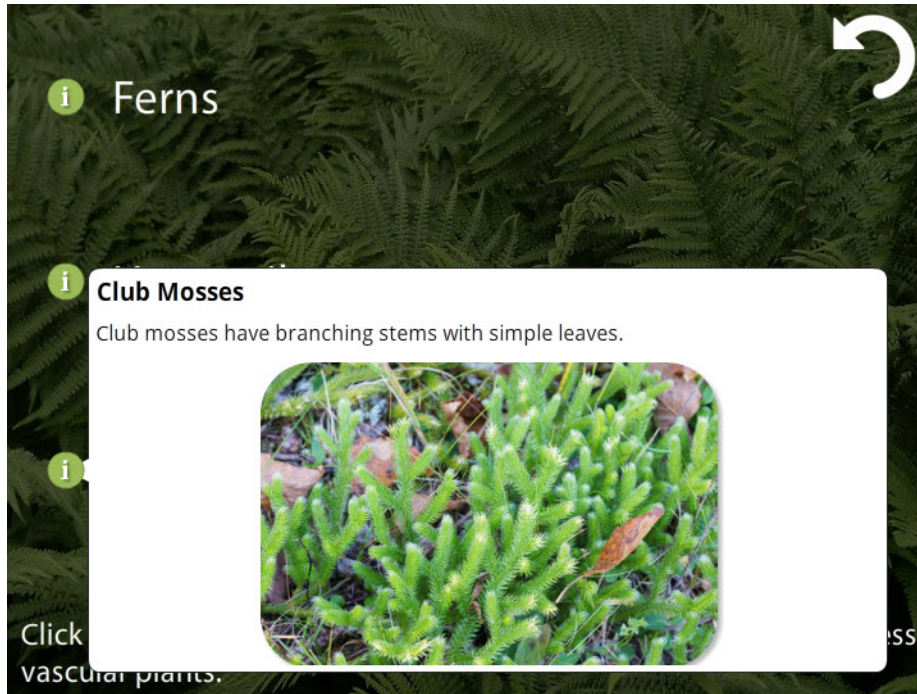
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Club Mosses



Club mosses have branching stems with simple leaves.

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Seeded Plants



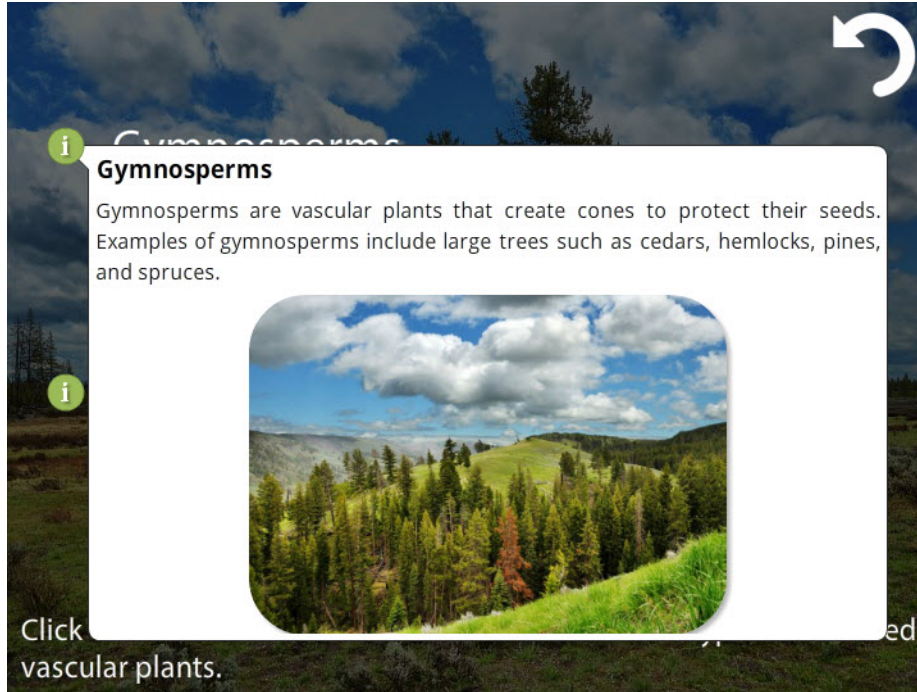
The majority of plants reproduce by creating seeds rather than spores. A seed contains an egg that is fertilized by the male gamete known as pollen. The seed protects the embryo and can often survive in harsh environmental conditions. The seed even provides nutrients for the embryo during germination. There are two classifications of seeded vascular plants: gymnosperms and angiosperms.

Click each marker to learn about the different types of seeded vascular plants.

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Gymnosperms



Gymnosperms

Gymnosperms are vascular plants that create cones to protect their seeds. Examples of gymnosperms include large trees such as cedars, hemlocks, pines, and spruces.



Click on the image to view more information about gymnosperms.

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Angiosperms

Gymnosperms

Angiosperms

Angiosperms are vascular plants that create their seeds inside fruits or flowers. Angiosperms are considered flowering plants. Examples of angiosperms include sunflowers, dogwood trees, lilies, and maple trees.

Click each marker to learn about the different types of seeded vascular plants.

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