

6. WHAT ARE NON-VASCULAR PLANTS?

Subject

Distinguish between vascular and non-vascular plants

Objectives

1. The student will be able to contrast vascular and non-vascular plants.
2. The student will be able to distinguish between mosses, algae, fungi, and lichens.
3. The student will be able to differentiate between various substrates and locales.

Materials

1. Magnifying glass, microscope, knives, pins, and mats for dissecting samples.
2. Physical samples, photographs, and drawings of moss, lichen, algae, and fungi.

Scientific Knowledge Needed by the Teacher

1. Review differences between vascular and non-vascular plants.
2. Review how non-vascular plants obtain nutrients.
3. Review physical characteristics of algae, fungi, mosses, and lichens.
4. Describe various substrates and locales where non-vascular plants are found.

Teacher Preparation Prior to Activity

1. Find good examples of algae, fungi, lichens, and moss
2. Provide clear definitions of each organism.
3. Describe physical characteristics of each organism to students.
4. Describe the various substrates where one can find these organisms.
5. Review the differences between vascular and non-vascular plants and how each type of plant obtains nutrients.
6. Locate drawings and pictures of algal, fungal, moss, and lichen bodies to better illustrate the differences of these organisms. If possible, use pictures with words to describe parts of the organisms' body.

Activity

1. Using a magnifying glass, the students will examine a moss sample, including the parts that were shown in drawings of the moss body. If a microscope is available, use that to show more detail.
2. Show the students a fungus sample. Have the students feel the fungus and then compare its texture to a moss sample.

3. Discuss how a fungus obtains nutrients.
4. Have the students examine an algae sample, describing what they see and how it differs from the moss and fungus.
5. Show the students examples of crustose, squamulose, foliose and fruticose lichens. Have students look at the key characteristics of each type of lichen. Make sure they look at the lichens under a magnifying glass. Point out characteristics of lichens that are different or the same as fungi, moss or algae.
6. Explain how lichens obtain nutrients from their environment.
7. Have the students compare texture, color, smell, and habitat of the moss, fungi, algae and lichen. Have them inspect each type of specimen under a magnifying glass. Make sure they are able to point out key differences in each specimen.

Assessment

1. Students will verbally describe differences between vascular and non-vascular plants.
2. At lab stations, students will distinguish between moss, algae, fungi, and lichens.
3. Students will describe where non-vascular plants can be located in the field.

Rubrics

1. Staying on task and using scientific equipment appropriately. 10 pts
2. Learning and correctly using science terminology. 10 pts