

Leaf Looking



Submitted By:

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Overview

This series of lessons teaches students the different attributes of leaf structures in trees and how to use the right science vocabulary to refer to these characteristics. Students will become more proficient at identifying trees based on their leaf structure and will develop and practice important science processing skills: observing, describing, classifying and diagramming their thinking.

Grade Levels

3-5

Curriculum Correlation

3.L.2.1 Plant Structure & Function, 4.L.1.3-4 Organism Adaptations, 5.L.3 Organism Characteristics

Duration

Two to three 45 minute sessions

Location

Indoors and Outdoors

Materials

- 9 X 18 Construction paper, one for each student, to make booklet as desired
- Pencils, colored pencils
- Smartboard or other technology to show internet video (as desired)

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Learning Targets

- I can describe the different parts of a leaf
- I can recognize different leaf shapes
- I can describe leaf shapes using the scientific terms a botanist would use
- I can classify leaves based on their characteristics

Educators Information

This lesson plan is organized according to the BSCS (Biological Sciences Curriculum Study) 5Es learning cycle model. This model supports science as inquiry, consistent with North Carolina's Essential Standards for Science. There are five steps to a 5Es lesson plan: Engage, Explain, Elaborate, Extend and Evaluate. It is based on the constructivist idea that students absorb new learning by confronting how a new idea supports, enhances or is in conflict with their current schema. More information about this learning model can be found at https://www.bsccs.org/sites/default/files/_legacy/BSCS_5E_Instructional_Model-Executive_Summary_o.pdf

Procedure

ENGAGE/EXPLORE PHASE:

Take students on a nature walk around your school campus noticing and observing different kinds of trees. Have students collect a variety of leaves from the ground for future study. Back in the classroom, give students time to explore different leaves and discuss their attributes with their table mates or a partner. Students then choose a single leaf to write about and draw in their science journals. Students are encouraged to use all of their observation senses and recall their conversations when writing about their leaf. Gather students together to share what they wrote and record the language they used when describing their leaf. Notice what kinds of words students use to refer to shape, edges,

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texture, etc. so this can be used as a reference point when students are introduced to the scientific vocabulary.

EXPLAIN PHASE:

Students will learn about the different parts/shapes of a leaf and create their own Dictionary of Leaf Terms. There are two options for creating this product. First, students may use the 2-page organizer provided in the resource section. Or, students may create an 8-page booklet to record these terms (directions on how to guide students through the process of making these booklets is provided in the resource section).

To explain the terms, students watch a video (see resource section) either independently (if devices are available) or as a class. Students stop to record on each page of their booklet the following terms:

Page 1: The leaf itself. Blade, petiole (stem), veins, margin (edge)

Page 2: BLADE: Flat or needle like

Page 3: BLADE: Simple or compound

Page 4: MARGIN: lobed or not lobed

Page 5: MARGIN: Toothed or smooth

Page 6: Lobed Margins: Pointed, curved, or spiky

Page 7: VEINS: Pinnate or palmate

Page 8: PETIOLE: Small, medium or large

Note the video may also be used as a teacher resource for direct instruction.

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ELABORATE/EXTEND:

Once students have completed their booklets, they will need opportunities to practice their new vocabulary.

Activity options include:

- Have students in partners/groups/individuals classify the leaves they collected on the playground according to a particular attribute and then have a another partner/group guess how they are sorted.
- Have students choose a leaf and play 5 questions with a partner. One partner chooses a leaf and hides it from their partner. The other partner is given one minute to ask questions about the attributes of the leaf and then must draw it. Partners then compare the drawing to the original leaf.
- Students find a leaf at home and diagram all of its attributes.

EVALUATE:

Formative evaluation occurs as students are participating in the activities above as the teacher will have the opportunity to observe student discourse and evaluate how well students apply vocabulary and whether there are misconceptions/misapplications of these terms.

To complete the learning cycle, have students revisit their original drawings and the language used to describe leaf parts. Connect their initial ideas (e.g. pointy edges, curves + toothed/smooth margins) to the scientific vocabulary and encourage students to re-do their diagrams incorporating new learning. If students are participating in the Phenology Project, have student groups prepare a scientific diagram of their study tree.

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Resources

[Video directions for making an 8 page booklet](#)

[Photo visual directions for making an 8 page booklet](#)

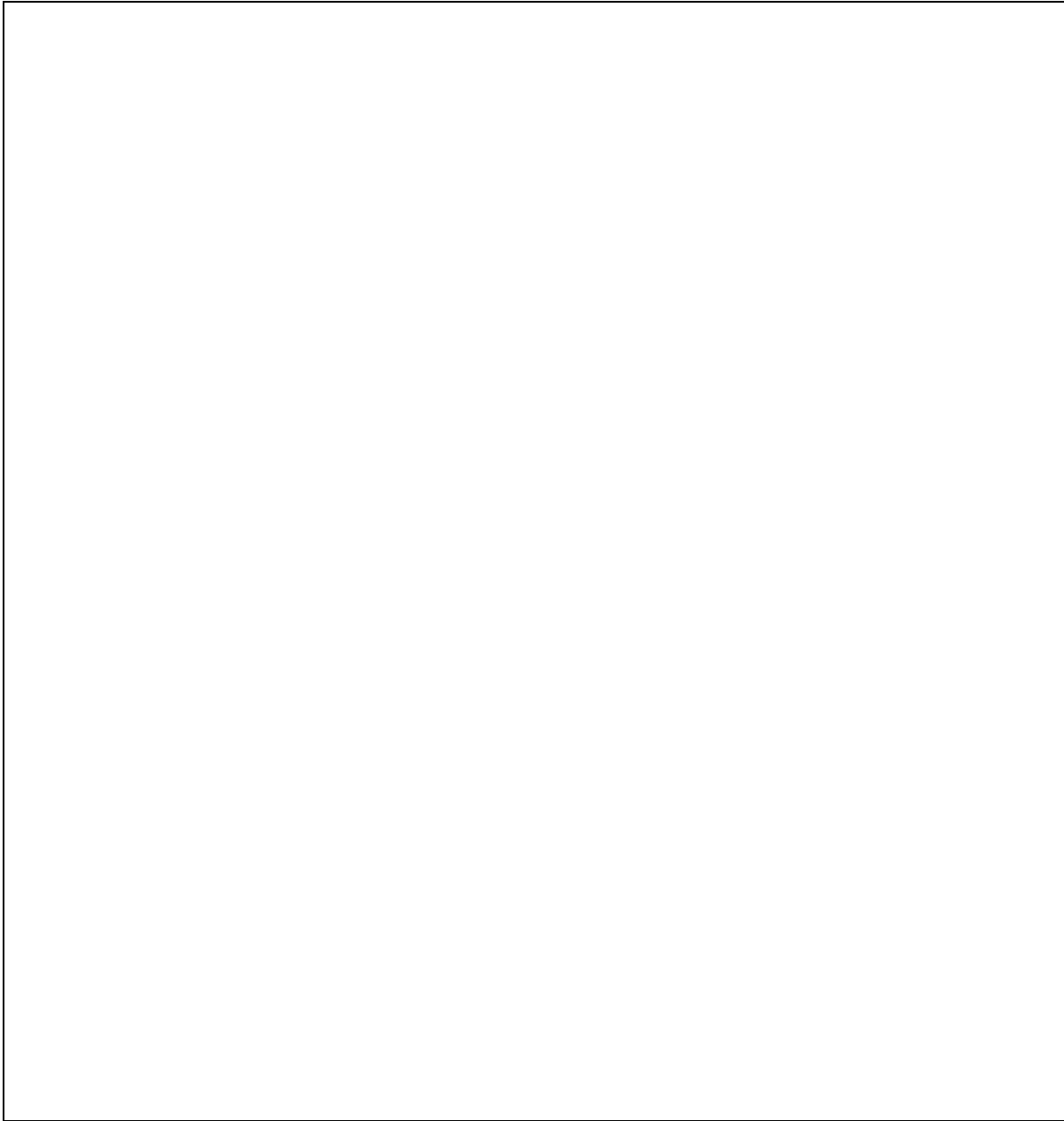
[Youtube video explaining leaf parts](#)

See below for Leaf Parts Worksheets

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Leaf Parts



Draw a leaf and label: Blade, petiole, veins, mar

Blade

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<p>BLADE: Flat</p>	<p>BLADE: Needle</p>
<p>BLADE: Simple</p>	<p>BLADE: Compound</p>

Margin

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<p>MARGIN Lobed</p>	<p>MARGIN Not lobed</p>
<p>MARGIN Toothed</p>	<p>MARGIN Smooth</p>

<p>LOBED MARGIN Pointed</p>	<p>LOBED MARGIN Curved</p>	<p>LOBED MARGIN Spiky</p>
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