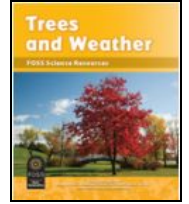


Investigation 1 - Observing Trees

Students begin their study of trees by looking at the variety and structure of trees in the schoolyard. They work with representational materials to look more closely at the shapes of trees and their parts. They adopt schoolyard trees to observe changes through the year.



Standards - K-LS1-1, K-ESS2-2, K-ESS3-1

| Investigation 1 | Summary of Lesson | Priority |
|------------------------------------|--|---|
| Part 1: Observing Schoolyard Trees | Students walk around the schoolyard and observe trees, and collect leaves to press for use in Inv. 2. They try to label the trees with specific vocabulary. <i>FQ - What did we learn about our schoolyard trees?</i> | High Introduction to trees and content vocabulary |
| Part 2: Tree Parts | Students practice matching tree vocabulary with specific picture cards. They do this both as a whole group, then in small groups. <i>FQ - What are parts of trees?</i> | Medium You could skip the independent practice and only do whole group as reading vocabulary could be difficult. |
| Part 3: Tree Puzzles | Students use puzzles to learn and compare the different shapes of trees. <i>FQ - What shapes are trees?</i> | Medium You could skip the centers and only do whole group, comparing the shapes of different trees. |
| Part 4: Tree-Silhouette Cards | Students play a matching game, using matched sets of Tree Silhouette Cards. <i>FQ - What trees have similar shapes?</i> | Medium You could skip the matched set "game" and have students classify them and record in their notebooks. |
| Part 5: Adopt Schoolyard Trees | The class adopts several schoolyard trees to observe throughout the school year. Make a scrapbook to document changed throughout the year. <i>Read, "Where do trees grow?"</i> <i>FQ - What can we find out about our adopted trees?</i> | High This activity is important to come back to throughout each season. K-ESS2-1 |
| Part 6: A Tree Comes to Class | A living tree enters the classroom. Students learn that a tree is alive and discuss what it needs to grow and stay healthy. <i>Read, "A Tree Comes to Class" and "What Do Plants Need?"</i> <i>FQ - What do trees need to grow?</i> | Medium You will not be planting the tree, so you could save time by introducing the tree and completing the readings. |

K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.

K-ESS2-2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

K-ESS3-1 Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.

Investigation 2 - Observing Leaves

Students begin with a schoolyard walk, focusing on the leaves of trees. They match leaves with geometric shapes, go on a leaf hunt to compare properties of leaves, work at centers with representational materials, and make a leaf book. This investigation concludes with a story, Our Very Own Tree.



Standards - K-LS1-1, K-ESS2-2

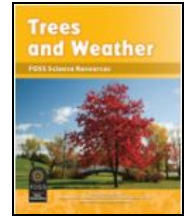
| Investigation 2 | Summary of Lesson | Priority |
|-----------------------------------|--|--|
| Part 1: Leaf Walk | Students read about and discuss how we use our senses to learn. They take a schoolyard walk to observe leaves on trees, noting similarities and differences and gathering leaves to press and keep. <i>Read, "How do we learn?"</i> <i>FQ - What can we observe about leaves?</i> | High Students are making important connections about trees and leaves. (This may be more difficult during winter as there are fewer types of leaves to observe.) |
| Part 2: Leaf Shapes | Students look closely at the shapes of leaves and match leaves to geometric shapes. <i>FQ - What shapes are leaves?</i> | High Students are exposed to vocabulary around shape as a way to identify things. Making connections and beginning of understanding structure and function of specific leaves. |
| Part 3: Comparing Leaves | Students go outdoors for a leaf hunt. <i>FQ - How are leaves different?</i> | Medium You could skip the outdoor investigation and compare and contrast leaves that were used in previous activities. (This activity is important for building vocabulary.) |
| Part 4: Matching Leaf Silhouettes | Students work in centers with representational materials to develop skills of observation and comparison, matching leaf silhouettes and outlines. Leaf shape, size, and edges are properties students use for comparisons. <i>FQ - How are leaf edges different?</i> | Low Although this activity reinforces shape vocabulary such as lobed, smooth and toothed, it could be skipped. |
| Part 5: Leaf Books | Students make leaf books to add to their science notebooks. The teacher reads Our Very Own Tree, which summarizes many of the ways students have studied trees. Students revisit the focus question from Part 1. <i>Read, "Our Very Own Tree" Video, "Once There Was a Tree"</i> <i>FQ - What can we observe about leaves?</i> | Medium Comparing and contrasting leaves is an important crosscutting concept. You could skip making the leaf book and just share out, read the book and watch the video. |

K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.

K-ESS2-2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

Investigation 3 - Observing Weather

Students share what they know about weather and how it relates to air. A class weather monitor begins recording daily weather observations on a class calendar. Students use weather pictures to indicate five basic types of weather. They use a thermometer to measure relative temperature (how hot or how cold something is) and make a wind sock to observe the wind direction and speed. Students observe and compare objects in the sky during the day and at night.



Standards - K-PS3-1, K-ESS2-1, K-ESS3-2, K-2 ETS1-2

| Investigation 3 | Summary of Lesson | Priority |
|-------------------------------|---|---|
| Part 1: Weather Calendar | Students share what they know about weather and how it relates to air. A class weather monitor begins recording daily weather observations on a class calendar. Weather pictures (symbols) are used to indicate five basic types of weather. <i>Read, "Up in the Sky".</i> <i>FQ - What is the weather today?</i> | High Students are exposed to vocabulary around weather. Instead of planning a separate trip outside to make observations, you could do this at the end of a recess. This could reduce the length of the lesson. |
| Part 2: Recording Temperature | Students use a thermometer and take turns measuring and recording the relative temperature (freezing, cold, cool, warm, hot). <i>FQ - How can we measure the air temperature?</i> | High Students are exposed to vocabulary around temperature. Instead of planning a separate trip outside to make observations, you could do this at the end of a recess. This could reduce the length of the lesson. |
| Part 3: Wind Direction | Students construct a wind sock and observe how it responds when air moves through it. They find out that they can determine wind direction by using a wind sock. <i>Read, "Weather".</i> <i>FQ - What does the wind sock tell us about the wind?</i> | Low You could have a classroom wind sock. Instead of planning a separate trip outside, you could make observations of what the windsock does in the wind at the end of a recess. |

K-PS3-1 Make observations to determine the effect of sunlight on Earth's surface.

K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time.

K-ESS3-2 Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.

K-2 ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Investigation 4 - Trees Through the Seasons

Students extend their understanding of trees as a growing, changing, living part of their world. During each season, students visit the schoolyard trees; observe their twigs, leaves, flowers, and seeds; and compare them to those from a previous season.

Standards - K-LS1-1, K-ESS2-1, K-ESS3-1



| Investigation 4 | Summary of Lesson | Priority |
|--------------------------------------|---|---|
| Part 1: Fall: What Comes from Trees? | <p>Students visit the schoolyard to look for objects from trees. Indoors, they make a chart of what they collected.</p> <p><i>FQ - What do fall trees look like?</i></p> | <p>Medium</p> <p>Creating the graph is importing in setting up the rest of the parts of this unit. Collecting tree parts for “fall” in any other time than “fall” might be difficult. You could just record responses from student on chart.</p> |
| Part 2: Fall: Food from Trees | <p>Students search for, observe, and compare seeds found in the fruits that come from trees.</p> <p><i>Read, “My Apple Tree”.</i></p> <p><i>FQ - What do fall trees look like?</i></p> | <p>Medium</p> <p>Students are exposed to vocabulary around parts of trees; seeds, and where they come from. However, you might not have access to all these types of fruits. You could discuss seeds and read the text.</p> |
| Part 3: Fall: Visiting Adopted Trees | <p>Students visit their adopted schoolyard trees. They observe the trees’ bark, twigs, leaves, flowers, fruit, and seeds and add information to the class scrapbook.</p> <p><i>FQ - What do fall trees look like?</i></p> | <p>Medium</p> <p>If you can make the commitment to doing this throughout the year, then this lesson is important to observe differences of the trees throughout the year. Otherwise, this lesson could be skipped.</p> |
| Part 4: Winter: Evergreen Hunt | <p>Students hunt for evergreen trees that match samples of needles from schoolyard trees.</p> <p><i>Read, “Orange Trees”.</i></p> <p><i>FQ - What do winter trees look like?</i></p> | <p>Medium</p> <p>This lesson states it is for “winter”, however evergreen trees can be observed all year long. Instead of planning a separate trip outside to make observations, you could do this at the end of a recess. This could reduce the length of the lesson.</p> |
| Part 5: Winter: Twigs | <p>Students observe the inside of tree twigs and look for growth rings, buds, and leaf scars.</p> <p><i>Read, “Our Very Own Tree”</i></p> <p><i>FQ - What do winter trees look like?</i></p> | <p>Low</p> <p>Although this lesson introduces new vocabulary, it might be difficult to find twigs with buds during a specific time of the year. You could show a picture of a twig with a bud as well as a cross section of a twig for growth rings.</p> |

Investigation 4 cont. - Trees Through the Seasons

Students extend their understanding of trees as a growing, changing, living part of their world. During each season, students visit the schoolyard trees; observe their twigs, leaves, flowers, and seeds; and compare them to those from a previous season.



Standards - K-LS1-1, K-ESS2-1, K-ESS3-1

| Investigation 4 | Summary of Lesson | Priority |
|--|---|---|
| Part 6: Winter: Visiting Adopted Trees | Students visit their adopted trees to observe any changes to the twigs, leaves, and areas around their trees. <i>FQ - What do winter trees look like?</i> | Low This lesson could be saved to do during the appropriate season. |
| Part 7: Spring: Forcing Twigs | Students bring twigs into the warmth of the classroom to force them to bloom or put out leaves. <i>FQ - What do spring trees look like?</i> | Low Although this lesson perfectly aligns with standard K-ESS3.C; Human Impacts on Earth Systems, it would have to be done during the appropriate season. |
| Part 8: Spring: Bark Hunt | Students observe and compare bark on a variety of trees as they search for matches to photos of the bark on schoolyard trees. <i>FQ - What do spring trees look like?</i> | Low Talking about bark could be tied into Investigation 1, Part 2. |
| Part 9: Spring: Visiting Adopted Trees | Students revisit their trees. They look for evidence of new growth in the leaves and flowers. <i>Read, "Maple Trees". Video, "Fall, Winter, Spring, Summer"</i> <i>FQ - What do spring trees look like?</i> | Low This lesson could be saved to do during the appropriate season. |
| Assessment | | |

K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.

K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time.

K-ESS3-1 Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.