

OUR CHANGING WORLD

Key vocabulary:

stalk, simple and compound leaves, leaflet, leaf edge (entire, lobed, toothed, wavy), leaf arrangement (alternate, opposite, whorled)

Resources:

Digital camera, sets of three different leaves

LESSON 1: HOW CAN WE CLASSIFY TREES BY LOOKING AT THEIR LEAVES?

LESSON SUMMARY:

In this lesson children will use their observations of the key features of leaves to classify the leaves of a variety of trees in their local environment. They will devise a simple classification key to sort leaves that they find. By the end of the lesson they will know the main characteristics used to classify leaves. This lesson should be carried out when trees are in full leaf, i.e. spring or summer. It builds on learning about the features and functions of leaves in Year 3 and links with learnings about keys in the Y4 Who Am I? module.

National curriculum links:

Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment

Learning intention:

To make observations of leaves in order to classify them

Scientific enquiry type:

Grouping and classifying things

Working scientifically links:

Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

Success criteria:

- I can make careful observations of leaves.
- I can describe the main characteristics of leaves.
- I can use the characteristics to devise questions to classify leaves.

EXPLORE:

Organise the children into groups of four and provide them with a set of three leaves each. Ask the children to say which they think is the odd one out and why. The children will all have different ideas, there is no right or wrong, they just need to be able to justify their choice. Remind them of the features of leaves they observed in Y3: colour, smell, serrations and texture. What characteristics have they used to distinguish between these leaves?

Tell children that there are main characteristics that scientists use to sort leaves into groups. Use Leaf characteristics (Interactive 1) to show children the different characteristics that are used to classify leaves. Some leaves are attached directly to the stem or branch and some have little stalks. The edge of the leaf may be smooth, wavy or jagged. Leaves may be arranged on the stem or branch in different ways. A compound leaf is made up of several smaller leaves known as leaflets.

ENQUIRE:

Explain to the children that are going to go out and find different trees. They will need to look at the leaves very carefully, observing their arrangement and edge. They will be looking for the different characteristic they saw in the interactive. Ask the following questions to focus their attention.

Ask: Do the leaves have stalks? What is the leaf edge like? How are the leaves arranged? Are they simple or compound leaves? Do your photos show each of these characteristics? Ask them to bring one leaf from each tree back to the classroom.

The challenges are differentiated by the recording of observational detail required and the level of support given for constructing a classification key.

Challenge 1: Children photograph leaves, draw and label them

Support these children to find six different trees. Provide them with a camera and ask them to take up to six photos of the leaves on each tree that show the different characteristics. Give them Characteristics to observe (Resource sheet 1) to remind them of the characteristics they need to photograph. Print the photos out so that back in class they can draw and label one of them using the key words on My leaf (Resource sheet 2).

Ask the children to compare two labelled photographs. Can they think of a yes/no question that can be used to distinguish them? Find another two? What yes/no question will distinguish them?

Key information:

The questions that the children ask need to have yes/no answers

Challenge 2: Children make a labelled diagram of one leaf and, with support, work with others to choose questions to make a classification key for several different leaves

Ask each child to choose one tree and to look at the leaves carefully. Provide them with My leaf (Resource sheet 2) on which to draw their leaf carefully and circle the words that describe it most closely. They may need Leaf picture sheet (Resource sheet 3) to help them remember what the key words mean.

Back in class, in groups of four to six, give children a copy of Questions for your key (Resource sheet 4) which they can use to make a classification key to sort the leaves they found. They can use the blank key asset, which should be enlarged. Children may find it easier to write their questions on sticky notes that can be easily moved as the key develops. The finished keys can be photographed or displayed.

Challenge 3: Children will draw labelled diagrams of leaves showing their characteristics, and make a key of the leaves

Ask these children to find two different trees and draw labelled diagrams of the leaves that show all the leaf characteristics. They may need Leaf picture sheet (Resource sheet 3) to help them remember what the key words mean.

Back in class, ask children to work in small groups to construct a key for the leaves that they found, using the key characteristics. Ask them to write their own questions. Children may find it easier to write their questions on sticky notes that can be easily moved or replaced as the key develops. The finished keys can be photographed or displayed.

REFLECT AND REVIEW:

Use Slideshow 1 to show how a key can be used to classify trees by looking at the leaves. Ask the children to test out the keys that were created in Challenges 2 and 3 to see if they place the leaves in the same location on the key as the group that prepared it.

EVIDENCE OF LEARNING:

Do the photos, drawings and labelled diagrams show that the children are looking for the key characteristics? Are the children able to correctly identify the key characteristics? Are the children able to ask appropriate questions to classify their leaves? Are the children able to use someone else's key to place the leaves in the correct place?

CHARACTERISTICS TO OBSERVE

Take five photos showing the following characteristics.

Then take a photo of the whole plant.

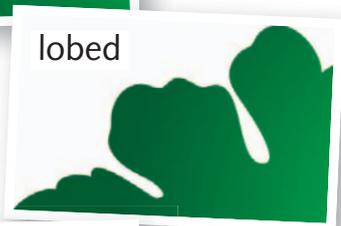
Stalk or no stalk?



Simple or compound leaves?



Leaf edge



Leaf arrangement

