

# LESSON PLAN

CREATED FOR TEACHERS BY EDEN'S EDUCATION TEAM

## How drawings could save your life

**A lesson in which KS2 and KS3 pupils learn to observe and draw leaves, developing their artistic skills and exploring simple scientific ideas around human survival.**

### Activity details

We are often told to draw what we see, rather than just what we think we see. However, this lesson encourages pupils to draw what they want to show, rather than just what they see. To do this, pupils will have to really understand the object in front of them by closely observing it, before then trying to get this across in their leaf drawing.

The class then make comparisons of the leaf drawings to assess accuracy, and end with a game to see whether their drawings are useful in helping others to identify leaves.

### Objectives and curriculum links

Pupils explore how to use drawings to share ideas accurately, and increase their proficiency in drawing to communicate technical information clearly. They develop knowledge and critical understanding of how art is used in the fields of science and technology.

This lesson enables students to...

- identify which leaf characteristics are important to show for the purposes of plant identification
- develop observational skills and drawing techniques that help them to draw what they want to show
- make comparisons of leaf drawings and assess their accuracy
- justify the importance of artistic techniques in science

We've designed the lesson to help teachers cover the following subject areas:

#### Upper Key Stage 2 Science

In working scientifically, pupils should be taught about recording using scientific diagrams. They should make their own decisions about what observations to make, and use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas. Pupils should use and develop keys and other information records to identify, classify and describe living things.

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## Key Stage 2 Art and Design

Pupils should be taught to improve their mastery of art and design techniques such as drawing.

Pupils should be taught to describe how plants are classified into broad groups according to common observable characteristics and based on similarities and differences. Pupils should give reasons for classifying plants and animals based on specific characteristics.

## Key Stage 3 Science

In working scientifically pupils should be taught to use appropriate techniques during fieldwork. They should make and present observations and measurements using appropriate methods and use their observations to draw conclusions.

## Key Stage 3 Art and Design

Pupils should be taught to use a range of techniques to record their observations in sketchbooks, journals and other media as a basis for exploring their ideas. They should use a range of techniques and media and learn to analyse and evaluate their own work, and that of others, in order to strengthen the visual impact or applications of their work

This lesson plan could also be appropriate and enjoyable for older children and adults too.

## Resources

You need the following equipment to do this activity:

- Paper
- Drawing pencils (or you could experiment with materials such as black ink pen or water colour paint)
- Leaves: if you don't have access to outdoor space where pupils can pick their own leaves (without causing damage), you could pick leaves to bring into class yourself. Or you could even buy different types of salad leaves such as rocket, cabbage, kale, spinach etc.
- Rulers
- Magnifying glasses (optional)

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## Lesson plan

This lesson can be adapted to run for one or two hours, so timings are approximate.

### Getting started (0-20 minutes)

#### *Step 1: Group discussion*

Ask children to work in small groups and ask them to discuss the question "Why do we look at plants?" Hopefully they'll touch on ideas around survival, such as: the fact that plants give us medicine and food; how we want to avoid poisonous plants; that there are interesting and unusual plants such as carnivorous plants and sensitive plants, etc.

Once you've got feedback from the question, ask the children to imagine that they are on an island. On the island there are two very similar plants growing (but not identical); one is very delicious, but the other is poisonous. They have to be able to identify the plants and be able to show and tell their friends the differences between the two plants so that they don't poison themselves.

Tell the children that, to do this, they have to learn how to – and practise – looking at leaves closely and drawing them very clearly. But not to taste any!

#### *Step 2: Choosing a leaf*

The class remain working in their smaller groups. In their small groups they each choose one plant from which to pick a leaf (or, if you're providing leaves as a teacher, they simply choose a leaf each).

Encourage the children to choose a typical leaf for this plant; not too big or small, and not bug-eaten ones – so that their drawing shows what the leaves normally look like on their chosen plant.

Make sure each group doesn't pick leaves from the same plant as another group, and that the leaves aren't too different from each other – for example, as contrasting as a blade of grass and a holly leaf.

#### *Step 3: Sketching from memory*

To begin with, ask the children to cover their leaf so that they cannot see it, and then draw what they remember seeing. They can then reveal the leaf and compare their image with it.

### Drawing leaves from observation (20-100 minutes)

This next section gets the pupils drawing accurately by observing leaves – following a handful of simple steps created for us by a botanical artist. You can download and print an A4 pdf version of the guide, complete with these diagrams, from our website.



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1. *Measure your leaf*

Measure the widest part of the width of the leaf and the length. You will draw your leaf 'life-size' – the size it is in real life, so can use these measurements to check and plan your drawing.

2. *Draw the midrib*

Look at the biggest, middle vein the 'midrib'. How does it go through the leaf? Does it go right to the tip or does it disappear? Is it raised or sunken? Draw this midrib first. This might seem strange but can help you draw your leaf right!

3. *Draw the tip*

Notice the tip of the leaf. Is it rounded or pointy and if so, how much? Draw in the tip of the leaf.

4. *Draw the base*

Look carefully at the bottom of the leaf where the stem joins it. What is the shape of the leaf here? Draw it in.

5. *Draw the margins*

What do the edges – the 'margins' – of the leaf look like? Are they smooth or do they have 'teeth'? Are the margins flat or wavy? Draw in the shape of your leaf, paying special attention to the margins.

6. *Draw the smaller veins*

Now look at the veins. Are they coming out of the midrib? Are there lots or only a few? Are they big or small? Straight or wavy? Draw in the smaller veins carefully.

7. *Add texture*

Notice how your leaf feels. Is it flat and shiny, or does it have bumps and lumps? Is it spiky or hairy? Draw these in if your leaf has them.

8. *Add any patterns*

Lots of leaves have patterns on them: spots, stripes or splodges! These can be important to a plant, so add them in if your leaf has them.

9. *Check the back of the leaf*

The back of a leaf can be very different to the front. Sometimes this can tell us a lot about the plant. If you have time you can draw the back of the leaf too. Notice how



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it's different to the front of the leaf and use the steps above to draw the back, just as you did for the front.

## And finally, reflection (100-120 minutes)

Collect up all the leaves, and all the leaf drawings. Lay the leaves in a long line on a long table or on the floor, and place the drawings in a pile. Now ask the children to come and select one drawing, in a 'lucky dip' fashion.

At this point, you should refer back to the narrative of being on the island, first discussed at the beginning of the class. Explain that they need to use the drawing in their hand to be able to identify the leaf from those laid out – as if they really did depend on their identification and drawing skills to survive out in the wild.

Get them to actually go and stand next to the leaf they think they have the drawing of. If they match it up with the right leaf they live, but if they choose the wrong leaf, they'll be poisoned and may even die. Urge the children to make very careful observations and identifications!

## Extension activities

Encourage small group or class discussions about what made a drawing good or not so good. The children could also colour in their drawing using colouring pencils, whilst keeping their good observational skills.

## About the botanical artist

We worked with botanical artist Laura Silburn to create this lesson plan, and produce the accompanying drawings. Laura works in Cornwall, where she is a Fellow of the Eden Project Florilegium Society and teaches botanical painting and drawing courses at the Eden Project. She paints both to record species and celebrate plants. Her work ranges from botanical documentation for archives and florilegia to artistic studies of plants exploring our relationship to them.