

# OUT AND ABOUT

## OUTDOOR ACTIVITIES FOR KEY STAGE 2 MATHEMATICS

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### NUMBER AND ALGEBRA

## Fraction Gallery

### Learning focus

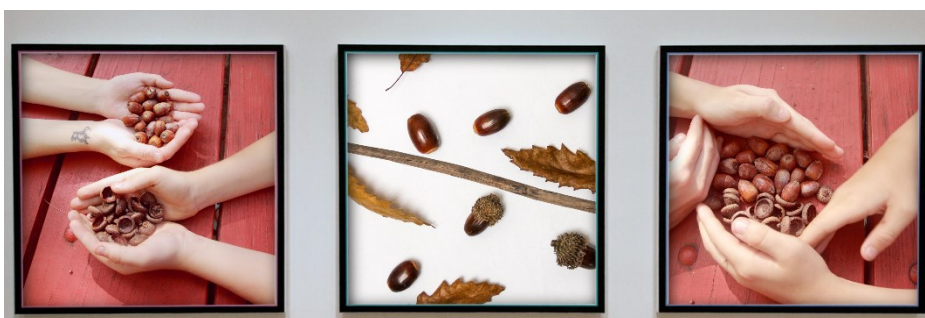
- Represent fractions (unit and non-unit) as part of a whole shape
- Find different ways to represent the same fraction
- Understand that equal parts do not have to look the same

### Key vocabulary

- Fraction
- Whole
- Equal
- Part
- Numerator
- Denominator
- Half, quarter, third, fifth, sixth and so on.

### Resources

- Natural resources such as sticks, stones, pine cones, flowers, leaves, blades of grass
- Large sticks
- Large hoop
- Chalk



### Activity

For this activity children should already have been introduced to common (unit and non-unit) fractions such as  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{2}{3}$ ,  $\frac{3}{4}$ , and so on.

Revise fraction notation. Show the children a large card with a fraction displayed.

*What is the denominator? What does it represent?  
What is the numerator? What does it represent?*

### Teaching point

The numerator has an entirely different function than the denominator. The denominator represents the number of equal parts that the whole shape has been divided into and the numerator represents the number of parts being referred to.

Explain that they are going to create fraction pictures. Begin with a whole class / group demonstration. Create a frame for the picture. For example, sticks could be used to form a square or rectangular frame, or a large hoop could be used to form a circular frame. Alternatively, chalk could be used to draw a frame on the playground. Invite the children to suggest how they might represent a fraction such as  $\frac{2}{3}$ . They could use sticks to partition their shape into 3 equal parts. They could then fill up 2 parts with natural resources such as leaves, blades of grass, pine cones, and so on.

*How can we represent this fraction? What will we need to do?  
How many equal parts will there be?  
How many parts will we need to 'fill'?*

Assign the children to groups and give each group a selection of fraction cards along with materials for creating their picture frames. Each group should work together to create a picture for their given fractions. Allow some time for them to collect natural resources for their pictures. When they are finished they could take photographs of their pictures.

Discuss the children's displays. Ask each group to explain how they created their pictures, encouraging them to use appropriate mathematical language.

Explore different ways of representing the same fraction. For example, create a square frame and ask the children to demonstrate different ways of representing  $\frac{1}{4}$ .



*What do you notice about the pictures?  
What is the same?  
What is different?  
Is there another way that we could represent the same fraction?*

Ask the children to show that all the parts are the same size. For example, they could divide and move parts of the quarters in the second image (above) to form the same quarter as in the first image.

## Teaching point

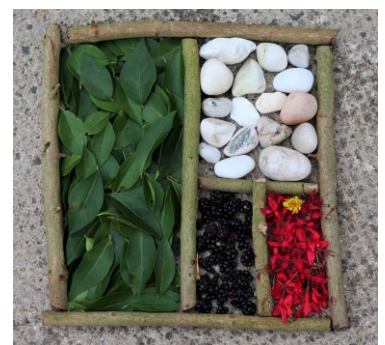
Equal parts do not need to look the same. It is important to recognise that each square has been divided into 4 equal parts and that all the parts are the same size, even though they look different.

Finally, challenge the children to create a showpiece picture. They must use the natural resources to create a picture with a specific set of instructions.

For example:

- $\frac{1}{2}$  must be green
- $\frac{1}{4}$  must be pebbles
- $\frac{1}{8}$  must be flowers
- $\frac{1}{8}$  must be pine cones

Discuss how the four fractions add together to make one whole.



## Taking ideas further

Children could create their own fraction pictures. They could then label their pictures, indicating the fraction that is made using a particular material.

Other shapes could be used for picture frames: an equilateral triangle, a parallelogram, a regular hexagon, and so on.

As a further challenge, children could create a symmetrical fraction picture.

## Assessment opportunities

Are the children able to:

- Create pictures to show unit fractions of shapes
- Create pictures to show non-unit fractions of shapes
- Identify what fraction of a shape is shown
- Represent the same fraction in different ways
- Recognise that equal parts do not have to look the same