

# OUT AND ABOUT

## OUTDOOR ACTIVITIES FOR KEY STAGE 2 MATHEMATICS

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### NUMBER AND ALGEBRA

## Fraction Potions

### Learning focus

- Find a (unit and non-unit) fraction of a quantity

### Key vocabulary

- Fraction
- Whole
- Part
- Share equally between
- Divided by
- Numerator
- Denominator
- Half, quarter, third, fifth, sixth and so on.

### Resources

- Baskets for collecting natural resources
- Natural resources such as sticks, stones, leaves, flowers, blades of grass
- Clipboards and pencils for recording
- (Camera)



### Activity

Introduce the activity by explaining that you are going to create a potion using natural ingredients.

*What ingredients could you use?*

Present the pre-prepared collection of natural resources and the recipe card showing the list of ingredients required. For example, you could have a basket containing 10 twigs, 15 leaves, 12 dandelions and 24 blades of grass. Ask someone to read the list of ingredients required for the fraction potion. For example:

$\frac{2}{5}$  of the twigs

$\frac{2}{3}$  of the leaves

$\frac{3}{4}$  of the dandelions

$\frac{1}{8}$  of the blades of grass

Discuss with the children how they might work out the number of each item required.

*How many twigs will be needed?*

*How did you work that out?*

*Can you show me using the twigs?*

*How many equal groups do we need to divide the 10 twigs into?*

*How many twigs are in each group?*

*How many groups do we need?*

Encourage the children to use the twigs to illustrate their thinking. We have 10 twigs. Divide the 10 twigs into five equal groups and select 2 groups to add to the potion.

There are 10 twigs. We need  $\frac{2}{5}$  of the twigs.

$\frac{1}{5}$  of the twigs is 2 twigs

$\frac{2}{5}$  of the twigs is 4 twigs



Highlight the links between fractions and multiplication and division.

$$2 \times 5 = 10$$

$$10 \div 5 = 2$$

$$\frac{1}{5} \text{ of } 10 = 2$$

$$\frac{2}{5} \text{ of } 10 = 4$$

Repeat this for different ingredients, depending on how secure the children's understanding is.

## Teaching point

To find a non-unit fraction of a quantity, first identify the unit fraction (by looking at the denominator) and then divide the set of items into that number of equal groups. Next, identify the number of equal groups being referred to (by looking at the numerator).

Assign children to small groups. Give each group a recipe card showing the items they will need to gather for the activity and the list of ingredients for their fraction potion. This can be differentiated as appropriate.

Allow time for the children to collect their items. They should then work out the number of each item required, using the natural resources to present their results. Encourage them to record their findings using appropriate mathematical symbols. (They could record with chalk on the playground or using pencil and paper.) Photographs could also be taken of the children's work. Invite the children to share and discuss their findings, using appropriate mathematical language.

*Tell us about your potion.*

*How many items are needed?*

*How did you work that out? Can you show me (using your natural resources)?*

## Taking ideas further

Children could create their own fraction potions. They could prepare their own list of ingredients and work out the number of each item required.

They could design a recipe card for their fraction potion using ICT.

## Assessment opportunities

Are the children able to:

- Find a fraction of a quantity by partitioning a set into equal groups
- Connect finding a unit fraction of a quantity with division
- Connect finding a non-unit fraction of a quantity with division and multiplication