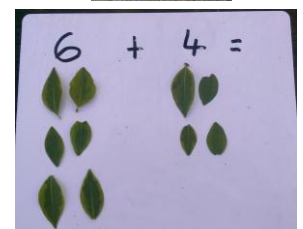# Using natural materials

10 maths challenges using leaves

<u>Resources:</u> range of leaves of different sizes and shapes, scissors, large bag or small bucket, sorting tray

Give children a treasure bag of leaves and a sorting tray and give them a set of challenges:

1. Estimate the number of leaves.

2. Count the number of leaves. Give children/groups different numbers of leaves and arrange them into order on a number line.

3. Use the leaves to help complete a range of sums, e.g. 8 + 5 = … or 8 + … = 12.

4. Practice counting in multiples using leaves with the same number of lobes, e.g. use sycamore leaves for 5 x table.

5. Give them two or three pictures of trees – can they divide the leaves equally onto the trees?

6. Give them ten pictures of trees, put three leaves on the first tree and the next tree needs three more leaves than the one before. Can they complete it?

7. Put them in order of size from smallest to largest – find the 3rd largest, 6th largest etc.

8. Cut a large leaf into 5 or 6 pieces, shuffle them and reassemble.

9. Cut a large leaf into halves, quarters and thirds.

10. Give them a cup, can they put leaves in it so it is full, empty, half full and quarter full.

Making patterns

Resources: range of natural materials – different sizes and different colours, long pieces of card with double sided sticky tape attached.

Use natural materials to start a pattern for children to repeat (they could be repeating patterns or patterns of increasing size, length etc.). They can then make patterns for each other to continue.

Give children a long piece of card with double sided sticky tape on. Peel back the sticky tape and see if children can collect suitable sized materials to make a pattern. If children have used leaves or other flat materials, these could be laminated and put on display.

Making shapes

Resources: sticks of different lengths, small balls of clay

Can children make a range of 2D shapes on the ground, e.g. rectangle, square and triangle. Put one leaf on each edge – how many edges does it have? Put a pebble on each corner, how many corners does it have? Using another stick or a row of leaves, can children divide their shape equally into two halves so that both sides are symmetrical?

Using a small amount of clay (or string) to connect the sticks together, can children make 3D shapes, e.g. cuboid, pyramid or prism. How many edges, faces and vertices does their shape have? If different groups have made different shapes, children could present their shape to the rest of the class.