

**Outdoor &
Woodland
Learning**

DUMFRIES & GALLOWAY



Taking Maths Outdoors with Your Child

Activities for
Parents/Carers



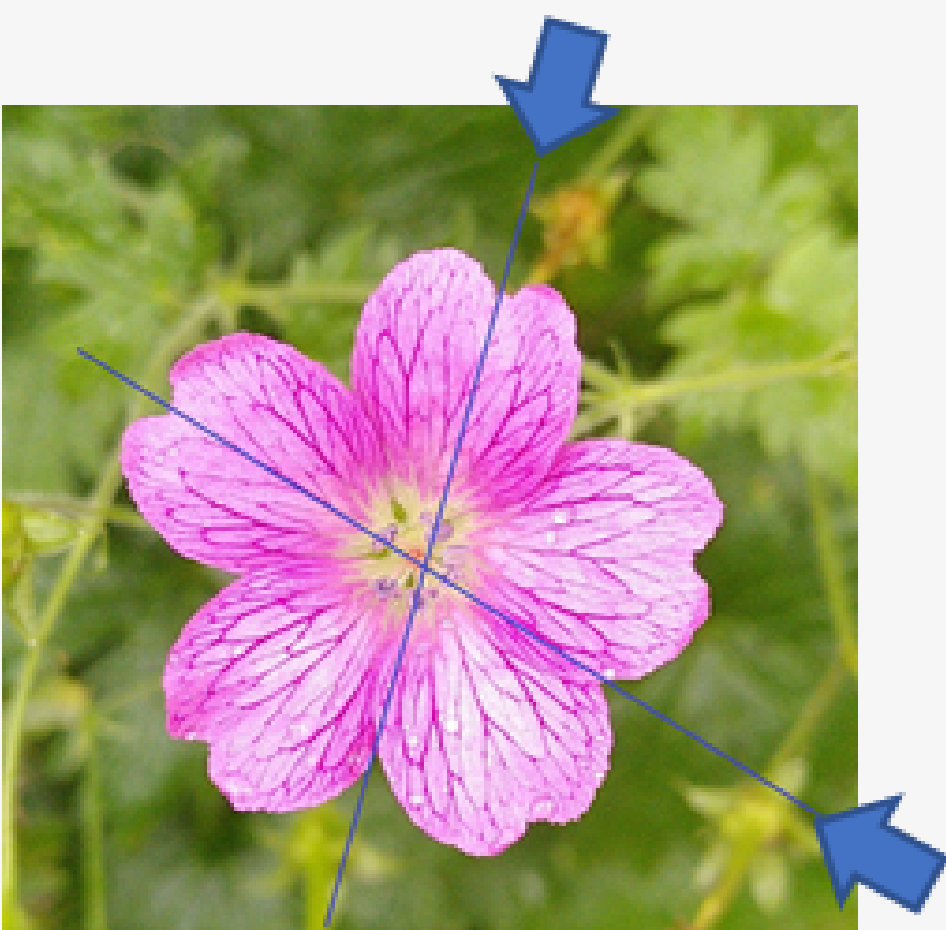
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In the early years it's important for children to be relaxed and contented, as that's how they learn best. We want children to find maths fun, even discovering the beauty of maths to help them get lifelong pleasure from this key curriculum area. We can encourage children to ask questions, think aloud through problems and not to be afraid of making mistakes, as this is how we learn.

This leaflet introduces some games and activities which you can play with your child/ren when you're out and about together.

The beauty of maths in nature

Symmetry spotting: Symmetry is where one half of a shape looks the same as the other half: it's one measure of beauty and is everywhere in nature! See where you can spot symmetry. Where could you place a mirror to make the pattern the same? This is called the line of symmetry.



The Symmetry Game - use your coat or a clear area of grass so that you have a plain background. Put a stick down to make a middle line - this is your line of symmetry. Add something you found nearby such as a stick or a flower to one side and ask your child to add the same thing to the other side. Add something else to your side and see if they can match it again.

Your turn! - Let them lead so that you are the one copying your child's pattern, then take turns. You can add another stick making a cross, which gives two lines of symmetry - so that the pattern is repeated 4 times.



Pattern spotting - Where can you spot a spiral pattern? What other patterns can you spot? Wave? Web? Ask 'how would you describe it?' 'How would it get bigger?' 'Can you draw this pattern in the sand/mud or by arranging natural objects?'



Shape hunting - Go on the hunt for circles, squares or triangles. Where can you see them? Can you make that shape with natural objects, e.g. pine cones, sticks or stones.



Relationship Maths



The stick line - Make a line of sticks from smallest to biggest. Chat about the difference between length and width, and whether a bendy or branched stick is longer than a straight one.



Collect ten - Collect ten of different natural items, e.g. 10 leaves, 10 acorns, 10 shells, 10 sticks etc.. Make a snake using each pile. Which is longest? Why? Discuss that one is longer than the other, even though there are the same number of items in each snake. Use the items to make other shapes, patterns and pictures together with your child, or each make your own! Talk about what you have all created.



How long is a line? - Estimate then count the number of a natural object in relation to length, e.g. 'How many birch leaves make a line that's the same length as my hand?'

Washing line - When hanging up (or taking down) your washing, you can play a game with your child. Give them clues as to which item you are thinking of, e.g. in between the jeans and the blue shirt; to the left of the black socks.

Words to help

Here are some words which can help you to explore the relationship between different things you see when you are out and about with your child/ren: above, below, behind, in front, taller, longer, shorter, thicker, thinner, smaller, bigger, closer, further, curved, straight, different from, similar, same, near, far, at the top, down, around, backwards, forwards, up, down, away, towards, after, next to.



Sequences

Counting Grid - On a plain background use 4 long sticks for a frame then 4 more long sticks to divide this into a grid so that you end up with 9 squares. In each of these squares put objects from around you, increasing the number of items in each square as you go along e.g. 1 leaf, 2 small sticks, 3 pine cones, 4.....9 pebbles.



Tally - Pick a type of tree, bird, or insect etc. When you're out and about, tally how many of these you see. Everyone in the group may choose different species. There are different ways of tallying, for example you could draw a line on a piece of paper for every robin seen, or put one pebble in your pocket for every spider seen. When you finish, count your tallies and see how many of each species you found.

Scavenger Hunt, Sorting and Counting - In an outdoor space, such as a forest, beach or park, collect as many different natural items as possible in 10 minutes. Make sure nobody picks flowers or anything else that's alive!

Sort these items into piles of similar groups, this could be by colour, size, shape or any other way decided by your child.

Count the number of items in one pile and ask your child to give each person in the group one item. Count how many there are left and see if there are enough items to give each person two items, then three, four etc. until there are no items left. Were there an equal number or did some people get more than others?



Colour



Rainbow - Make a forest or beach rainbow! How many different coloured natural items can you find?

Eg. Yellow leaves, brown sticks, blue shells, orange leaves, green seaweed, red berries.

Use them to make your own natural rainbow - on the ground or on a rock/tree branch etc. You could use a phrase (mnemonic) such as 'Richard Of York Gave Battle In Vain' to remind you of the order of the colours in a rainbow: red, orange, yellow, green, blue, indigo, violet

Leaf Kebab - Use a stick 'kebab' to make a repeating pattern (e.g. yellow leaf, green leaf, red leaf...)

Find a thin, straight stick. Push a leaf onto the stick like a kebab. Then add a leaf of a different colour. You could add a third colour if you like.

Can you grow the pattern?

E.g. green leaf, brown leaf, red leaf. Green leaf, brown leaf, red leaf, etc.

Can you fill the stick?



Collecting Colours -

Collect natural materials at any time of the year such as flowers (but only if there are loads of the same type of flower), leaves, seeds, berries and then arrange them by colour and size.

These leaves and fruits can be ground, mashed, pummelled and made into paints and dyes to experiment with colour. You'll need some paper or plain cotton fabric.

Sorting at home - It's great to collect and organise things on the go, and it's lovely to collect natural objects together when you're out and about and on walks and then use them at home: feathers, stones, shells, seeds, flowers, cones, sticks, grasses. Yoghurt or sauce pots of the same size (especially if they're clear) are handy to carry/stack/fill. Sticks, string, clothes pegs, can be used to display or organise finds.

Go play - Play is really important in the early years! It's great for your child to have freedom to invent, be creative, experiment, explore, investigate, lead, jump, skip, climb, run and use all of their senses. Hands-on learning, using real and natural objects can help your child to engage and make connections, giving them a solid foundation for later, more abstract learning.

Find more ideas here:

Muddy Faces:

<https://muddyfaces.co.uk/activities/numeracy>

Nature Activity Ideas for All Ages – Sensory

Trust:

<https://www.sensorytrust.org.uk/resources/activities>

Outdoor and Woodland Learning (OWL)

Scotland: <https://owlscotland.org/find-a-resource/early-years-resources/>

