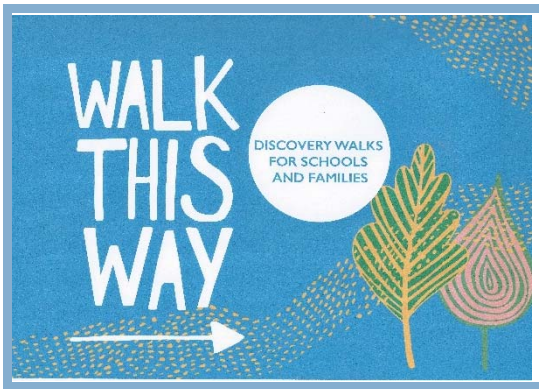


A data collection scramble

Learning Walks for Schools

Numeracy Walks

Links to:
ICT
MFL
Art

Walk Length
1-1½hours

Suitable for:
All Key Stages

On your walk collect objects such as leaves, sticks or pebbles.

Activity 1

Bring the objects to a central point and sort them. Talk about the different ways that they can be sorted and classified e.g. by colour, size, or material, natural or man-made etc.

For example a leaf could be green or orange, big leaf or small, it could have 4 leaf tips or just one.

In addition to considering differences you could also consider similarities – do more leaves have a single point than multiple points, are there more green leaves than coloured leaves etc.

Activity 2

Include your data on the tally chart and use these charts to develop mathematical problems. For example What is the total number of red and green leaves, how many more leaves you would need collect to create a total of 100, or how many less you would need? You could also round numbers up or down. Use the charts to calculate an average number of leaves, and work out means and medians etc.

Activity 3 – Links to ICT

Back at school use the charts to create spreadsheets, graphs, bar charts and pictograms to represent the items that were found.

Activity 4 Chinese whispers
Using the items collected play a game that requires everyone to put down an item in turn. The item is the same in one aspect but different in another. E.g. a green leaf with 5 leaflets could be followed by a green leaf with no leaflets, followed by an orange leaf with no leaflets. How long can you make the line? Can you identify any patterns or sequences emerging?

Activity 5 Modern Foreign Languages
Can you play the game in a Modern Foreign Language? Name the object as you place it down.

Activity 6 Sequences
Can you create your own sequences using the items that you have collected? You can investigate arithmetic sequences, geometrical sequences, triangular numbers, square numbers and Fibonacci numbers using the objects found. Don't forget to photograph your sequences.

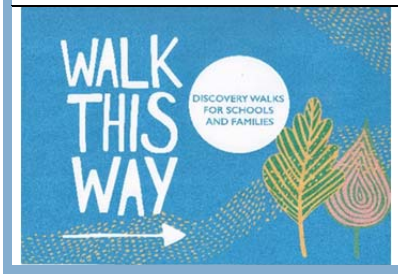
Activity 7 Art
Use these sequences to make land art pictures that can be photographed. Look at the work of Andy Goldsworthy for inspiration. See http://www.goldsworthy.cc.gla.ac.uk/browse/

There is a Scavenger Hunt included in the family resource pack

Name:

Date:

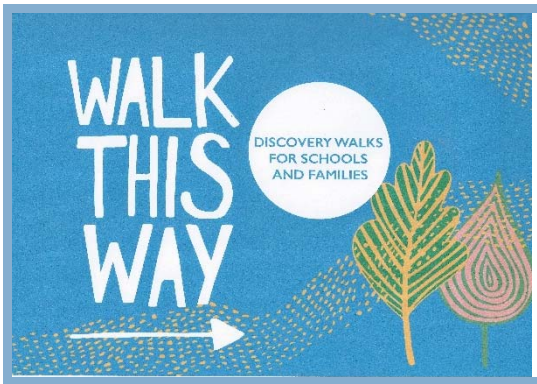
Object found	Tally	Total
Total		



Data Collection Scramble

Page 3 of 3

LONDON BOROUGH OF RICHMOND UPON THAMES



A measured walk

Learning Walks for Schools

Numeracy Walks

Links to:
Art

Walk Length
1-1½hours

Suitable for:
All Key Stages

On your walk collect a stick and some twigs all about the same size. These will be your units of measurement
First work out how many twigs equal the length of your stick for example 10 twigs = 1 stick.
If you would rather not use sticks, your units of measurement could be hand spans and paces.

Activity 1

On your walk look for suitable objects and calculate the length, width and height in both stick and twig lengths. Suitable objects might include benches, bollards or picnic tables.

Activity 2

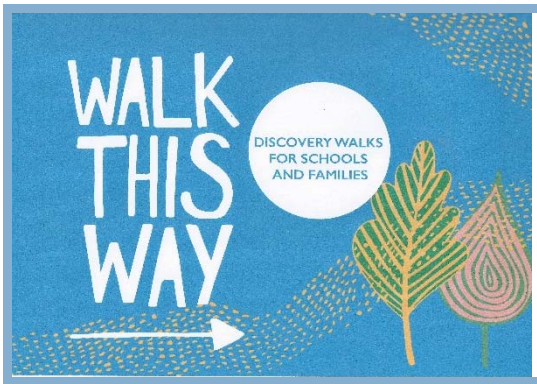
Can you draw an accurate representation of your object using your measurements?
Can you convert from one measurement to the other? E.g. Three twig lengths are equal to 1 stick length so 1 twig is 0.3 of a stick.

Activity 3

Find some other objects and estimate the stick and twig measurements and then measure them. How accurate were your estimates?

Activity 4

Can you use your sticks or twigs to work out the area or volume of your objects or calculate the perimeter of the object?



The Shape Stride

Learning Walks for Schools

Look for objects of different shapes on your walk in the park. They could be man-made or natural.

Activity 1

Use the worksheet to identify the objects that you have found. Talk about the materials that they are made from. Identify whether they are natural or man-made.

Activity 2

Investigate the objects further by calculating lengths, heights, angles, weights and volumes. Compare the objects with each other and use mathematical language to describe them. The results of your research could be logged. Don't forget to take photos of your objects for later use.

Activity 3

Investigate 3-D shapes as well as 2-D shapes.

Activity 4

If it is a nice day look at the clouds can you see any shapes in the clouds and can you see any pictures in them.

Numeracy Walks

Walk Length
1 -1½ hours

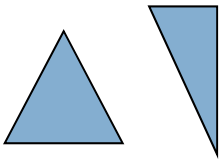
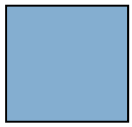
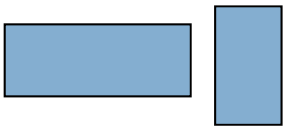
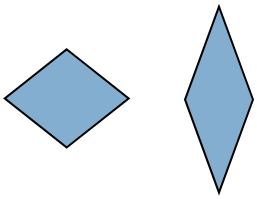
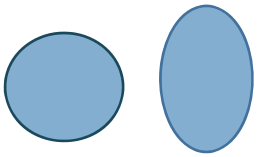
Suitable for:
All Key Stages

See:
A measured walk for linked activities

There is a Shape Stride included in the family walks

Name:

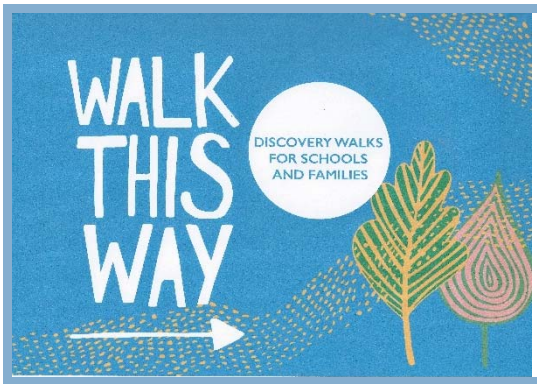
Date:

Shape	What I found: (Write or draw the object)	Draw the shape that you have found:	Man-made or natural (Tick)	
			Manmade	Natural
				
				
				
				
				
?				

The Shape Stride

Page 2 of 2

LONDON BOROUGH OF RICHMOND UPON THAMES



Stick Shapes

Learning Walks for Schools

On the way to the park look for mathematical tiles on paths and driveways. Note the different shapes and how different shapes fit together.

Collect short and long sticks and use these to create your own interlocking repeating patterns.

Activity 1 - 2D Shapes

Lay the sticks on the ground to repeating patterns – squares, rectangle and triangles work well. Younger children might benefit from photocopied outlines of shapes that they can copy.

Activity 2

Using your sticks try to break down big shapes into smaller shapes or build larger shapes from the smallest shapes. Try working with more than one shape. How many shapes can you combine?

Activity 3

Discuss the activity using mathematical language, for example identify different types of angles, parallel lines and perpendicular lines.

Activity 4

Numeracy Walks

Links to:
Science
Art

Walk Length
1-1½hours

Suitable for:
All Key Stages

Equipment:
Twine and scissors

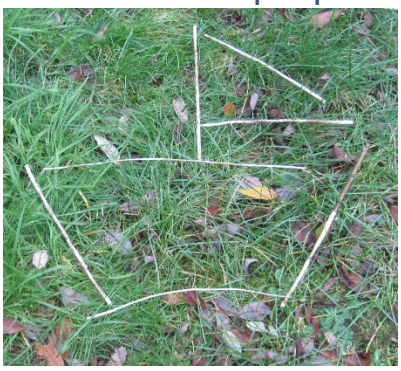
Prepared pictures of shapes for younger

Find 9 sticks of similar lengths and see how many triangles that you can make using these sticks. No breaking sticks or bending them. Talk about different types of triangles.

You can use the finished triangles to talk about the properties of triangles. You could also use it to discuss rotation and symmetry.

Activity 4

Have some fun by creating stick pictures and identify mathematical properties of your pictures.



Activity 5 - 3D shapes – Link to Science

With similar length sticks and some twine, create simple 3D shapes. Photograph your activity for future reference. Once you have done this, take the shape to pieces and create a 2D net of your shape on the ground.

Activity 6 – Links to Science

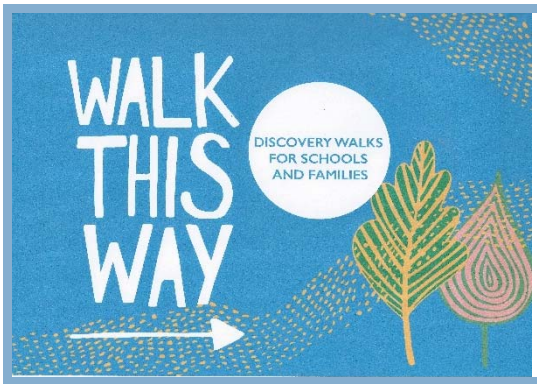
Hang your mobiles in the trees or in your classroom. You can use this activity to discuss balanced and unbalanced forces.

Activity 7 - Links to Art

This activity could lead to a discussion about the work of Alexander Calder especially his hanging mobiles.

Also see *Walk at an Angle* for additional similar activities with sticks

For more information about the life and works of Alexander Calder see http://www.calder.org/work/by-category/hanging-mobilechildren



The symmetrical walk

Learning Walks for Schools

Numeracy Walks

Links to:
Art

Walk Length
1-1½hours

Suitable for:
All Key Stages

On your walk look for examples of symmetry in the landscape or in nature (for example trees and plants) and in architecture (for example bridges, houses, fences). If there is a river or pond you could look at reflections in the water on calm days, or shiny windows could also be used.

Activity 1

Look for regular and irregular shaped objects and identify how many planes of symmetry there are in the object. These could be man-made or natural objects. Are they symmetrical on the x or y axis?

Activity 2

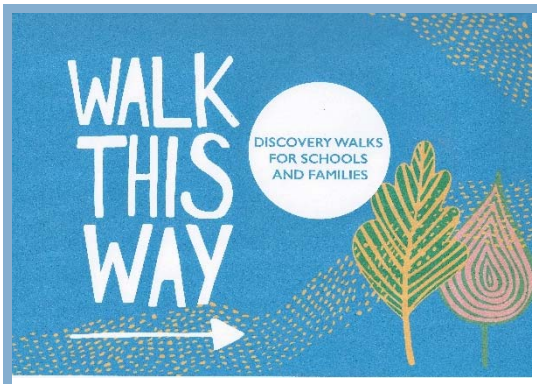
Use sticks to create shapes or pictures and investigate what happens if the shapes are rotated or translated on their axes.

This walk can be used to support other areas of the curriculum.

Activity 3 Art

On your walk collect small objects that can be placed onto a small square of sticky back plastic –leaves or petals, stems, blades of grass, or grains of sand work well. Make a pattern, design or picture that is symmetrical. The pictures can be mounted onto small pieces of card or postcards.

Alternatively make a wristband of masking tape using the same technique.



Walk at an angle

Learning Walks for Schools

Numeracy Walks

Walk Length
1hour

Suitable for:
Key Stage 2

Equipment:
Protractors

Prepared pictures of angles for younger

Activity 1

On your walk look for angles in nature. You can find them in trees, branches on sticks and plants. Take protractors with you to estimate the angles and then measure them. Don't forget to look for straight lines and parallel lines! Can you also identify the vertex and arms as well as the angle? Use the table on page 2 to record your findings.

Activity 2

Use sticks to make shapes or pictures and identify all the angles. Use your protractor to measure the angle.

Activity 3

Prepare photocopies of different angles to take with you. Discuss interior angles and exterior angles, supplementary and complementary angles. Angles around a straight line and parallel lines.
Can you identify any of these in your pictures?

Activity 4

Using sticks make a basic shape – a square or triangle and build a design by repeating the pattern. Investigate what happens to the angles of the shape. Take photos of all your angles for later reference.

Activity 5

Work in groups to give guided walks to an object in the distance for example a tree by giving directions, including paces and angles e.g. Take 5 steps forward, turn right 60° walk forward 2 paces, turn left 90°.

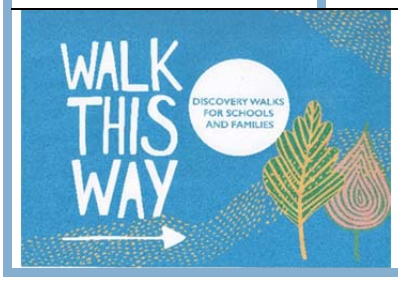
Activity 6

On your return trip look at paths and driveways. Which path uses the most shapes? Do you notice anything about the angles of these shapes?

Name:

Date:

What I found: (Write the name of the object or draw it)	Draw the angle that you have found	Name the Type of Angle (Right angle, obtuse angle, acute angle, reflex angle).	Estimate the angle that you found and use a protractor to measure it.	
			Estimate e.g. 90°	Measurement e.g. 92°



Walk at an Angle

LONDON BOROUGH OF RICHMOND UPON THAMES