



# Trail Blazing!

*The following article highlights the use of trails in a curricular area. You may already have heard of Maths Trails but in this issue we also have a Tree Trail supporting the science curriculum. You can design a trail for any curricular area or you can have one that integrates many areas.*

## What is a Trail?

A trail is an activity-based assignment that can take place within the classroom, the school building, in the school grounds or in the locality of the school.

## Why use Trails?

The use of trails supports the aims of the primary school curriculum by:

- Encouraging children to have a positive attitude to a subject.
- Developing confidence in children through applying skills in practical, real-life situations
- Facilitating meaningful talk and discussion as children work collaboratively on tasks and activities.
- Consolidating learning through engaging with ideas and concepts in a wide variety of situations.

Trails can present opportunities for revision and reinforcement of concepts covered in class but also to introduce new ideas in an exciting and interesting manner.

Both the science and the mathematics curricula emphasise the importance of skills development. Children working on trails can, through talking to others and discussing their ideas, develop skills such as:

- reasoning;
- observing;
- predicting;

- estimating;
- investigating;
- hypothesising;
- recording;
- analysing;
- reporting.

## Designing a Trail

When designing a trail, it is important to consider the different levels of ability within the class or group to ensure the reading level and content is age and ability appropriate.

Work at each station or stopping point can be structured to include all levels of ability by simplifying tasks or making tasks more challenging. It is also possible to use symbols, drawings or photographs rather than written commands alone, or the teacher/trail leader can give oral instructions at each stopping point. The language presented to the children is just as important as the clarity and complexity of the instructions. Another way of differentiating the trail would be to encourage children to draw or photograph what they see rather than always having to write a response.

The time allocation for the trail should be clearly defined. It is best to keep trails short and tasks should be well structured.

## Organising a Trail

When deciding on the trail route the issue of safety should be in line with your school's

## Key Message

Many opportunities should be provided for the children to observe and interact with their environment. Children should work outdoors regularly to observe the effects of seasonal change.

*(Science Teacher Guidelines, p33)*

policy in relation to activities outside of the school. Parental permission may be required if the trail is taking place outside of the school grounds.

It is best to enlist the help of others such as parents, classroom assistants or older children when embarking upon a trail outside the classroom. The proposed route of the trail as well as a code of behaviour should be discussed with the children in advance. Everyone involved should be clear about his or her role and what to do if an incident occurs.

- Always have a definite starting point and include clear instructions on how to get from stop to stop.
- Decide on a title for your trail and incorporate pictures or illustrations on the cover.
- Include a list of necessary equipment, eg, clipboard, pencil, compass, measuring tape, string, magnifying lenses, digital camera and, of course, the trail itself!
- Organise the children to

complete the trail in groups. Three children together works well, one to record, one to collect any interesting finds and one to lead.

## Pre-trail Work

The aim and the purpose of the trail should be clearly outlined to the children. It is a good idea to talk the children through the trail using a diagram or list of questions. The teacher can highlight the stopping points and describe the tasks they will be expected to complete. Discuss how findings are to be recorded, for example, written, pictorial or diagrammatic, and each child must be given a clearly defined role in the group to ensure that all are actively involved.

## Post-trail Work

When children return to the classroom it is also important to discuss what they have learned and achieved at each station and to allow time for the completion of recording and integration work. The results of trail work can be displayed in the form of graphs, diagrams, written reports or digital photographs.

## Children Developing their own Trails

When children have had some experience of mathematical trails, a worthwhile extension activity can be for children to devise their own.

# Tree Trails

**Curriculum Strand: Living Things.**  
**Strand Unit: Plants and animals**

National Tree Week runs from 6 to 12 March [www.treecouncil.ie](http://www.treecouncil.ie). What better way to mark this week than to conduct a Tree Trail in your locality? A Tree Trail is a development of the more traditional nature trail with which many of us are familiar. It focuses the children's attention on the trees in their local environment whether it is in the school grounds or in a local park, field, or street.

A Tree Trail can provide many opportunities for the teacher to incorporate a wide range of methodologies, for example talk and discussion, collaborative learning, guided discovery, and use of the environment, while also encouraging the development of investigative skills in both science and mathematics.

## How do I go about Designing a Tree Trail?

Firstly select your trees. Pick some of the trees in the school grounds or in a local park, field or street. If you are not sure what trees are growing close by, you could use an identification key, book or poster to help you. Tree identification keys are available from the Irish Peatland Conservation Council (IPCC), In-Class Educational Supplies and Shaws Scientific.

## Observing

- Children can use keys, books or posters to identify the trees as part of a preparatory lesson.
- Identify the trees that are at each stop. You would normally have no more than five to eight stops. A map indicating the position of the various trees could also be included.
- These stops could be marked temporarily on the day with large laminated number cards but if you want the stops to become more permanent fixtures the numbers



To calculate the height of the tree, hold an upright isosceles right-angled triangle (one of the set squares from a mathematical set) so that the one of the equal sides is parallel to the ground and the other is perpendicular. Hold the triangle at eye level and walk back from the tree until its top can be sighted along the edge of the triangle. The height of the tree is equal to the distance you are standing away from the tree plus your own height.

To find out the age of the tree measure the girth of the tree 150cm from the ground using string and divide your answer by 2.5

could be painted onto large flat stones or on wooden signs placed in the ground.

## Questioning

- Allow plenty of room for answers. One A4 page for each stop is sufficient. Try to avoid yes/no type answers. Multiple choice and tick the box type answers are preferable.
- Try to have a balance between closed questions and open questions. Examples of closed questions include:
  1. Is this tree deciduous or evergreen?
  2. What is the name of the fruit of this tree?
  3. Are the buds alternate or opposite?
  4. How many lobes does the leaf have?
 Examples of open questions include:
  1. Why do you think the bark is peeling?
  2. How do we know that insects live on this tree?
  3. Is this a good tree for birds?

Why?

- Include questions that call upon the children to use their senses (hearing, touch, smell, seeing) and thus develop their observational skills, eg
  1. Look closely at the bark. Use two adjectives to describe it.
  2. What does the bark feel like? Use two other adjectives to describe it.
  3. Close your eyes for 1 minute. Listen and write down 3 things you hear.
  4. Describe the colour and texture of the bark/buds/leaves/flowers.
- Include some questions, where appropriate, that don't require traditional written answers:
  1. What does the flower layer

*The beech tree is not a native Irish tree. It came to Ireland with the Normans 800 years ago. Thin sheets of beech wood were used to write on before paper was used.*

look like? Draw.

2. Do a leaf/bark rubbing on the back of this page.
  3. Draw a picture of how you imagine this scene will be in spring/winter etc.
- Allow space for the children to record any questions they may have. These can be collated and addressed back in the classroom.
  - Points of information on the tree can also be included on the answer sheet either at the beginning or interspersed throughout the questions.
  - Include a variety of graphics throughout the text where suitable eg, if it is necessary to observe, listen or smell and when something should be written down or drawn.
  - Encourage opportunities for integration with other areas of the curriculum where possible. Relevant poems can be included eg, *The Beech Tree* by Rose Fyleman. The pupils can also be asked to compose simple acrostic poems as part of the trail:

- Old and majestic.
- ▲ Ancient but distinguished.
- ◻ King of the forest.
- Activities that integrate with mathematics, as well as developing the skills of estimating and measuring, could also be included:
  1. Estimate and then calculate the distance between the adult ash tree and the sapling. Explain the distance between them.
  2. How might you go about finding the height/girth/age of the tree?

**After the Tree Trail**

Allow for follow up work in the

- classroom.
- Analysing, recording and communicating.
- The drawings/rubbings may be displayed and discussed. Information gathered by the class could be collated and presented in project form. The numbers of certain species of trees along a path could be recorded and displayed in a graphical representation.
- Investigating and experimenting.
- Any questions that were not answered could be researched and/or investigated, for example:
1. Which tree has the greatest

- variety/number of mini-beasts?
2. Which tree is most popular with the birds?
- Observing and Predicting.
- Adopt a tree or keep a monthly diary for a tree! Have each class take responsibility for one tree in the school grounds, and record their observations and questions. The children could also use a digital camera to record any changes such as taking photos of the buds on the tree. Not only will the pupils foster a greater respect for that tree but they may also develop a greater awareness for the seasonal changes that the tree undergoes.

**Useful Resources**

Tree Day Manual and a range of free tree posters, available from the Tree Council Of Ireland, (01 2849211) [www.treecouncil.ie](http://www.treecouncil.ie) contains work card activities which could provide ideas for questions, plus information on the quotations, place names, surnames, poetry and folklore associated with trees.

Tree-mendous Trees activity pack available free from ENFO, [www.enfo.ie](http://www.enfo.ie).

Other tree-related websites include:  
[www.coillte.ie](http://www.coillte.ie)  
[www.cairdenacoille.org](http://www.cairdenacoille.org)

# Mathematical Trails

It is important that a mathematical trail is not simply additional to the curriculum but is seen as part of teaching the objectives of the primary school curriculum; therefore careful consideration must be given to the tasks and activities set out for the children.

- A trail can be based on of the strands of the mathematics curriculum: Number, Algebra, Shape and Space, Measures or Data.
  - Trails can also be designed to link strands and strand units of the mathematics curriculum.
- A topic-based trail can use linkage within the mathematics curriculum and integration with other subject areas such as PE, geography, history and science. In this article we are providing some ideas for maths trails in the infant classes, these trails may also be used as oral language activities. We also have some samples of trails for the middle and senior classes.

**MATHS TRAILS FOR THE JUNIOR CLASSES**

**Where's Teddy?**

First read Eric Hill's, *Where's Spot?*

Tell the children that Spot's friend Teddy is hiding in the classroom and through a series of questions explore, discuss

and use the vocabulary of spatial relations as the children help find Teddy

- Is Teddy under the table?
- Is Teddy in the bin?
- Is Teddy beside Orla?

**Colour Hunt**

- Cut out pairs of circles from coloured paper or paint pairs of paper plates.
- Place one of each colour at various points around the classroom.
- Begin by showing the whole class the red circle, talk about the colour and then ask if anyone can find a similar red circle.
- The child who is first to find the second red circle holds it up and must then name something nearby that is also red.
- Then hold up the blue circle and continue as before.

This trail can be extended by including an element of number: *'There were 5 circles hidden, Cathal found one, how many more are missing?'*

A similar trail can involve looking for shapes or the tasks can be differentiated by including the two attributes of colour and shape and asking one child to find 'something blue' while a more able child might look for 'another blue circle'.



**INTEGRATING MATHS WITH A PE LESSON**

**Using playground markings Using Hopscotch or the Number Snake**

- Read the numbers together.
- Ask one child to stand on number five, everyone jumps/hops five times on the spot etc.
- What is the biggest number/smallest number you can see?
- Guess how many long steps you will take to get to the Circles (or other set of markings).
- Now count how many long steps.
- Start again – guess how many short/baby steps you will take.
- Now count how many short steps?
- Did we take more short steps or more long steps?

**Look at the Circles**

- How many circles? What colours are they?
- Let's pretend the circles are the stepping-stones to cross the river...
- Will we take long steps or short steps to get across safely?
- Try and see.
- Guess how many long steps you will take to get to the Circles.
- Now count how many long steps.

**Shape Trail**

Name:

Date:

**Look around the Classroom**

- Where can you see circle shapes?
- What shapes fit together on the floor tiles?  
Look at the shape of the classroom window
- Draw this shape in your copy. Write the name of the shape underneath your drawing.
- Find how many ways you could divide this shape in half. Draw each one.
- Name the 2-D shapes you see on the wall chart.
- Match these 2-D shapes to the 3-D shape labels on the blackboard.

- What is your favourite shape? How many sides on this shape?
- Draw a pattern in your copy using your favourite shape.
- What shapes in the classroom can you see that have curved lines?

**Look out the classroom window**

- What shapes can you see in the schoolyard?
- List other shapes you might see on your way to school.
- Invent your own shape. Draw it in your copy. What is your shape called?
- Describe this new shape. Does it look like any other shape you see around you?

**Mathematical Trail**  
**Senior Classes**

Name:

Date:

**Take a pen, paper, a copy of the Maths Trail and a clipboard outside. Walk around the school building with your teacher/team leader.**

- Examine the school building carefully. Take note of the shape of the outer walls of the school. Is the school a regular/irregular shape?
- Estimate the length of each of the outer walls of the school.
- Sketch a map/plan of the school in your copy. Use one square of your copy for every metre in length/width.
- How many bricks do you think were used to build the wall at the entrance to the school? (Hint – Count one row first and then decide how many rows of bricks were used).

**Walk to the car park with your teacher/team leader.**

- Estimate how many cars are parked in the car park.
- Count and tally the number of cars parked here.
- List the different makes of cars you see. Examine the symbol used for each make of car. Draw one of these symbols on your sheet.
- Look at the school wall plaque
- In what year was the school built? How many years ago was this?
- Draw an abacus and represent this number on the abacus.
- What is the total / product of these digits?
- What is the difference between the biggest and the smallest number that can be made from these digits?



**Number Trail**

Name:

Date:

**Walk from the classroom to the hallway**

- What time is shown on the clock in the hallway?
- List the odd numbers on the clock face
- How many windows are there in the corridor?
- How many windowpanes altogether?
- It is time for a Number Hunt. List where can you see numbers in the school hall.

**Look at this month's calendar on the wall**

- How many two-digit numbers on the calendar?
- What is the lowest/highest number you see around you?

**Walk from the hallway to the front of the school**

- Look at the school wall-plaque. In what year was the school built?
- How many digits in this number?
- How many hundreds/tens/units?
- What is the smallest/biggest total you can make with these digits?

**If you need further inspiration!**

**Read**

Primary School Curriculum:  
Teacher Guidelines –  
Mathematics (P49-53)  
Mathematics in the School  
Grounds – Zoë Rhydderech-  
Evans (ISBN 1-85741-021-1)  
School Grounds Pack –  
Southgate Publishers  
(ISBN 1-85741-097-1)

**Websites to visit**

[www.pcsp.ie](http://www.pcsp.ie)  
[www.primarymaths.ie](http://www.primarymaths.ie)  
[www.nzmaths.co.nz](http://www.nzmaths.co.nz)  
[www.google.ie](http://www.google.ie)



**Compiled by the maths and science team of the Primary Curriculum Support Programme. For further ideas visit their website at [www.pcsp.ie](http://www.pcsp.ie)**