



The Learning Institute

Taking learning outdoors Part 2: A cross-curricular approach outdoors (maths)

Overview

The purpose of this CPD relating to outdoor learning is to encourage practitioners to think more deeply about the role outdoor learning might have in the provision of a balanced and broadly based curriculum. It should also provide inspiration for parents, TAs and teachers to use outdoor contexts as part of their everyday teaching by making use of an outdoor environments, be it a garden, a school setting or a local open space as a free resource for outdoor learning.

The CPD is suitable for anyone working with - or wanting to work with - young children and/or anyone who simply has an interest in outdoor learning. It has been separated into parts, you can undertake all parts in turn as they can build on each other, or you can just undertake the particular part that is of most interest to you.

In part two of this CPD you will explore how a cross-curricular approach to outdoor learning might support school curriculum delivery with a focus on maths.

Target audience

Early years workers, teaching assistants, teachers of EYFS and KS1/KS2 (but don't let this deter you if you teach in KS3 or KS4!)

Duration

Approximately 1 hour

The Learning Institute provides opportunities for individuals and communities through high quality education, training and research programmes that challenge personal barriers and promote social inclusion. To find out more, please get in touch.

Introduction

Cross-curricular teaching is an approach to the curriculum where activities span a range of subject areas, usually built around a topic. All schools in England must provide the 11 or 12 core and foundation subjects of the National Curriculum plus religious education but does this mean teaching all of these knowledge based subjects separately or could a topic based cross-curricular learning approach help make meaningful connections between the subjects?

The 2014 statutory National Curriculum for England (Department for Education (DfE), 2013) provides autonomy for schools to choose how and where to deliver the outline of core knowledge and objectives of the National Curriculum. So - why not deliver learning outdoors?

Objectives

- Explore how cross curricular links can enhance teaching and learning
- To gain an understanding of the potential of outdoor resources to deliver mathematics

Resources

Pen and paper for note taking

Internet access to following:

- Learning outside the classroom at Southdale Junior School [video] available at <http://archive.teachfind.com/ttv/www.teachers.tv/videos/southdale-junior-school.html>

Task 1: What does cross curricular outdoor learning look like?

Southdale Junior School in Wakefield has worked hard to create an outdoor learning area to help stimulate cross-curricular learning across the school. Watch the video, available at <http://archive.teachfind.com/ttv/www.teachers.tv/videos/southdale-junior-school.html>, to see how they have done this (running time 13:49)

As you watch the video below, consider these questions:

- Where specifically does the activity take place?
- What are the 'subjects' that they are learning?
- What are the children physically doing?
- What is the motivation for their activity?
- How much choice is there in the activity?
- Who else is involved in the activity?
- Watch the expression on the children's faces and how does this communicate emotions they are experiencing?

Task 2: Explore the potential of your setting

How could you use these areas to deliver cross-curriculum learning outdoors in your own setting?

What outdoor resources do you have in your setting that could be used to explore maths across the curriculum? Examples could include a pond, an established garden area, an overgrown area in need of development or even a pathway, steps (what adventure could they lead to) or a wooded area.

Write your own ideas for using an area (outdoor space) such as the above in your setting on the diagram below. This will help you to develop a mind map which will help you visually see the cross curricular potential of the identified space.

Think about who might be the best person in your setting to take your ideas to, to discuss if and how they could be implemented.



Task 3: Explore the potential of your setting (maths)

The 2014 statutory National Curriculum for England (DfE 2013) also states that every relevant subject should be used by teachers to develop maths fluency. So how could delivering maths learning outdoors help with this?

Specifically think about how could you use the areas you have identified in your setting to deliver cross-curriculum learning outdoors with a focus on mathematics.

What opportunities are there to explore:

- **Number** (number and place value, addition and subtraction, multiplication and division)
- **Fractions** (decimals, percentages, ratio and proportion, algebra)
- **Measuring** (length and height, mass, capacity, volume, time)
- **Geometry** (properties of 2D and 3D shape, position and direction)
- **Statistics** (data handling, graphs)

Draw another mind map to explore the potential of your setting to deliver maths through other 'subjects'. (This will be revisited again in part 3)

To help you, below are some examples of how a paved pathway could be used to support understanding of mathematical concepts in different subjects (Lambert et al, 2020):

Maths - To support learning about measurement (length, width); ratios; area. Used as a 'board' to record written calculations in chalks. Used for a hopscotch and other calculation games.

MFL (French) - To draw an 'escargot' hopscotch on the path and use it to practice numbers and strategy in French.

Art - To explore perspective using proportions

Geography - To discuss direction and plot routes using NSEW. Mapping grounds and using orientation to show where the path goes. Use it as a line along which to sample data along its length or to use as a chronological time scale

ICT and computing - To draw or recreate the path digitally from measurements taken

Science - To consider the materials used to construct paths, the impact on the natural environment such as damage to the sides of the path raising questions of stewardship (linking to RE).

History - To consider when the path was placed there and why. To use the path to write a historical timeline to go back in time.

Task 4: Reflection on learning

Note down your responses to the following questions:

- What knowledge did I already have that has been refreshed by this CPD?
- How has this CPD developed my knowledge and understanding?
- How can I apply what I now know to my practice?

Sources

Department for Education (2013) *The National Curriculum for England*. Available at: www.gov.uk/government/collections/national-curriculum (Accessed 20 May 2020)

Lambert, D., Roberts, M. and Waite, S. (eds.) (2020) *National Curriculum outdoors – a complete scheme of work (Year 4)*. London: Bloomsbury Education

Teachfind (2009) *Southdale Junior School (Teachers TV)*. Available at: <http://archive.teachfind.com/ttv/www.teachers.tv/videos/southdale-junior-school.html> (Accessed 21 May 2020)

Further reading

Visit the Nature Friendly Schools website, available at www.naturefriendlyschools.co.uk, to find out more about government support for outdoor learning.

Look at the lessons learned about outdoor learning from the Natural Connections Demonstration Project (2012-2016). The report is available at https://www.plymouth.ac.uk/uploads/production/document/path/7/7634/Transforming_Outdoor_Learning_in_Schools_SCN.pdf.

To explore more about cross curricular lessons look at the following suggestions:

- The BBC website, available at <https://www.bbc.co.uk/teach/primary-cross-curricular/zdy4gwx>
- Barnes, J. (2015) *Cross-Curricular learning 3-14*. London: Sage. Sample chapters available at https://www.sagepub.com/sites/default/files/upm-binaries/68267_Cross_Curricular_Learning_Sample_Chapters.pdf

To find some more ideas to use to take learning outdoors visit the following Facebook pages/groups:

- National Curriculum Outdoors available at www.facebook.com/groups/675089459984879/
- Start it with a Story available at www.facebook.com/groups/1073388516352659/
- Taking Maths Outdoors available at www.facebook.com/groups/500989710038730/

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