



I'm a teacher, get
me OUTSIDE here!

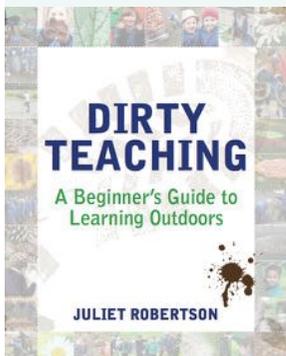


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Learning Ltd

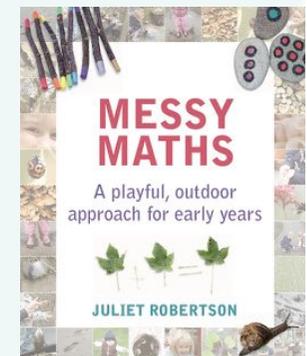
Maths Outdoors



Creating engaging outdoor spaces, maths games and activities you can enjoy with groups of young people.



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Juliet Robertson@CreativeSTAR



HELP ME

Use the **chat facility** to...

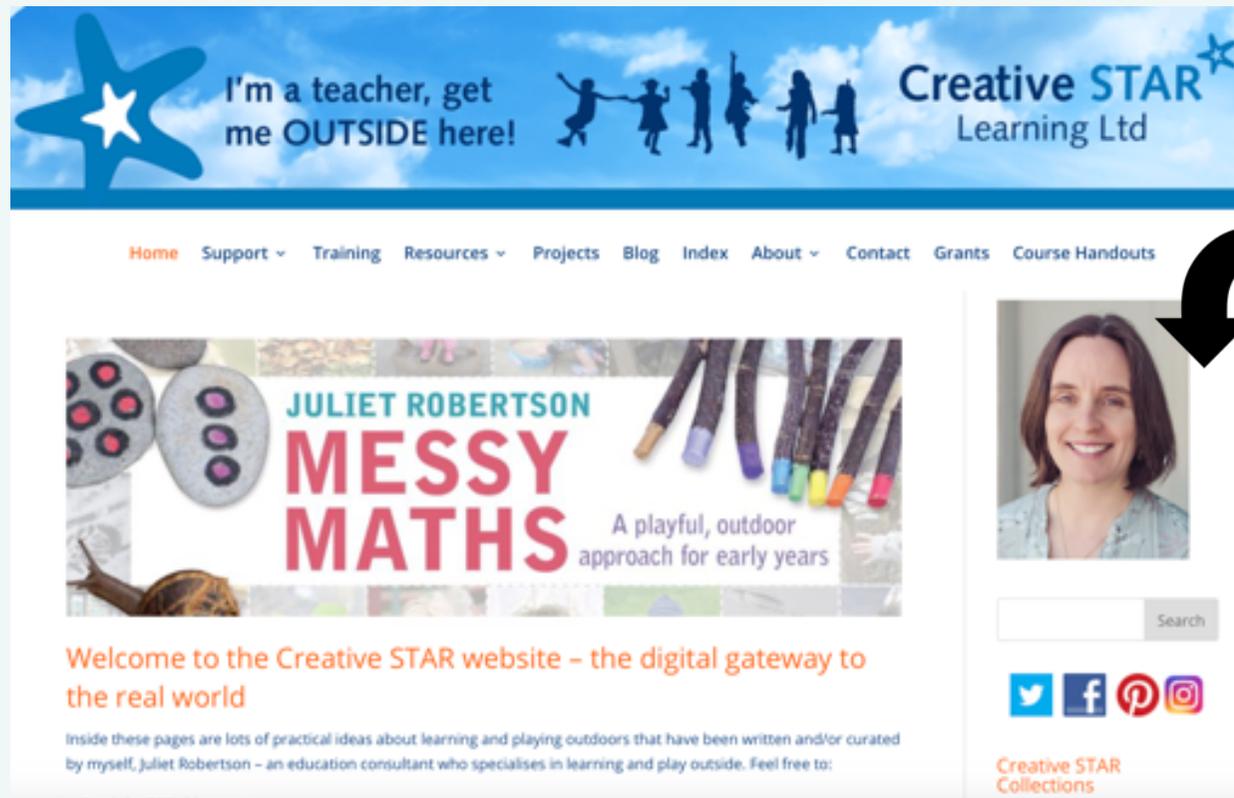
- Ask me a question
- Tell me something relevant
- Share ideas with others at the webinar
- If I don't make sense and you need something repeated or clarified.

The website: www.creativestarlearning.co.uk

Go to “Creative STAR Collections”

Look for “Maths Outdoors”

The handouts for this course are at the top of the page 😊



Scroll down the RH column to find course handouts

Get in touch if you can't find the handouts or have other queries

Email: julietrobertson@btinternet.com



Today's webinar

Aim: Consider practicalities of maths experiences outside

- Low cost “skinted not minted” approaches
- Straightforward to plan and set up
- Appropriate for all ages

KEY MESSAGES

- Maths needs to be enjoyable and relevant to children and young people
- Any outdoor space is simply another working space where you create high quality experiences with children
- Tweak to transform... it's the little things that make a big difference to children being mathematical thinkers



Reasons to be Outside – *Class Teacher Action Research**

- Low level achievers are excelling through outdoor learning.
- Outdoor Numeracy and Maths is encouraging children to talk about learning.
- Children feel challenge of task is greater outside.
- Children are engaging more in outdoor teaching.
- Relationships with peers through talking is improving.
- Maths vocabulary becomes second nature to children in an outdoor setting.
- *Health and wellbeing benefits*

*Charlene Smith, St. Pius RC Primary, Dundee



Activity 1

HOPES

What are you hoping to gain from attending this webinar?

Type your main **hope** into the chat facility.

Activity 2

CONCERNS

What is your key **concern** about maths happening outside?

(could be a maths concern or an outdoor one)

Type in one response into the chat facility.



Making the most of the weather

The mathematics of rain



Weather always provides maths challenges, e.g.

Number of drops you can catch on your tongue in 10 seconds

Explorations of puddles, e.g. the bigger the puddle the bigger the splash you can make. Is this statement true?

Making the most of your space



Setting Up a Space Outside

- Handwashing
- Managing resources and cleaning
- Gathering
- Boundaries
- Resources

Creating maths moments in all of this 😊

Simple handwashing approaches



Simple set up by Kingswells Great Western Pre-school, Aberdeen 2018

- Think how many hand washes are needed by how many children.
- Consider time taken.
- Older children and young people can help work this out.
- You may need more than one handwashing station.
- Sanitiser is not okay for hands that are visibly dirty but good for speed with older children.

Simple handwashing approaches

- Work with your group to find ways of handwashing for 20s – how to estimate this
- A walk along approach can be handy for sequencing 1st, 2nd, 3rd, etc.



Creating a working boundary



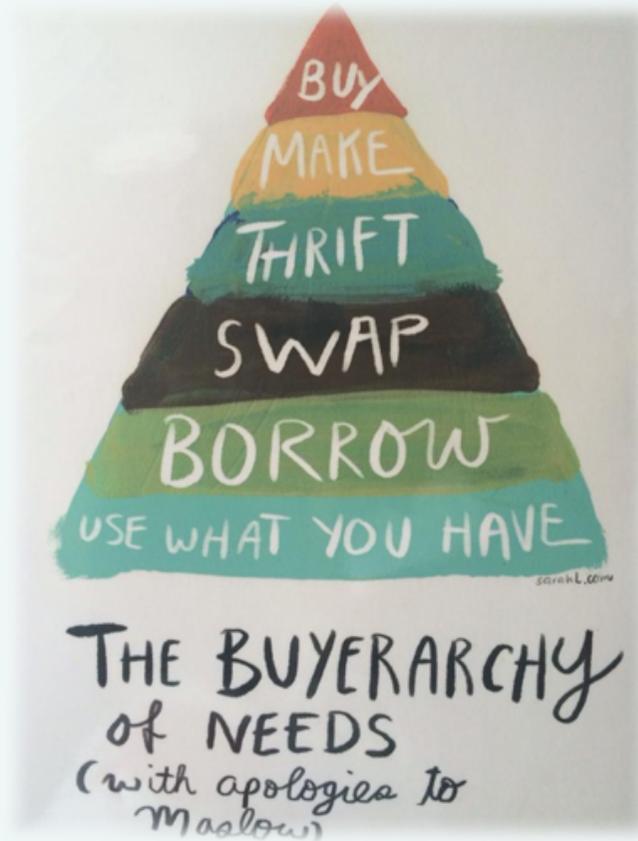
- Use ribbons or scarves in woodlands, cones or some other visual marker if needed.
- Play “run and touch” games so children know and remember the boundary.

Gathering – in a circle or a different layout?



- Use 2m tagged rope if you need to social distance (and v useful for creating a circle anywhere)
- Easy to adapt your repertoire of known games to a maths context.
- Equilateral triangles good for instructions and network provides an invite to create games.

Outdoor maths resources



- Natural materials
- Use of recycled or repurposed items
- Retiring old resources outside
- Open-ended tough resources

©Sarah Lazarovic
<https://www.sarahl.com>

Managing resources and cleaning

- Sharing within a social bubble
- Each bubble has its own resources OR
- Quarantine between groups (currently 72h) OR
- Clean and disinfect between groups
- Cleaning schedule in place meeting Health Protection Scotland National Guidelines inc. touch points

Really useful DIY resources

- Can make with older children
- Collect natural materials sustainably and in line with the law and collection codes
- Build up grab bags and mini maths kits for investigations and play
- Let's have a look... (NB examples can be seen on my website in the maths collection)

What about stuff in the environment?

- You can't remove everything from the environment: e.g. things like sticks, leaves, stones lying around outside in a natural environment
- It's not okay to disinfect the environment
- No Scottish national guidance but WHO advises:

“Where cleaning and disinfection are not possible on a regular basis due to resource limitations, frequent hand washing and avoiding touching the face should be the primary prevention approaches to reduce any potential transmission associated with surface contamination.” (link supplied in handout)



Find Something Interesting

Using found items outside, e.g. leaves, litter
– but do safety talk and establish boundaries
Can be imported items, e.g. cones

Non-uniformity of natural materials
adds maths discussions and higher
order thinking and reasoning





Why natural materials lift the learning...

- Have a look at the two cones in the photo.
- **What is the same** about the cones?
- **What is different** about the two cones?
- **What do you notice about the responses everyone has given?**

Leaf logic game

Watch carefully and see if you can work out the rules of my game...



Adapting games we know...





Hunts and trails

- Can be useful for recapping key learning from previous work
- Need a system in place so you don't spend hours creating and setting up
- Works well for pairs or individuals
- Have maps with layout of answers so you can guide children if needed
- Getting children to create trails for other classes or groups can work well



Creating Community Maths Trails



Children enjoy creating maths trails at playparks

- Go digital, e.g. East Lothian Postbox orienteering
- Shop trails – each shop has a puzzle or a clue or maths artwork in their window
- School cluster approach – use of trail by multiple schools within an area
- Local environmental features. Avoid standard calculations but look for opportunities to learn skills, e.g. clump counting

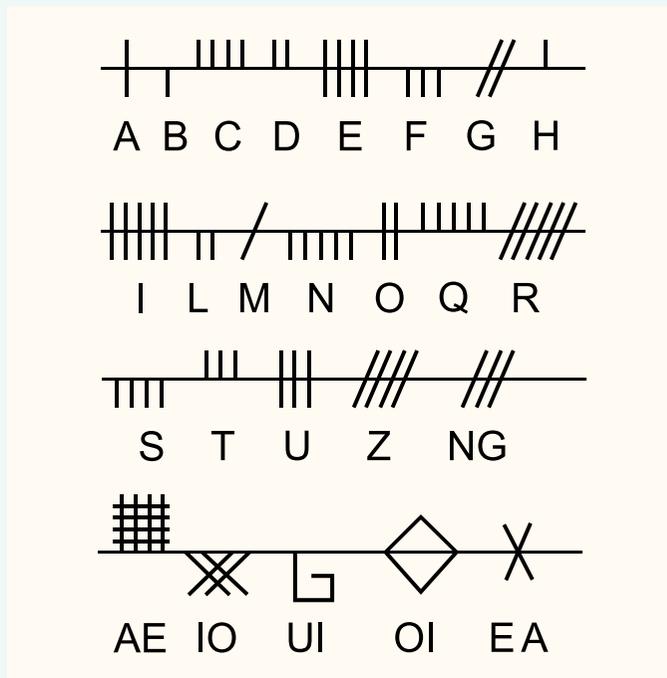
How many geese – try clumping in tens to estimate number of geese in the skein





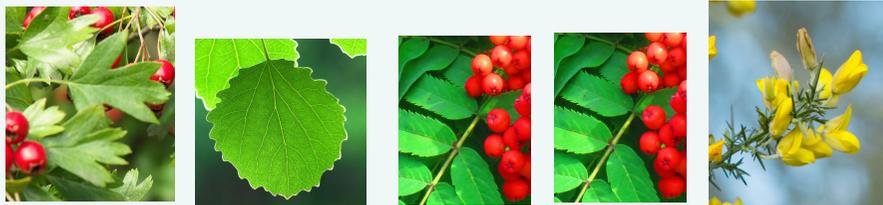
Community code cracking

- Trails that involve cracking a code can also be interesting
- Symbols, picture codes, old alphabets, mirror writing, numbers for letters, etc.
- Using the Gaelic alphabet



The Gaelic Alphabet

- Each of the 18 letters relates to a tree.
- System used to teach children the alphabet.



H E L L O

Aibidil na Gàidhlig le Craobhan 

The Gaelic Alphabet Through Trees

The Gaelic alphabet contains only 18 letters. Though there are also some letters with accents, these are not considered additional letters. Each letter of the Gaelic alphabet relates to a tree name and this system was used to teach children the alphabet, much as we use the alphabet song in English. There are differing combinations of tree names between the various versions of the Gaelic alphabet and there is no definitive version.

Here is a rough guide to the pronunciation of the tree names in Gaelic:

Ain - oi-ay	Luis - looss
Baibh - bay	Muin - moon
Coll - coll	Nuin - noon
Dair - dair	Oir/Onn - oir/awn
Eadha - eh-yak	Peith bhog - pey voh-k
Fearn - feayrn	Ruis - roosh
Gort - gortih	Suil - sool
Uath - oo-ah	Teine - choin-yak
Uigh - ue-igh	Ur - oor

 A Ailm Elm	 B Beith Birch	 C Coll Hazel	 D Dair Oak	 E Eadha Aspen	 F Feàrn Alder
 G Gort Ivy	 H Uath Hawthorn	 I Iogh Yew	 L Luis Rowan	 M Muin Vine	 N Nuin Ash
 O Oir/Onn Gorse	 P Peith bhog Downy Birch	 R Ruis Elder	 S Suil Willow	 T Teine Whin	 U Ur Heather

www.forestry.gov.uk/scotland

What plants could be used to make up the other 8 letters in the English alphabet? Let your children decide...

Use special events like Maths Week Scotland to celebrate outdoor possibilities

Fun investigations

- Magic number squares
- Mazes
- Frisbee golf
- Strategy games

Explore then invent
your own



Group challenges work well at all ages



Encourage children to invent their own mazes



Exploring labyrinths





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