Outdoor & Woodland Learning Activity Sheet

Activity:	**Twig Maths**														
Habitat:	Woodland, Garden, Croftland	**Season:**	S	✓	S	✓	A	✓	W	✓

Level	
Early	✓
First	✓
Second	✓
Third and Fourth	
Senior Phase	

Curriculum topics			
Expressive Arts		Health and Wellbeing	✓
Languages	✓	Mathematics	✓
Religious & Moral Ed		Sciences	
Social Studies		Technology	

Time

Various

Equipment*

Sticks – in different lengths
Tape measure or ruler
String
Scissors
Pebbles, pine cones, leaves or shells

Key outcomes

Selecting appropriate materials and size of materials for activity – measurement and estimation
Revisiting learning for tying knots
Practicing fine motor skills
Creating geometric shapes – 2D & 3D

*Items depicted in bold are available from CALLP

Activity description

An interactive maths activity.

Notes

Twiggy maths

Learning intentions

- Selecting appropriate materials and size of materials for activity – measurement and estimation
- Revisiting learning for tying knots
- Practicing fine motor skills
- Creating geometric shapes – 2D & 3D

This activity can be partially done indoors if the weather is poor but it involves an initial outdoor trip to collect materials for building the game and shapes. There is a short video clip here that can help pupils work out the answers below if required. https://youtu.be/_8gVssAJqs0

What you will need:

1. Sticks – in different lengths
2. Tape measure or ruler
3. String
4. Scissors
5. Pebbles, pine cones, leaves or shells

Before you head outside have a think about what you will need to find. You can write down what you'll need if that will help, a bit like a shopping list. Remember though, don't take anything that's still growing on the trees, there is plenty available if you look around on the ground.

You will need enough sticks of the right size to make a noughts and crosses game and to also build some shapes.

Noughts and Crosses.

1. This game needs a grid with 9 spaces. Can you work out how many sticks you will need? What length should they be?

2. Collect small sticks to make the crosses. How many will you need? How long should each stick be?

3. Find some items that can be the noughts, such as pebbles, pine cones, leaves or shells. How many will you need? When you have collected everything you need, place the grid on the ground.

4. To make the crosses, take two shorter sticks, place one on top of the other and tie with string in the middle. To find the middle of each stick, measure the stick and divide the length by 2. So for example if the stick is 20cm long, halfway along is 20 ÷ 2 = 10 cm. Measure 10cm along each stick and mark with a pen.

5. Tie a piece of string around the two sticks to make the cross. If you learnt about tying lashing knots last term, see if you can remember how to tie the diagonal lashing knot. See a reminder here https://www.youtube.com/watch?v=5PQe6FHSTVw .

6. How many crosses will you need for the game? Make enough to play the game.

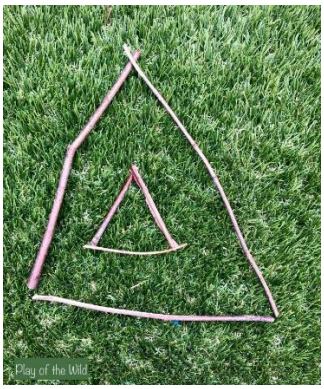
7. Once you have made your game, have a go at playing. You need two to play the game. Each player chooses whether to be the noughts or crosses. Then take it in turns to place either noughts or crosses within the grid to try and make a line of three. First one who does, wins.

8. Can you make a more complicated version of this game? A bigger grid? More players? Change the rules?

Extension activity

With the string and sticks you have collected, how many shapes can you build?

Try these 2D shapes:

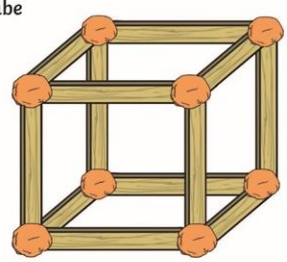


2D shapes can be made on the ground and don't need to be tied but you can practice knots if you like, by tying the sticks at each corner.

If you tie the sticks at each corner then 3D shapes like the one below can be built. What shapes can you see in the picture below?

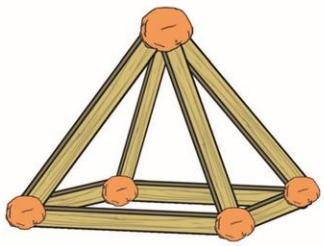
Try making some others and work out the numbers of faces, edges and vertices.

cube



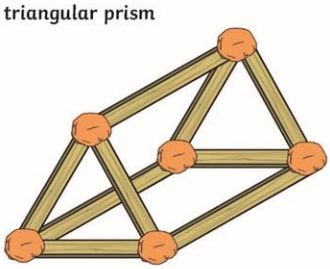
_____ faces
_____ edges
____ vertices

square-based pyramid



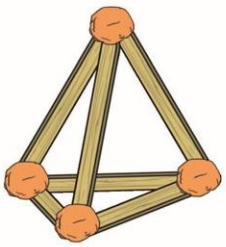
_____ faces
_____ edges
____ vertices

triangular prism



_____ faces
_____ edges
____ vertices

tetrahedron



_____ faces
_____ edges
____ vertices