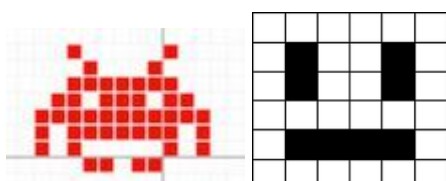


## Outdoor Learning, STEM

Learning experience	
Binary Code, The Computus (Latin for computation) is the calculation of when Easter is. Lets look at some computing science this Easter.	
CfE Level - Second	
Experiences and Outcomes and associated benchmarks/skills	
<b>E&amp;Os</b> TCH 2-14b I understand how information is stored and how key components of computing technology connect and interact through networks.	<b>BMs/Skills</b> Demonstrates and understanding that all computer data is represented in binary.
Overview of learning experience	
Pupils use natural materials to write words in binary code for others to try and interpret.	
Outline of learning	
<b>LI/SC</b> I can write a letter in binary code. I can write a word in binary code. I can decode binary written by someone else to read a word.	<b>Resources</b> Cones, stones, sticks, leaves. 2 types of something which multiples of can be gained. Laminated binary code sheet. Camera to take pictures of work.
<b>Description of learning experience and assessment opportunities</b>  Explain that computers only understand information in 1s and 0s this is called binary code. All numbers, letter and images can be represented in binary code. You may want to show these images and explain that they are made from lots of pixels being on or off (1 or 0) to make the image appear.	
	
Issue pupils will the binary code for letters shown below. Challenge pupils to use natural materials to write the first letter of their name in binary code. le pine cone is a white space and a stone is a black space. They could then try to write their own name. Then you could ask them to write words associated with your current	

topic or the time of year. Then challenge pupils to swap and try to decode each others words.

Take picture of pupils work.

A	■□■ ■■■□	N	■□■ □□■
B	■□■ ■■□■	O	■□■ □□□
C	■□■ ■■□□	P	■□□ ■■■■
D	■□■ ■□■	Q	■□□ ■■■□
E	■□■ ■□□	R	■□□ ■■□■
F	■□■ ■□□■	S	■□□ ■■□□
G	■□■ ■□□□	T	■□□ ■□■
H	■□■ □■■■	U	■□□ ■□□
I	■□■ □■■□	V	■□□ ■□■
J	■□■ □■□■	W	■□□ ■□□
K	■□■ □□□	X	■□□ □■■■
L	■□■ □□■	Y	■□□ □■■□
M	■□■ □□■	Z	■□□ □■□■

#### Consideration of risk

When using natural materials check for thorns on sticks, sharp edges on stones etc.

#### Taking it further – what else could you do?

Shine torches to do morse code, use flag to do semaphore. Discuss the space taken up to write their words and so therefore how much data and space is required to store computational data.

Discuss how long it took them to decipher the words and that this is processing. How fast must their computers processor be to decipher information.

Use the same materials to create digital pixel images.