

## Taking Learning Outdoors

Learning experience and season	
Winter: 'Offline' Coding – Game Design	
CfE Level: Second	
Experiences and Outcomes and associated benchmarks	
<p><b><u>E&amp;Os</u></b></p> <p>I understand the operation of a process and its outcome. I can structure related items of information.</p> <p><b>TCH 2-13a</b></p> <p>I can conduct simple experiments involving chance and communicate my predictions and findings using the vocabulary of probability.</p> <p><b>MNU 2-22a</b></p>	<p><b><u>BMs</u></b></p> <p><b>TCH 2-13a</b></p> <ul style="list-style-type: none"><li>Identifies algorithms/instructions that include repeated groups of instructions a fixed number of times and/or loops until a condition is met.</li><li>Identifies when a process is not predictable because it has a random element for example, a board game which uses dice.</li></ul> <p><b>MNU 1-22a</b></p> <ul style="list-style-type: none"><li>Plans and carries out simple experiments involving chance with repeated trials, for example, 'what is the probability of throwing a six if you throw a die fifty times?'</li></ul>
Overview of learning experience	
Pupils learn about some common features of programming such as sequence, repetition and selection and use these concepts to create a winter themed game.	
Outline of learning	
<p>LI/SC</p> <p>To identify and create algorithms.</p> <ul style="list-style-type: none"><li>I can create a game based on an algorithm.</li><li>I can include loops and conditions.</li><li>I can include a random element.</li></ul>	<p>Resources</p> <p>Chalk</p> <p>SnowmanGame.pptx</p>
<b><u>Description of learning experience and assessment opportunities:</u></b>	
<p>Discussion: Begin by discussing various games that the pupils are familiar with, these could be playground games, card games, board games or computer games. Ask the pupils about the rules of the games. Rules are a set of instructions that are required to play the game, otherwise known as an algorithm. Many games have complex algorithms involving <b>random elements, sequence, repetition</b> and <b>selection conditions</b>. For more information on these concepts visit <a href="#">Barefoot Computing</a>.</p>	

For example, in Monopoly:

- **Random element** - Rolling the dice, shuffling the cards
- **Sequence** – moving forward, 'Pass GO, collect £200'.
- **Repetition** – Missing turns while in jail, staying in jail until a double six is thrown.
- **Selection conditions** – deciding to purchase property, landing on a card space, paying money to other players if they own the property.

Ask the pupils to think about how these algorithms apply to other games they are familiar with.

**Activity 1:**

Outside, explain to the pupils that they are going to play a simple winter themed game involving collecting all the items required to build a snowman (SnowmanGame.pptx). This game involves sequence, repetition, selection and random elements and as they play the game draw the pupils' attention to these aspects. Can they determine when they are being used?

**Activity 2:**

In groups, the pupils are now tasked with creating their own winter themed playground game accompanied by a clear set of rules. The game should include sequence, repetition, selection and a random element.

**Activity 3:**

The pupils should now have a chance to demonstrate their games to the class and have a chance to play each other's games.

**Consideration of risk**

Take care in icy or wet conditions.

Take care not to slip on laminated cards.

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

Using their playground game as a starting point, the pupils could develop their ideas to create a board game complete with branding, rules and a video 'advert'.