

Lesson Plan - Scratch

A-maze-ing Lesson

Code Playground



Learning objectives

Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

“I understand the instructions of a visual programming language and can predict the outcome of a program written using the language.”

“I can demonstrate a range of basic problem solving skills by building simple programs to carry out a given task, using an appropriate language.”

Resources

- Something to use as a blindfold
- Pencil and paper
- Laptops or desktop computers
- <https://scratch.mit.edu>

Main activity

The lesson will introduce basic computational thinking and programming concepts by asking the class to use Scratch to create a maze activity.

Ask the children how they think computer programs work. Explain that computer programs are designed to follow a set of instructions that are made up by human beings – they don't work unless we tell them what to do.

Introduce this idea by asking the class to work in pairs. Depending on space and resources, ask one child to be blindfolded (the computer program) and their partner (the programmer) to give verbal instructions to either draw a picture or find their way through a basic maze.

What was difficult about this task for the programmer? And what was difficult for the program? What might we have to consider next time to make this easier? Remember these points for the next activity – collate them and write them on the board to be referred back to.

Ask the children to log into Scratch and introduce the maze activity. Tell the children that they will be designing a game where they must guide their Sprite through a maze to win.

The children should design a basic maze background and choose a sprite to guide through the maze using the arrow keys.

Review x- and y-axis – why will this be important for this activity?

Review angles/degrees – why will this be important for this activity? (depending on code used)

Instruct the children that they should have a section of code for each arrow key (4) to instruct their sprite through the maze.

Include an action for hitting a “wall” in the maze

Include an action for completing the maze

Differentiation

Lower Ability/ASN

Complete the activity but give one set of code for one arrow key as an example to work from and complete code for the three other arrow keys

Higher Ability/Extension

Create multiple, more difficult levels by creating new backdrops

Plenary

Have the children try each other's' games and give feedback. What went well and what could we do to improve?

Assessment Questions

Did everyone use the same code? Is there a right/wrong way to complete the activity?

How did we decide what instructions to give our Sprite?