Finding the Way

Using Flowcharts to give instructions and analyse processes

Resource

Primary

7-11 years

Contents

Noteable Activities for Schools: Finding the way

These resources are a guide for teachers to use with the whole class or direct individual students as appropriate. The activities below can be directly distributed to pupils.

For instructions on how to install and use Noteable resources, please look at our guides for teachers in GLOW: GLOW guidance for teachers to start using Noteable.

Content and Curriculum links

Level	Context	Indicators
7-11	Using basic flowcharts to give instructions	Directions, Shapes, List

Knowledge	Using bullet point lists to give instructions
Curriculum links (England) Computing KS2	• use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.
Scottish Curriculum for Excellence	**Experiences and Outcomes:** • I can explain core programming language concepts in appropriate technical language. TCH 2-14a **Benchmark:** ○ Explains the meaning of individual instructions (including variables and conditional repetition) in a visual programming language. ○ Predicts what a complete program in a visual programming language will do when it runs, including how the properties of objects for example, position, direction and appearance change as the program runs through each instruction. ○ Explains and predicts how parallel activities interact
All: Cross-curricular opportunities	The activities have identified opportunities for Geography and Numeracy.

What is a flowchart?

A flowchart is a graphical representation of an algorithm. They are very helpful when it comes to writing a program and explaining the program to others.

Imagine a flowchart as a magical map that guides you step by step on an adventure. Let's explore it together:

1. **Boxes**: Think of each box in the flowchart as a treasure chest. Each chest holds a special task or action. For example:
    - **Box 1**: "Wake up and brush your teeth." That's our first treasure chest!
    - **Box 2**: "Get dressed." Another treasure chest!
    - We keep opening these boxes in order.
2. **Arrows**: The arrows connect the treasure chests. They show us the path to follow. When you finish one task, follow the arrow to the next chest. It's like stepping stones across a river.
3. **Symbols**:
    - **Diamond Shape**: Imagine a magical door. It asks you a question. For example, "Is it raining outside?" If yes, take the rainy path; if no, take the sunny path.
    - **Oval Shape**: It's like the start and finish flags in a race. The adventure begins at the oval shape and ends there too.
4. **Examples**:
    - **Morning Routine**: Your flowchart adventure starts with waking up, brushing teeth, getting dressed, having breakfast, and finally, heading out the door.
    - **Making a Sandwich**: Each step—grab bread, spread peanut butter, add jelly, put slices together—is a treasure chest on our sandwich-making journey.
5. **Why Use Flowcharts?**:
    - They help us understand **big tasks** by breaking them into smaller steps.
    - Imagine building a LEGO castle. You follow the instructions step by step, just like a flowchart!
    - Scientists use flowcharts to explain how plants grow or how stars twinkle.

So, next time you're on an adventure—whether it's getting ready for school or making a snack—think of it as following a magical flowchart!

Activity 1

NAAS needs to reach the power bank to recharge his batteries. It's a raining day and, well… as everybody knows, robots do not like to get wet! Can you help NAAS to reach the power bank?

The rules are simple:

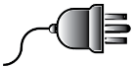
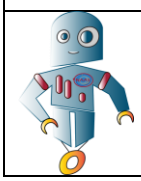
1. NAAS cannot step into the cloud box
2. He cannot move diagonally
3. He cannot jump the clouds
4. He cannot move backwards

Activity 2

Are you up to a challenge? What about creating your own steps?

Add some pictures of things that you think NAAS will like to eat or drink on the way to the charging stations. Also add some obstacles that NAAS need to avoid. You can either copy and paste some of the pictures below or draw your own.



Cross-curricular opportunities

Geography: You can add an extra challenge to the lesson. Your students can select a map in Digimap for Schools or another mapping tool and create paths and measurements for their peers to create the flowchart.

Numeracy: Depending on what you are teaching in Numeracy and Maths, you can use the flowchart as a starting point, you can create a number of activities. For example, students can discuss which way is longer in total, calculate the difference and between the two ways and calculate the distance if a direct line was used from the 'You' point to the final destination. They can then, display their answer as part of the next coding activity (printing messages and information).

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