Algorithms and Stories
Curriculum Links

Curriculum Area: Mathematics
Strand: Number
Strand Unit: Counting and numeration
Strand: Shape and space
Strand Unit: Spatial Awareness

Curriculum Area: Primary Language
Strand: Oral Language
Element: Communicating, Understanding, Exploring and using
Strand: Reading
Element: Exploring and using

Learning Objectives

The children should be enabled to
- Discuss what it means to follow instructions when completing a task and why it's important that they are clear and in sequence
- Define what an algorithm is and how both humans and computers use them to complete tasks and solve problems
- Identify bugs in an algorithm and recognise that making mistakes is just part of the learning process
- Develop and test an algorithm of directional arrows to get Little Red Riding Hood to her Grandmother's cottage
- Design their own problems based on a story that requires an algorithmic solution and solving this by assuming the roles of bots and coders

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Algorithms and Stories
Episode Description

In our fourth episode of DreamSpace ByteSize, Michael and Niamh introduce you and your class to our final problem solving skill used by computer scientists and coders, **algorithmic thinking** i.e., the process of creating algorithms. We are going to be practicing this skill by discussing the story of Little Red Riding Hood and how algorithms could help solve a problem in that story.

We will design our very own algorithms but not before we learn all about how they are just step-by-step instructions, the importance of making them clear and sequenced and what exactly a bug is and how they can help us learn.

During our review, we reflect on how we could have improved our algorithm and why it was important to test it as we were making it so that it is easier to find bugs.

WALT: <u>W</u>e <u>A</u>re <u>L</u>earning <u>T</u>o Use Algorithms To Solve Problems

Concepts

Algorithmic Thinking: Algorithmic thinking is the process of creating algorithms. When we create an algorithm to solve a problem, we call this an algorithmic solution. An algorithm is a step-by-step process that solves a problem or completes a task. Computers can't think for themselves, so they need to be given algorithms to do things.

Bugs: A bug is an error, flaw or fault in a computer program or system that causes it to produce an incorrect or unexpected result, or to behave in unintended ways. The process of finding and fixing bugs is termed "debugging"

Differentiation

- There are 2 available versions of Activity 2 in this episode's associated worksheets. Each of these require a different level of problem solving and time.

Reflection	Assessment	Resources
• **Why was it important to make sure our algorithms were in sequence?** • **Are bugs a bad thing?** • **What problems in our own lives could we solve using algorithms?**	**Formative:** • Oral Discussion • Bug Identification • Reflection **Summative:** • Find the Bug Task • Algorithm Designing	• DreamSpace ByteSize Episode 4 • Worksheets pp. 36 - 41 • Colours/Markers • Tape/Chalk

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