Hwb®

CODING YOUR AGENT



MINECRAFT EDUCATION EDITION

Hwb®

Challenge: Coding your Agent!

Challenge Duration: Approx. 2+ hours

Learning Objectives:

- To understand the features of 4 geometric shapes and how to construct them
- To write an algorithm using Microsoft Code Builder and debug
- Adjust the dimensions of a shapes by changing variables within an algorithm

Areas of Learning and Experience:

The steps within this Challenge offers opportunities to develop:

- **Science and Technology** - Computation is the foundation for our digital world
- **Mathematics and Numeracy** - Geometry focuses on relationships involving shape, space and position, and measurement focuses on quantifying phenomena in the physical world

Cross-curricular skills:

The steps within this Challenge offers opportunities to develop:

- **Numeracy** - Learning about geometry helps us understand, shape, space and position, and learning about measurement helps use quantify in the real world

DCF:

- **Data and Computational Thinking** – Problem-solving and modelling

Guiding Ideas / Possible questions to ask:

What are the features of a cube, cuboid, triangular prism and pyramid?
What command instructions will be needed to instruct Agent to build these shapes?
How will you approach debugging if your code does not work as expected?
What variables would you need to change to adjust the dimensions of you shape?
How does this relate to the number of blocks needed by Agent to complete running the algorithm?

Challenge Overarching Statement:

This Minecraft: Education Edition Challenge has been developed to enrich the delivery of the Curriculum for Wales. Although specific **Areas of Learning and Experience (AoLE)** have been identified in this Challenge these are **not** prescriptive, but the authors interpretation. Educators should interpret this Challenge support document and apply accordingly to the relevant age groups in terms of breadth and depth of application (and considering any other relevant AOLEs).

Within the Challenge support document, appropriate referencing of the cross-curricular skills: literacy, numeracy and digital competence. Where appropriate references have also been given to the Digital Competence Framework (**DCF**) and National Literacy and Numeracy Framework (**LNF**).

At the heart of the Hwb Minecraft: Education Edition Challenge is the development of the four core purposes of Curriculum for Wales and the underpinning integral skills of **Creativity and innovation**, **Critical thinking and problem-solving**, **Personal effectiveness** and **Planning and organising**.

Description:

Learners must code Agent to build four different 3D geometric shapes in specific locations within the Amazing Code world.
The learners will need to write four different algorithms and test them to evaluate outcomes.

Learner Activities	Differentiation	Achievement outcomes
Step one		
Discuss the features of geometric shapes.	Modelling Focus questions	▪ Learners have a good understanding of the four different shapes to be constructed
Step two		
Interact with the Amazing Code world, find out what needs to be done and plan for achieving.	Scaffold planning with flow charts or step by step guides	▪ Learners have a written plan on how they will need to code Agent to construct each geometric shape
Step three		
Learners write their code using Microsoft Code Builder within Minecraft: Education Edition to instruct Agent to build the shapes, test, debug and change dimensions by adjusting variables.	Model code for a shape	▪ Learners execute their algorithms and evaluate outcomes and debug/adjust code to vary dimensions

Assessment Opportunities

- Ensure learners have tested and debugged their algorithms

Plenary

Ask the students the questions below:

- What have you learned about geometric shapes?
- What is the relationship between size and the number of blocks? Can this be calculated and tested?
- What bugs did you encounter in your algorithms? How did you find them? How did you fix them?

Key Vocabulary:

- geometric shapes
- coding
- algorithm
- debugging
- variables

Resources / Supporting files:

- Amazing Code World
- Planning Sheets (squared paper)
- Examples of geometric shapes
- Minecraft: Education Edition