Monsters multiplication

Scratch lesson plan – Code Playground

BARCLAYS

Lesson overview

In this lesson, students will embark on a 'Monsters multiplication' adventure in Scratch. This lesson combines mathematics and computing where a monster character quizzes the player on multiplication facts. This interactive approach aims to solidify their understanding of multiplication while introducing coding concepts, fostering both computational thinking and creativity.

Time	Key learning outcomes	Resources
60 mins	• Reinforce and enhance fluency in multiplication tables • Understand programming constructs such as variables, sequences, loops and conditionals • Develop problem solving skills through debugging and iterative design.	• Laptops or desktop computers • Access to Scratch website - https://scratch.mit.edu.

Content

Introduction

Begin with a brief discussion on multiplication, emphasizing its role in repeated addition.

"How can you represent 3 x 4 using addition?"

Use visual aids in rows and columns to illustrate the concept.

Real-life connection

"If a monster has 4 eyes and there are 3 monsters, how many eyes are there in total?"

In this project the monster will pose five multiplication questions within a 200 second time frame. Answer the questions correctly as fast as you can. Score over 500 points to win.

Scratch practical

Ask the children to log into Scratch and locate the backgrounds and sprite as described in the workbook. Show the monsters multiplication video as a guided lesson pausing regularly when the pupils need to catch up.

- Children should be able to follow along with the workbook or the guided lesson video
- By the end of the lesson children should be able to create a working program showcasing the monsters multiplication game.

Activity – Monsters multiplication

This project uses a number of features to create a fun multiplication game.

Walk the children through scripting the monster sprite to ask random multiplication questions and evaluate their answers.

"Why is it important to check your answer before submitting? "

This programme uses variables. Discuss with the class why variables are important to the project and how they work.

Scratch practical

Using the video and workbooks support the children to follow the instructions and complete the coding project. Have them think of other ways to enhance the project if they have extra time.

Activity wrap up

Prepare to share your project with the class

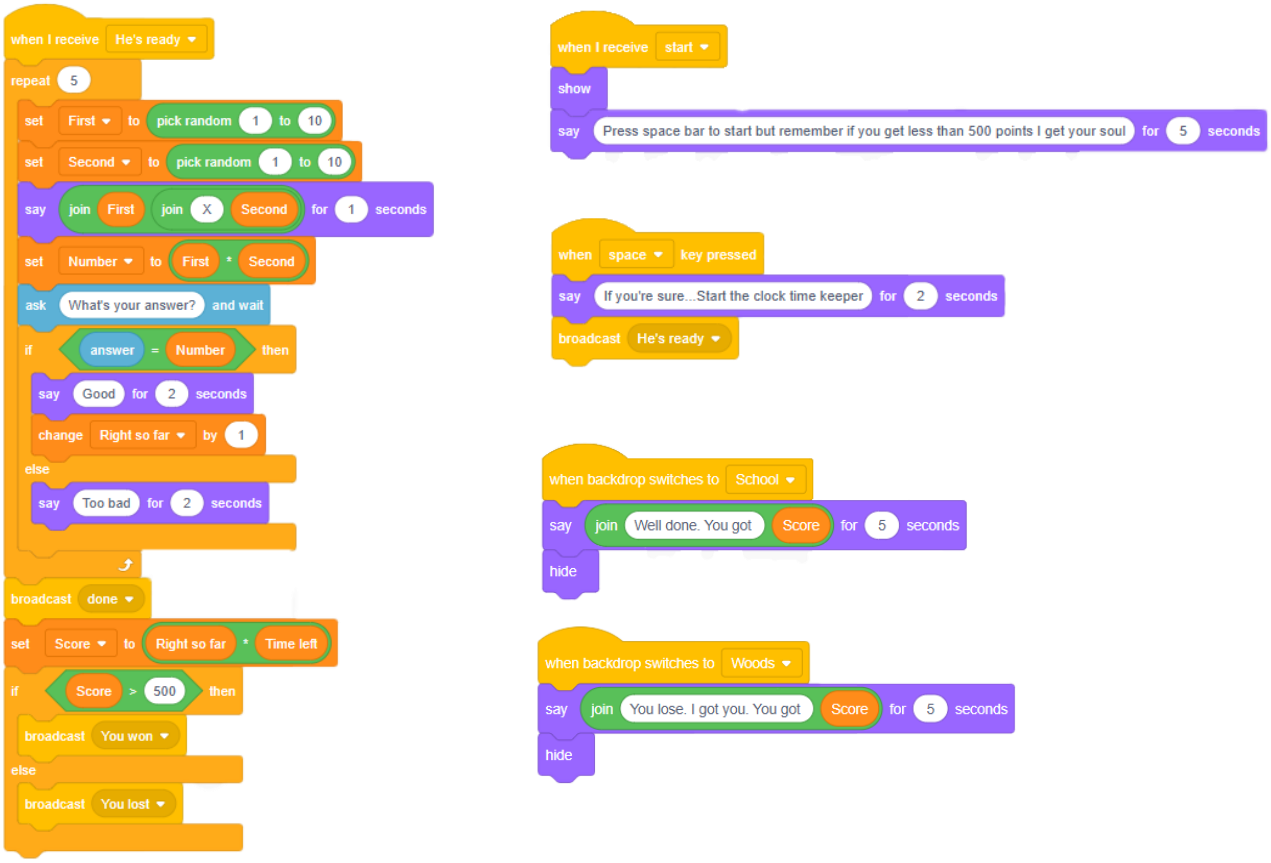
- Can you make the code neater and more efficient?
- Can you change the project, so it keeps going until the timer runs out?

Encourage customisation:

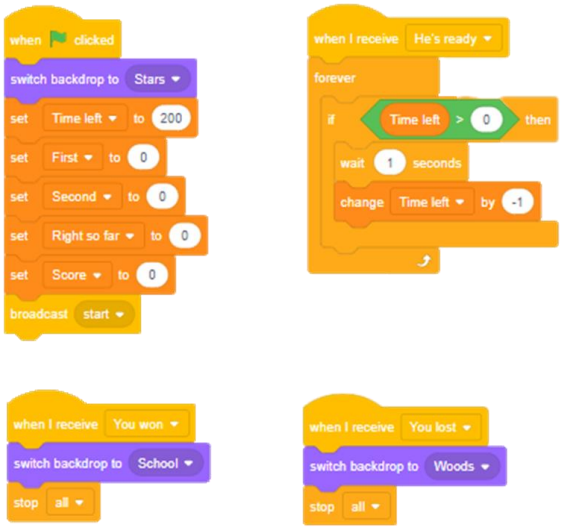
- Introduce more questions within the project
- Add sound effects or animations on winning or losing the game.

Code snippets

Monster sprite



Stage



Summary

The following information is an example of what a child at an expected level would be able to demonstrate when completing these activities with additional examples to demonstrate how this would vary for a child with emerging or exceeding achievements.

Assessment guidance

Differentiation – Lower ability/ASN

- Provide visual guides or printouts of the scripts
- Focus on setting up the monster sprite and asking the questions before adding other features
- Allow paired work for additional support.

Differentiation – Higher ability/extension

- Challenge students to create a function to reset without clicking the green flag
- Encourage experimentation with more complex multiplication problems
- Introduce animation elements to the game.

Plenary

- What challenges did you face and how did you overcome them?
- How do variables improve the game experience?
- What other features could you add to make the game more exciting?

Assessment questions

- How did you create variables?
- What coloured block did you use to ask and answer the multiplication question?
- How was the score calculated?