

Space Adventures Computing Unit 1

Lesson 5 – Asteroids Approaching

Curriculum Mapping (Computing KS2)

- ◆ use sequencing, 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

Learning Objective

Code a game where a spaceship has to be guided through an asteroid cloud.

Prior Learning

Pupils should have completed most of the previous lessons in this unit.

Introduction

Show pupils the *U1L5 introduction.mp4 video*.

Using the prompts in the video, ask pupils to explain what is making the asteroids and spaceship move. (This can be done orally or written in rough, and is known as the algorithm).

Main Activity

Pupils use Scratch to create the game. They use a variable to control how fast the asteroid cloud is approaching.

Show the class the *U1L5 demonstration.mp4 video* or how to access it on their own computers.

Hand out the *U1L5 step by step.pdf* guide or show pupils how to access it on their computers.

(Opening a second tab in the browser will allow pupils to switch between the help guide/video and their own work).

Extension Activity

Show pupils the activities on the *U1L5 going further_export.pdf* document. These include experimenting with aspects of the code, and changing the way the spaceship and asteroids move.

Plenary

Discuss with pupils why the game gets harder as it progresses. Ask them to identify the part of the code that makes this happen. (This is because the asteroids move more quickly each time they go back to the right hand side, since the speed variable, and therefore their speed is increased). Ask them to think of other games (computer or 'real') that get harder as the game progresses.

Notes

This program works in two parts. The spaceship code starts by setting the initial values for the size and position. A loop then keeps repeating until the spaceship hits an asteroid. The loop checks for keys being pressed to move the spaceship up or down - done by changing the y coordinate of the spaceship. When it does finally hit an asteroid a message is shown, then the **stop all** command stops the asteroids moving too.

The other part of the program controls the asteroid cloud. A **variable** is used to store the speed so that this can be increased during the game. The speed is negative because we want the asteroids to move to the left. A **change x by** code block moves the asteroids. An **if then** block checks to see if the asteroids have reached the left hand side of the screen. If that is true, then they are moved to the right hand side, and the speed is increased.