



Year 3 – Programming B – Events and actions in programs



Rationale: This unit explores the links between events and actions, while consolidating prior learning relating to sequencing. Learners begin by moving a sprite in four directions (up, down, left, and right). They then explore movement within the context of a maze, using design to choose an appropriately sized sprite. This unit also introduces programming extensions, through the use of Pen blocks.

Progression: This unit assumes that learners will have some prior experience of programming. The key stage 1 National Centre for Computing Education units focus on floor robots and ScratchJr, however experience of other languages or environments may also be useful. The Year 3 — Programming A unit introduces the Scratch programming environment and the concept of sequences.

Overview:

Subject Knowledge Lesson 1: To explain Lesson 1: In this lesson, learners will investigate how characters can be moved using 'events'. They will analyse and improve an existing project, and then apply what they have how a sprite moves learned to their own projects. They will then extend their learning to control multiple in an existing project Lesson 2: To create a sprites in the same project. Lesson 2: In this lesson, learners will program a sprite to move in four directions: up, program to move a sprite in four down, left, and right. They will begin by choosing a sprite and sizing it to fit in with a given directions background. Learners will then create the code to move the sprite in one direction before duplicating and modifying it to move in all four directions. Lesson 3: To adapt a program to a new Lesson 3: This lesson will introduce learners to extension blocks in Scratch using the Pen context extension. Learners will use the pen down block to draw lines, building on the Lesson 4: To develop movement they created for their sprite in Lesson 2. Learners will then decide how to set my program by up their project every time it is run. adding features Lesson 4: In this lesson, learners will be given the opportunity to use additional Pen Lesson 5: To identify blocks. They will predict the functions of new blocks and experiment with them, before and fix bugs in a designing features to add to their own projects. Finally, they will add these features to program their projects and test their effectiveness. Lesson 6: To design Lesson 5: This lesson explores the process of debugging, specifically looking at how to and create a mazeidentify and fix errors in a program. Learners will review an existing project against a given based challenge design and identify bugs within it. They will then correct the errors, gaining independence as they do so. Lesson 6: In this lesson, learners will design and create their own projects. Using a template (which can be blank or partially completed), learners will complete projects to move a sprite around a maze, with the option to leave a pen trail showing where the sprite has moved.

Assessment/Key Skills

Formative assessment

Assessment opportunities are detailed in each lesson plan. The learning objective and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end. Learners are invited to assess how well they feel they have met the learning objective using thumbs up, thumbs sideways, or thumbs down.

Summative assessment

See the assessment questions and solutions for this unit.