Lowerhouse Junior School
Computing Overview Sheet

Year 5 – Programming (Selection in Quizzes)

National Centre for Computing Education

Rationale: In this unit, pupils develop their knowledge of 'selection' by revisiting how 'conditions' can be used in programming, and then learning how the 'if… then… else...' structure can be used to select different outcomes depending on whether a condition is 'true' or 'false'. They represent this understanding in algorithms, and then by constructing programs using the Scratch programming environment. They learn how to write programs that ask questions and use selection to control the outcomes based on the answers given. They use this knowledge to design a quiz in response to a given task and implement it as a program. To conclude the unit, learners evaluate their program by identifying how it meets the requirements of the task, the ways they have improved it, and further ways it could be improved.

Progression: This unit assumes that learners will have prior experience of programming using block-based construction (eg Scratch), understand the concepts of 'sequence' and 'repetition', and have some experience of using 'selection'. Ideally, learners will have completed 'Programming A – Selection in physical computing' before undertaking this unit, as this will provide them with the required knowledge of 'selection'.

Overview:

Lesson 1: To explain how selection is used in computer programs

Lesson 2: To relate that a conditional statement connects a condition to an outcome

Lesson 3: To explain how selection directs the flow of a program

Lesson 4: To design a program which uses selection

Lesson 5: To create a program which uses selection

Lesson 6: To evaluate my program

Subject Knowledge

Lesson 1: In this lesson, learners revisit previous learning on 'selection' and identify how 'conditions' are used to control the flow of actions in a program. They are introduced to the blocks for using conditions in programs using the Scratch programming environment. They modify the conditions in an existing program and identify the impact this has.

Lesson 2: In this lesson, learners will develop their understanding of selection by using the 'if… then… else...' structure in algorithms and programs. They will revisit the need to use repetition in selection to ensure that conditions are repeatedly checked.

Lesson 3: In this lesson, learners consider how the 'if… then... else…' structure can be used to identify two responses to a binary question (one with a 'yes or no' answer). They identify that the answer to the question is the 'condition', and use algorithms with a branching structure to represent the actions that will be carried out if the condition is true or false. They learn how questions can be asked in Scratch, and how the answer, supplied by the user, is used in the condition to control the outcomes

Lesson 4: In this lesson, learners will be provided with a task: to use selection to control the outcomes in an interactive quiz. They will outline the requirements of the task and use an algorithm to show how they will use selection in the quiz to control the outcomes based on the answer given. Learners will complete their designs by using storyboards to identify the questions

Lesson 5: In this lesson, learners will use the Scratch programming environment to implement the first section of their algorithm as a program. They will run the first section of their program to test whether they have correctly used selection to control the outcomes, and debug their program if required. They will then continue implementing their algorithm as a program.

Lesson 6: In this lesson, learners will return to their completed programs and identify ways in which the program can be improved. They will focus on issues where answers similar to those in the condition are given as inputs, and identify ways to avoid such problems. Learners will also consider how the outcomes may change the program for subsequent users, and identify how they can make use of setup to provide all users with the same experience.

Assessment/Key Skills

Formative Assessment

Assessment opportunities are detailed in each lesson plan. The learning objectives and success criteria are introduced in the slide deck at the beginning of each lesson, and then reviewed at the end. Pupils are invited to assess how well they feel they have met the learning objectives using thumbs up, thumbs sideways, or thumbs down. We recommend the use of teacher accounts in Scratch to help with assessment throughout this unit. For guidance on setting up teacher accounts, please visit the Scratch website (scratch.mit.edu/educators/faq).

Summative assessment

Please see the assessment question and answer documents for this unit.