

Version 1.0



General Certificate of Secondary Education

4512

GCSE in Computer Science

Component 1: Practical programming

Specimen Candidate Booklet:

Scenario 2 – Computer Gaming Application

*This scenario is one of four available. Each of the four scenarios is available in separate candidate booklets. You must choose **two** from the four.*

Instructions

- You have approximately 25 hours in which to complete **all** of this scenario.
- There are restrictions on when and where you can work on this scenario. Your teacher will explain them to you. For example, you can only do work that you intend to hand in for marking when a teacher is present so that he or she can confirm that the work is your own.
- Before beginning the scenario, read the whole of this booklet thoroughly. You can ask your teacher to explain anything in this booklet that you do not understand.
- You must not work with other students on anything that you intend to hand in for marking.

Component 1: Practical programming

Scenario 2 – Computer Gaming Application

A local primary school has noticed that many of its pupils are playing computer games in their spare time. The school thinks that this may be a way that they can help pupils to learn.

You have been asked to develop a computer game that could be used to help teach 7 – 11 year old pupils in the classroom.

The school is looking at building a range of games in different subjects.

You must pick ONE subject area from the list below that your game will help to teach:

- Mathematics
- English
- Science
- ICT

Your game must teach one area of the subject:

- Mathematics – e.g. a game that will teach children to add numbers together
- English – e.g. a game that will teach children how to build a sentence
- Science – e.g. a game to teach children health and safety in the laboratory
- ICT – e.g. a game that will teach children to identify the different parts of a computer

The following operations/functions must be available from the completed game:

Start Up Screen: Introduce the user to the game and provide options in a menu that allow the user to navigate around the different parts of the game

User Instructions: Provide instructions to the user about controls, scoring and how to play the game

User/Users control: The player/players of the game must be able to control character/characters. For example, this could be with a mouse, keyboard or game control pad.

User Interactivity: Your game must allow the user to interact with what is happening on the screen. For example:

- Mathematics – type in the answer to a given Mathematics question
- English – drag and drop words to form the correct order in a sentence
- Science – click on the areas of a picture where the user thinks that a dangerous hazard is shown
- ICT – click on all the input devices shown on the screen

Scoring System: Your game must have a scoring system. It may allow the user to gain points by collecting different items. The character(s) in the game may have health that reduces every time they are hit. The game may count how many questions the user gets correct.

Your player/players only need to score in one way. For example:

- Mathematics – score one point for each question answered correctly
- English – score one point for each word placed in the correct order into a sentence
- Science – score one point for identifying each of the hazards in a given picture of a laboratory
- ICT – score one point for identifying all of the input devices in a picture of a computer system

Achievable ending: The game may end when the user achieves their goal. For example:

- Mathematics –answer ten questions in a sequence correctly
- English –place all of the words in a sentence in the correct order
- Science –identify ten hazards in a picture of a laboratory
- ICT –identify all of the input devices in a picture of a computer system

The game may also end when the user runs out of health or time or when they are caught by one of the enemies.

Challenge: All games need challenge to make the player want to play again. This could be the game getting faster or harder as the player progresses through the game. It could include the goal being further away or different types of enemies. It could also include a high score table that the player can use to compare scores with friends.

If your game has “levels”, you only need a maximum of two levels of difficulty at this stage. This can be two separate levels (e.g. Easy and Hard chosen by the player) or two levels of play that change as you get further into the game as you play it (e.g. your game gets harder or faster, generates more difficult questions or has more enemies to catch).