

2020 specification
First examinations from 2022



Keyword Activities

for GCSE AQA Computer Science (8525)

DG2/
10605

POD
10605

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Teacher's Introduction

Overview

This resource has been produced to support teaching and learning of the *AQA GCSE (9–1) Computer Science* specification (8525). The learning content is covered by the following sets of keywords with matching descriptions, which cover all of the subject content for Paper 1 and Paper 2.

- *Algorithms*
- *Programming (Part 1)*
- *Programming (Part 2)*
- *Programming (Part 3)*
- *Data Representation (Part 1)*
- *Data Representation (Part 2)*
- *Computer Systems (Part 1)*
- *Computer Systems (Part 2)*
- *Computer Systems (Part 3)*
- *Networks (Part 1)*
- *Networks (Part 2)*
- *Cybersecurity*
- *Relational Databases and SQL*
- *Ethical, Legal, Environmental and Privacy*

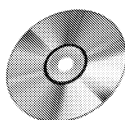
For each set, there are a number of different keyword activities on CD designed to give you a range of different options for classroom, homework and revision. This variety enables you to take a different approach to different topics – such as using the Crosswords as homework for one topic, and the Match Up as a starter for another.

Alternatively, differentiate the activity for a given topic; for example, you might want to give your stronger students the **Crosswords** early on while you start weaker learners on the **Match Up** (where terms and definitions are both available). **Domino** and **Bingo** activities add an element of fun and reinforcement, as well as potential for pair and group work. Finally, the **Flash Cards** come into their own for revision and the **Table Fill** and **Write Your Own Glossary** allow students to test their understanding by correctly filling in keywords or definitions.

For more information about the different activities included, see overleaf →

Digital Format

All of the activities are provided electronically on the accompanying CD. To use on a *secure* school network/VLE, the entire contents of the CD needs to be copied and pasted into an accessible location.



Providing easy access to the activities are two HTML menus:

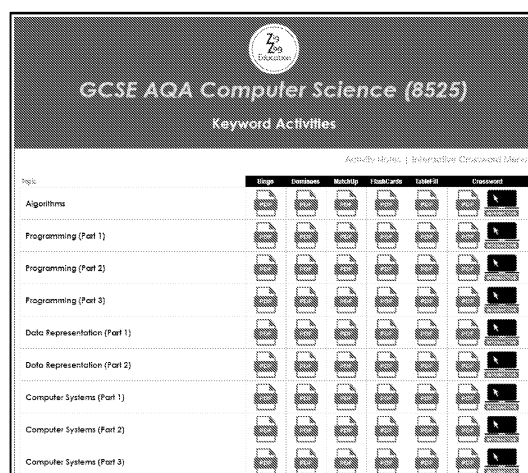
1. Access All Menu



Location: **index.html**

This menu, designed primarily for teacher use, includes links to everything on provided on the CD – allowing you to easily select what you need when preparing your lessons.

If you intend to give learners access to this menu, then be aware that it does include links to the solutions.

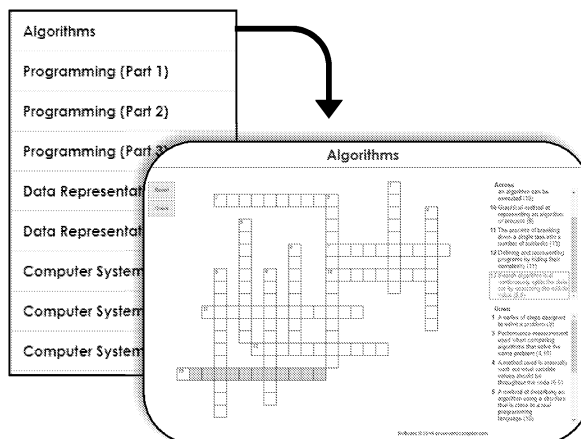


2. Interactive Crossword Menu



Location: **interactive-crosswords/index.html**

This menu, which can be accessed via the *Access All* Menu is included to allow learner access to just the interactive crosswords (without the answers).



Activity Types

All activities are provided as PDF files, allowing for easy printing and sharing on your school's internal network or VLE. In addition, each of the single-page activities (*Crosswords*, *Match-up* and *Table-fill*), as well as the solutions, are provided on paper too.

The activities included in this resource are as follows:

Bingo

Each student is given a different bingo card containing a selection of words from the set. The teacher reads the definitions using the Keyword Answers, and the student must match the definition to the words on their card to complete rows, columns, and the full bingo card. The bingo activity is available for sets with 12 or more words.

✓ PDF

Crosswords

These traditional keyword activities are equally effective as lesson or homework activities – and are also an excellent way of easing students into their revision programme.

✓ PDF ✓ PAPER



In addition to the photocopiable worksheets and PDF, the crosswords are provided in interactive format on the accompanying CD-ROM. These are web-based (HTML5) and will run straight from your Internet browser.

Dominoes / Loop Cards

This is essentially another match-up activity, but this one is designed to be used in a more active way to engage students. It is recommended that students work in pairs or small groups.

✓ PDF

Half of each card contains a keyword, and the other half contains a description. To complete the activity, students must align all the cards in the correct order. There is a 'Start' and a 'Finish', meaning that if any cards are left outside the chain, then students have gone wrong somewhere.

Match-up

Students match descriptions to their keywords by drawing lines between them. Because there are similar descriptions and keywords, students are likely to make the odd mistake while completing the activity, so it is recommended that they use a pencil to start with! By eliminating the keywords that they are familiar with, students can then think about and learn the ones that they are less confident with.

✓ PDF ✓ PAPER

Flash Cards

These are a helpful revision tool. To make the cards, fold the page in half, then cut out each card and stick them together so the keyword is on one side and the definition the other. In addition, students could use these to play a game of pairs. Cut each card in two and place them all face down on the table. Students will then take it in turns to turn over two cards with the aim of matching a keyword to its definition. Matched-up cards are removed, and the game is finished when all the cards have been matched.

✓ PDF

Glossary Builders

Table-fill

Nothing fancy – students simply write the keyword which is being described, without any other help. Because this activity tests the students' own knowledge, it is best used as a homework activity at the end of each topic or during revision. This then acts as a check that they have grasped the key terminology for each topic. Alternatively, the tables could be given to students at the beginning of the topic, to see what they already know.

✓ PDF ✓ PAPER

Write Your Own Glossary

Like the Table-fill, this activity can be used to test students before learning a topic, or as a revision tool after learning a topic. Students are given a list of the keywords and need to produce their own definitions. Using Table-fill and Write Your Own Glossary, lessons can be differentiated for all levels of learner.

✓ PDF

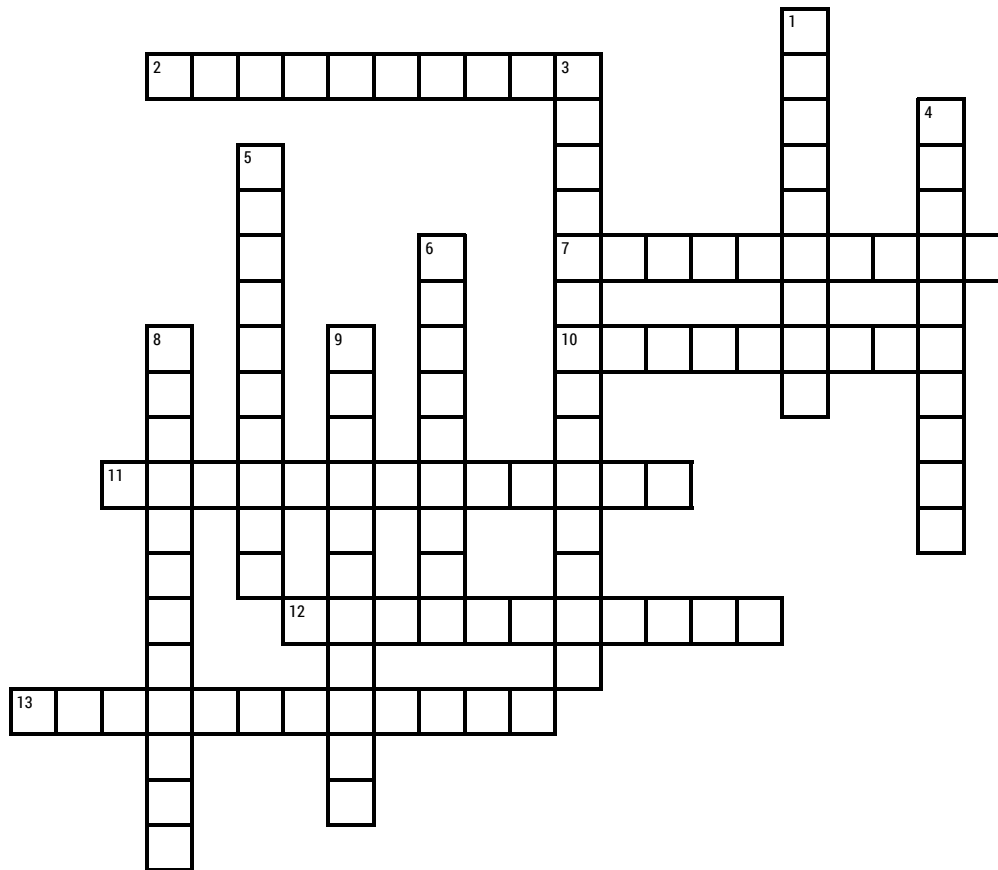
Selected Activities and Completed Glossary Page

This sample shows one example of several activities.

The whole resource contains approximately 100 activities –
6 or 7 activities for each of the 14 topics.

The resource covers 218 key terms.

Algorithms



Across

- 2 Algorithm that repeatedly compares and swaps each pair of values in a list (6,4)
- 7 A measure of how quickly an algorithm can be executed (10)
- 10 Graphical method of representing an algorithm or process (9)
- 11 The process of breaking down a single task into a number of subtasks (13)
- 12 Defining and representing programs by hiding their complexity (11)
- 13 Search algorithm that continuously splits the data set by searching the middle value (6,6)

Down

- 1 A series of steps designed to solve a problem (9)
- 3 Performance measurement used when comparing algorithms that solve the same problem (4,10)
- 4 A method used to manually work out what variable values should be throughout the code (5,5)
- 5 A method of describing an algorithm using a structure that is close to a real programming language (10)
- 6 Algorithm which repeatedly divides a list in half, sorts each half and combines the two back into a single list (5,4)
- 8 Search algorithm that searches every value from the first to the last until a certain one is found (6,6)
- 9 When a problem is too large to be solved, breaking it into these can help (3-8)

Algorithms (Table Fill)

Defining and representing programs by hiding their complexity	
A series of steps designed to solve a problem	
Search algorithm that continuously splits the data set by searching the middle value	
Algorithm that repeatedly compares and swaps each pair of values in a list	
The process of breaking down a single task into a number of subtasks	
A measure of how quickly an algorithm can be executed	
Graphical method of representing an algorithm or process	
Search algorithm that searches every value from the first to the last until a certain one is found	
Algorithm which repeatedly divides a list in half, sorts each half and combines the two back into a single list	
A method of describing an algorithm using a structure that is close to a real programming language	
When a problem is too large to be solved, breaking it into these can help	
Performance measurement used when comparing algorithms that solve the same problem	
A method used to manually work out what variable values should be throughout the code	

Algorithms *(Match Up)*

1	A measure of how quickly an algorithm can be executed
2	A method of describing an algorithm using a structure that is close to a real programming language
3	A method used to manually work out what variable values should be throughout the code
4	A series of steps designed to solve a problem
5	Algorithm that repeatedly compares and swaps each pair of values in a list
6	Algorithm which repeatedly divides a list in half, sorts each half and combines the two back into a single list
7	Defining and representing programs by hiding their complexity
8	Graphical method of representing an algorithm or process
9	Performance measurement used when comparing algorithms that solve the same problem
10	Search algorithm that continuously splits the data set by searching the middle value
11	Search algorithm that searches every value from the first to the last until a certain one is found
12	The process of breaking down a single task into a number of subtasks
13	When a problem is too large to be solved, breaking it into these can help

ABSTRACTION	
ALGORITHM	
BINARY SEARCH	
BUBBLE SORT	
DECOMPOSITION	
EFFICIENCY	
FLOWCHART	
LINEAR SEARCH	
MERGE SORT	
PSEUDOCODE	
SUB-PROBLEMS	
TIME EFFICIENCY	
TRACE TABLE	

Algorithms

