Year 8 Pathway G

COMPUTER SCIENCE

Searching and Sorting Algorithms

You will be able to:

Evaluate the need for searching and sorting algorithms.

Explain the factors which impact efficiency of the linear search algorithm.

Explain the factors which impact efficiency of the binary search algorithm.

Explain the factors which impact efficiency of the bubble sort algorithm.

Explain the factors which impact efficiency of the merge sort algorithm.

Structured Query Language

You will be able to:

Explain why SQL exists and what it is used for in everyday life.

Evaluate the differences between boolean operators.

Construct examples that use an array of different arithmetical operations.

Create example SQL for SELECT, INSERT and DROP statements.

Identify the results or actions from the execution of a given SQL statement.

Data representaion

You will be able to:

Explain the process to converting 8-bit binary numbers.

Explain the process of adding two binary numbers.

Discuss the impact that an increased colour depth has on image quality and file size.

Discuss the impact sample rate and bit rate have on the quality of an audio file and the file size.

Evaluate how effective ASCII is as a character set for communicating text.

Python Programming

You will be able to:

Explain what programming constructs are needed to tackle a scenario.

Create programs that incorporate sequences of instructions, with iteration used correctly.

Create a program that uses lists to store data efficiently.

Create a program that reads data from a text file.

Create a program that writes to a text file in an efficient manner.

Conncetion Failed

You will be able to:

Describe the difference between a Local Area Network and a Wide Area Network.

Explain what data will be inside a data packet that travels along a network.

Evaluate the suitability of the ring topology.

Evaluate the suitability of the Bus topology.

Compare and contrast the difference a hub or switch could make to the operation of a Star topology.

Year 8 Pathway R

COMPUTER SCIENCE

Searching and Sorting Algorithms

You will be able to:

Explain how searching and sorting algorithms make finding data easier.

Describe how efficient the linear search algorithm is.

Describe how efficient the binary search algorithm is.

Describe how efficient the bubble sort algorithm is.

Describe how efficient the merge sort algorithm is.

Structured Query Language

You will be able to:

Explain at least one use of SQL in everyday life.

Explain the difference between boolean operators.

Construct an example that uses an arithmetical operation.

Create example SQL for SELECT and INSERT statements.

Identify the results or actions from the execution of a given SQL statement.

Data representation

You will be able to:

Describe the process to converting 8-bit binary numbers.

Describe the process of adding two binary numbers.

Explain the impact that an increased colour depth has on image quality and file size.

Explain the impact sample rate and bit rate have on the quality of an audio file and the file size.

Explain how many characters can be used with the ASCII character set.

Python Programming

You will be able to:

Describe what programming constructs are needed to tackle a scenario.

Create programs that incorporates sequences of instructions, with some iteration used correctly.

Create a program that uses lists to store data.

Create a program that reads data from a text file.

Create a program that writes to a text file.

Connection Failed

You will be able to:

Describe the difference between a Local Area Network and a Wide Area Network.

Describe what data will be inside a data packet that travels along a network.

Explain the advantages and disadvantages to using the Ring topology.

Explain the advantages and disadvantages to using the Bus topology.

Explain the difference between a hub and a switch within a Star topology.

Year 8 Pathway O

COMPUTER SCIENCE

Searching and Sorting Algorithms

You will be able to:

Describe how a searching or sorting algorithm could be useful.

Explain how the linear search algorithm works.

Explain how the binary search algorithm works.

Explain how the bubble sort algorithm works.

Explain how the merge sort algorithm works.

Structured Query Language

You will be able to:

Describe a use for SQL in everyday life.

Describe the difference between AND and OR boolean operators.

Describe the difference between less than and less than and equal to.

Create example SQL for SELECT and INSERT statements.

Identify the results from the execution of a SELECT statement.

Data representation

You will be able to:

Explain the process to converting 4-bit binary numbers.

Describe the process of adding two binary numbers.

Explain how colour depth can impact the quality of an image.

Describe how sample rate and bit rate affect the quality of an audio file.

Describe what characters can be represented using the ASCII character set.

Python Programming

You will be able to:

Describe what programming constructs are needed to tackle a scenario.

Create programs that incorporate sequences of instructions, highlighting repetitive code where iteration could be used.

Create a program that uses lists to store data.

Describe a program that may need to read from a text file.

Create a program that writes to a text file.

Connection Failed

You will be able to:

Identify at least two differences between a Local Area Network and a Wide Area Network.

Describe at least two parts of data from within a data packet and why these are necessary.

Describe the advantages and disadvantages to using the Ring topology.

Describe the advantages and disadvantages to using the Bus topology.

Describe the difference between a hub and a switch within a star topology.

Year 8 Pathway W

COMPUTER SCIENCE

Searching & Sorting Algorithms

You will be able to:

Define the terms 'searching' and 'sorting'.

Describe how the linear search algorithm works.

Describe how the binary search algorithm works.

Describe how the bubble sort algorithm works.

Describe how the merge sort algorithm works.

Structured Query Language

You will be able to:

Describe a use for SQL in everyday life.

Identify the difference between AND and OR boolean operators.

Identify when it is appropriate to use each of the arithmetical operations within examples.

Create example SQL for SELECT statements.

Identify the results from the execution of a SELECT statement.

Data representation

You will be able to:

Describe the process to converting 4-bit binary numbers.

Identify that two binary numbers can be added together.

Describe how images are stored as binary numbers including colour depth.

Identify what impact an increased sample rate has on the quality of an audio file.

Identify the range of characters that can be represented using ASCII.

Python Programming

You will be able to:

Identify what programming constructs are needed to tackle a scenario.

Create programs that incorporates sequences of instructions, sometimes highlighting where iteration could improve efficiency.

Create a program that uses a list.

Identify why a program would need to read from a text file.

Create a program that writes to a text file.

Connection Failed

You will be able to:

Identify the difference between a Local Area Network and a Wide Area Network.

Identify at least 2 parts of a data packet.

Describe how a data packet travels through a Ring topology.

Describe how a data packet travels through a Bus topology.

Identify the difference between a hub and a switch within a Star topology.