



Claremont Primary and Nursery School Computing Curriculum

Year 5 – Computing Systems and Networks – Systems and Searching

Objectives:

- Be able to explain that computers can be connected together to form systems
- Be able to recognise the role of computer systems in our lives
- Be able to experiment with search engines
- Be able to describe how search engines select results
- Be able to explain how search results are ranked
- Be able to recognise why the order of results is important, and to whom

Substantive Knowledge:

- I can describe that a computer system features inputs, processes, and outputs
- I can explain that computer systems communicate with other devices
- I can explain that systems are built using a number of parts
- I can explain the benefits of a given computer system
- I can identify tasks that are managed by computer systems
- I can identify the human elements of a computer system
- I can compare results from different search engines
- I can explain why we need tools to find things online
- I can recognise the role of web crawlers in creating an index
- I can explain that a search engine follows rules to rank results
- I can give examples of criteria used by search engines to rank results
- I can describe some of the ways that search results can be influenced
- I can explain how search engines make money
- I can recognise some of the limitations of search engines

Disciplinary Knowledge (Think like a computer programmer):

- I can make use of a web search to find specific information
- I can refine my web search
- I can relate a search term to the search engine's index
- I can order a list by rank

Key Vocabulary:

system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking.



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Year 5 – Creating Media – Video Production

Objectives:

- Be able to explain what makes a video effective
- Be able to identify digital devices that can record video
- Be able to capture video using a range of techniques
- Be able to create a storyboard
- Be able to identify that video can be improved through reshooting and editing
- Be able to consider the impact of the choices made when making and sharing a video

Substantive Knowledge:

- I can compare features in different videos
- I can explain that video is a visual media format
- I can identify features of videos
- I can review how effective my video is
- I can explain how to improve a video by reshooting and editing
- I can evaluate my video and share my opinions
- I can recognise that my choices when making a video will impact on the quality of the final outcome

Disciplinary Knowledge (Think like a computer programmer):

- I can experiment with different camera angles
- I can identify and find features on a digital video recording device
- I can make use of a microphone
- I can capture video using a range of filming techniques
- I can suggest filming techniques for a given purpose
- I can create and save video content
- I can decide which filming techniques I will use
- I can outline the scenes of my video
- I can select the correct tools to make edits to my video
- I can store, retrieve, and export my recording to a computer
- I can make edits to my video and improve the final outcome

Key Vocabulary:

video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share.



Claremont Primary and Nursery School Computing Curriculum

Year 5 – Programming A – Selection in Physical Computing

Objectives:

- Be able to control a simple circuit connected to a computer
- Be able to write a program that includes count-controlled loops
- Be able to explain that a loop can stop when a condition is met
- Be able to explain that a loop can be used to repeatedly check whether a condition has been met
- Be able to design a physical project that includes selection
- Be able to create a program that controls a physical computing project

Substantive Knowledge:

- I can explain what an infinite loop does
- I can explain that a condition is either true or false
- I can explain that a condition being met can start an action
- I can identify a condition and an action in my project
- I can describe what my project will do
- I can identify a real-world example of a condition starting an action

Disciplinary Knowledge (Think like a computer programmer):

- I can create a simple circuit and connect it to a microcontroller
- I can program a microcontroller to make an LED switch on
- I can connect more than one output component to a microcontroller
- I can design sequences that use count-controlled loops
- I can use a count-controlled loop to control outputs
- I can design a conditional loop
- I can program a microcontroller to respond to an input
- I can use selection (an 'if...then...' statement) to direct the flow of a program
- I can create a detailed drawing of my project
- I can test and debug my project
- I can use selection to produce an intended outcome
- I can write an algorithm that describes what my model will do

Key Vocabulary:

microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer



Claremont Primary and Nursery School Computing Curriculum

Year 5 – Data and Information – Flat-file Databases

Objectives:

- Be able to explain that data gathered over time can be used to answer questions
- Be able to use a digital device to collect data automatically
- Be able to explain that a data logger collects 'data points' from sensors over time
- Be able to recognise how a computer can help us analyse data
- Be able to identify the data needed to answer questions
- Be able to use data from sensors to answer questions

Substantive Knowledge:

- I can explain how information can be recorded
- I can explain what a field and a record is in a database
- I can explain that data can be grouped using chosen values
- I can outline how 'AND' and 'OR' can be used to refine data selection
- I can explain the benefits of using a computer to create charts
- I can present my findings to a group

Disciplinary Knowledge (Think like a computer programmer):

- I can create a database using cards
- I can order, sort, and group my data cards
- I can choose which field to sort data by to answer a given question
- I can navigate a flat-file database to compare different views of information
- I can combine grouping and sorting to answer specific questions
- I can group information using a database
- I can choose multiple criteria to answer a given question
- I can choose which field and value are required to answer a given question
- I can refine a chart by selecting a particular filter
- I can select an appropriate chart to visually compare data
- I can ask questions that will need more than one field to answer
- I can refine a search in a real-world context

Key Vocabulary:

database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.



Claremont Primary and Nursery School Computing Curriculum

Year 5 – Creating Media – Introduction to Vector Graphics

Objectives:

- Be able to identify that drawing tools can be used to produce different outcomes
- Be able to create a vector drawing by combining shapes
- Be able to use tools to achieve a desired effect
- Be able to recognise that vector drawings consist of layers
- Be able to group objects to make them easier to work with
- Be able to apply what I have learned about vector drawings

Substantive Knowledge:

- I can discuss how vector drawings are different from paper-based drawings
- I can recognise that vector drawings are made using shapes
- I can explain that each element added to a vector drawing is an object
- I can explain how alignment grids and resize handles can be used to improve consistency
- I can compare vector drawings to freehand paint drawings
- I can reflect on the skills I have used and why I have used them

Disciplinary Knowledge (Think like a computer programmer):

- I can experiment with the shape and line tools
- I can identify the shapes used to make a vector drawing
- I can move, resize, and rotate objects I have duplicated
- I can modify objects to create a new image
- I can use the zoom tool to help me add detail to my drawings
- I can change the order of layers in a vector drawing
- I can identify that each added object creates a new layer in the drawing
- I can use layering to create an image
- I can copy part of a drawing by duplicating several objects
- I can recognise when I need to group and ungroup objects
- I can reuse a group of objects to further develop my vector drawing
- I can create a vector drawing for a specific purpose

Key Vocabulary:

vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection



Claremont Primary and Nursery School Computing Curriculum

Year 5 – Programming B – Selection in Quizzes

Objectives:

- Be able to explain how selection is used in computer programs
- Be able to relate that a conditional statement connects a condition to an outcome
- Be able to explain how selection directs the flow of a program
- Be able to design a program which uses selection
- Be able to create a program which uses selection
- Be able to evaluate my program

Substantive Knowledge:

- I can identify conditions in a program
- I can recall how conditions are used in selection
- I can identify the condition and outcomes in an 'if... then... else...' statement
- I can explain that program flow can branch according to a condition
- I can identify the outcome of user input in an algorithm
- I can identify ways the program could be improved

Disciplinary Knowledge (Think like a computer programmer):

- I can modify a condition in a program
- I can create a program with different outcomes using selection
- I can use selection in an infinite loop to check a condition
- I can design the flow of a program which contains 'if... then... else...'
- I can show that a condition can direct program flow in one of two ways
- I can outline a given task
- I can use a design format to outline my project
- I can implement my algorithm to create the first section of my program
- I can share my program with others
- I can test my program
- I can extend my program further
- I can identify the setup code I need in my program

Key Vocabulary:

Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator