



Claremont Primary and Nursery School Computing Curriculum

Year 6 – Computing Systems and Networks – Communication and Collaboration

Objectives:

- Be able to explain the importance of internet addresses
- Be able to recognise how data is transferred across the internet
- Be able to explain how sharing information online can help people to work together
- Be able to evaluate different ways of working together online
- Be able to recognise how we communicate using technology
- Be able to evaluate different methods of online communication

Substantive Knowledge:

- I can describe how computers use addresses to access websites
- I can explain that internet devices have addresses
- I can recognise that data is transferred using agreed methods
- I can explain that all data transferred over the internet is in packets
- I can explain that data is transferred over networks in packets
- I can identify and explain the main parts of a data packet
- I can explain that the internet allows different media to be shared
- I can recognise how to access shared files stored online
- I can explain how the internet enables effective collaboration
- I can identify different ways of working together online
- I can recognise that working together on the internet can be public or private
- I can explain the different ways in which people communicate
- I can identify that there are a variety of ways to communicate over the internet
- I can compare different methods of communicating on the internet
- I can explain that communication on the internet may not be private

Disciplinary Knowledge (Think like a computer programmer):

- I can send information over the internet in different ways
- I can choose methods of communication to suit particular purposes
- I can decide when I should and should not share information online

Key Vocabulary:

communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, oneway, two-way, one-to-one, one-to-many.



Claremont Primary and Nursery School Computing Curriculum

Year 6 – Creating Media – Web Page Creation

Objectives:

- Be able to review an existing website and consider its structure
- Be able to plan the features of a web page
- Be able to consider the ownership and use of images (copyright)
- Be able to recognise the need to preview pages
- Be able to outline the need for a navigation path
- Be able to recognise the implications of linking to content owned by other people

Substantive Knowledge:

- I can discuss the different types of media used on websites
- I can explore a website
- I know that websites are written in HTML
- I can recognise the common features of a web page
- I can describe what is meant by the term 'fair use'
- I can say why I should use copyright-free images
- I can describe why navigation paths are useful
- I can explain what a navigation path is
- I can explain the implication of linking to content owned by others

Disciplinary Knowledge (Think like a computer programmer):

- I can draw a web page layout that suits my purpose
- I can suggest media to include on my page
- I can find copyright-free images
- I can add content to my own web page
- I can evaluate what my web page looks like on different devices and suggest/make edits
- I can preview what my web page looks like
- I can make multiple web pages and link them using hyperlinks
- I can create hyperlinks to link to other people's work
- I can evaluate the user experience of a website

Key Vocabulary:

website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed.



Claremont Primary and Nursery School Computing Curriculum

Year 6 – Programming A – Variables in Games

Objectives:

- Be able to define a 'variable' as something that is changeable
- Be able to explain why a variable is used in a program
- Be able to choose how to improve a game by using variables
- Be able to design a project that builds on a given example
- Be able to use my design to create a project
- Be able to evaluate my project

Substantive Knowledge:

- I can explain that the way a variable changes can be defined
- I can identify examples of information that is variable
- I can identify that variables can hold numbers or letters
- I can explain that a variable has a name and a value
- I can identify a program variable as a placeholder in memory for a single value
- I can recognise that the value of a variable can be changed
- I can recognise that the value of a variable can be used by a program
- I can identify ways that my game could be improved

Disciplinary Knowledge (Think like a computer programmer):

- I can decide where in a program to change a variable
- I can make use of an event in a program to set a variable
- I can choose the artwork for my project
- I can create algorithms for my project
- I can explain my design choices
- I can choose a name that identifies the role of a variable
- I can create the artwork for my project
- I can test the code that I have written
- I can share my game with others
- I can use variables to extend my game

Key Vocabulary:

variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare



Claremont Primary and Nursery School Computing Curriculum

Year 6 – Data and Information – Spreadsheets

Objectives:

- Be able to create a data set in a spreadsheet
- Be able to build a data set in a spreadsheet
- Be able to explain that formulas can be used to produce calculated data
- Be able to apply formulas to data
- Be able to create a spreadsheet to plan an event
- Be able to choose suitable ways to present data

Substantive Knowledge:

- I can explain what an item of data is
- I can explain which data types can be used in calculations
- I can explain why data should be organised
- I can suggest when to use a table or chart

Disciplinary Knowledge (Think like a computer programmer):

- I can collect data
- I can enter data into a spreadsheet
- I can suggest how to structure my data
- I can apply an appropriate format to a cell
- I can choose an appropriate format for a cell
- I can construct a formula in a spreadsheet
- I can identify that changing inputs changes output
- I can apply a formula to multiple cells by duplicating it
- I can calculate data using different operations
- I can create a formula which includes a range of cells
- I can apply a formula to calculate the data I need to answer questions
- I can use a spreadsheet to answer questions
- I can produce a chart
- I can use a chart to show the answer to questions

Key Vocabulary:

data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools.



Claremont Primary and Nursery School Computing Curriculum

Year 6 – Creating Media – 3D Modelling

Objectives:

- Be able to recognise that you can work in three dimensions on a computer
- Be able to identify that digital 3D objects can be modified
- Be able to recognise that objects can be combined in a 3D model
- Be able to create a 3D model for a given purpose
- Be able to plan my own 3D model
- Be able to create my own digital 3D model

Substantive Knowledge:

- I can explain how my 3D model could be improved

Disciplinary Knowledge (Think like a computer programmer):

- I can add 3D shapes to a project
- I can move 3D shapes relative to one another
- I can view 3D shapes from different perspectives
- I can lift/lower 3D objects
- I can recolour a 3D object
- I can resize an object in three dimensions
- I can duplicate 3D objects
- I can group 3D objects
- I can rotate objects in three dimensions
- I can accurately size 3D objects
- I can combine a number of 3D objects
- I can show that placeholders can create holes in 3D objects
- I can analyse a 3D model
- I can choose objects to use in a 3D model
- I can combine objects in a design
- I can construct a 3D model based on a design
- I can modify my 3D model to improve it

Key Vocabulary:

TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify.



Claremont Primary and Nursery School Computing Curriculum

Year 6 – Programming B – Sensing Movement

Objectives:

- Be able to create a program to run on a controllable device
- Be able to explain that selection can control the flow of a program
- Be able to update a variable with a user input
- Be able to use a conditional statement to compare a variable to a value
- Be able to design a project that uses inputs and outputs on a controllable device
- Be able to develop a program to use inputs and outputs on a controllable device

Substantive Knowledge:

- I can identify examples of conditions in the real world
- I can explain that checking a variable doesn't change its value
- I can explain the importance of the order of conditions in else, if statements
- I can decide what variables to include in a project

Disciplinary Knowledge (Think like a computer programmer):

- I can apply my knowledge of programming to a new environment
- I can test my program on an emulator
- I can transfer my program to a controllable device
- I can determine the flow of a program using selection
- I can use a variable in an if, then, else statement to select the flow of a program
- I can experiment with different physical inputs
- I can use a condition to change a variable
- I can modify a program to achieve a different outcome
- I can use an operand (e.g. <=>) in an if, then statement
- I can design the algorithm for my project
- I can design the program flow for my project
- I can create a program based on my design
- I can test my program against my design
- I can use a range of approaches to find and fix bugs

Key Vocabulary:

Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug.