Claremont Primary and Nursery School Computing Curriculum

Year 3 – Computing Systems and Networks – Connecting Computers

Objectives:

- Be able to explain how digital devices function
- Be able to identify input and output devices
- Be able to recognise how digital devices can change the way we work
- Be able to explain how a computer network can be used to share information
- Be able to explore how digital devices can be connected
- Be able to recognise the physical components of a network

Substantive Knowledge:

- I can explain that digital devices accept inputs
- I can explain that digital devices produce outputs
- I can classify input and output devices
- I can describe a simple process
- I can explain how I use digital devices for different activities
- I can recognise similarities between using digital devices and non-digital tools
- I can suggest differences between using digital devices and non-digital tools
- I can discuss why we need a network switch
- I can explain how messages are passed through multiple connections
- I can recognise different connections
- I can explain the role of a switch, server, and wireless access point in a network
- I can recognise that a computer network is made up of a number of devices
- I can identify how devices in a network are connected together
- I can identify networked devices around me
- I can identify the benefits of computer networks

Disciplinary Knowledge (Think like a computer programmer):

- I can follow a process
- I can design a digital device
- I can demonstrate how information can be passed between devices

Key Vocabulary:

digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets

Claremont Primary and Nursery School Computing Curriculum

Year 3 – Creating Media – Stop-Frame Animation

Objectives:

- Be able to explain that animation is a sequence of drawings or photographs
- Be able to relate animated movement with a sequence of images
- Be able to plan an animation
- Be able to identify the need to work consistently and carefully
- Be able to review and improve an animation
- Be able to evaluate the impact of adding other media to an animation

Substantive Knowledge:

- I can create an effective flip book—style animation
- I can draw a sequence of pictures
- I can explain how an animation/flip book works
- I can explain why little changes are needed for each frame
- I can predict what an animation will look like
- I can break down a story into settings, characters and events
- I can create a storyboard
- I can describe an animation that is achievable on screen
- I can evaluate the quality of my animation
- I can evaluate another learner's animation
- I can explain ways to make my animation I can evaluate my final film
- I can explain why I added other media to my animation better

Disciplinary Knowledge (Think like a computer programmer):

- I can create an effective stop-frame animation
- I can review a sequence of frames to check my work
- I can use onion skinning to help me make small changes between frames
- I can improve my animation based on feedback
- I can add other media to my animation

Key Vocabulary:

animation, flip book, stopframe, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition.

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Year 3 – Programming A – Sequencing Sounds

Objectives:

- Be able to explore a new programming environment
- Be able to identify that commands have an outcome
- Be able to explain that a program has a start
- Be able to recognise that a sequence of commands can have an order
- Be able to change the appearance of my project
- Be able to create a project from a task description

Substantive Knowledge:

- I can explain that objects in Scratch have attributes (linked to)
- I can identify the objects in a Scratch project (sprites, backdrops)
- I can recognise that commands in Scratch are represented as blocks
- I can choose a word which describes an on-screen action for my plan
- I can explain that the objects in my project will respond exactly to the code
- I can explain what a sequence is
- I can identify and name the objects I will need for a project
- I can relate a task description to a design

Disciplinary Knowledge (Think like a computer programmer):

- I can create a program following a design
- I can identify that each sprite is controlled by the commands I choose
- I can create a sequence of connected commands
- I can start a program in different ways
- I can combine sound commands
- I can order notes into a sequence
- I can build a sequence of commands
- I can decide the actions for each sprite in a program
- I can make design choices for my artwork
- I can implement my algorithm as code

Key Vocabulary:

Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug, code.

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Year 3 – Data and Information – Branching Databases

Objectives:

- Be able to create questions with yes/no answers
- Be able to identify the attributes needed to collect data about an object
- Be able to create a branching database
- Be able to explain why it is helpful for a database to be well structured
- Be able to plan the structure of a branching database
- Be able to independently create an identification tool

Substantive Knowledge:

- I can investigate questions with yes/no answers
- I can make up a yes/no question about a collection of objects
- I can select an attribute to separate objects into groups
- I can select objects to arrange in a branching database
- I can compare two branching database structures
- I can explain that questions need to be ordered carefully to split objects into similarly sized groups
- I can suggest real-world uses for branching databases

Disciplinary Knowledge (Think like a computer programmer):

- I can create two groups of objects separated by one attribute
- I can arrange objects into a tree structure
- I can create a group of objects within an existing group
- I can group objects using my own yes/no questions
- I can test my branching database to see if it works
- I can create yes/no questions using given attributes
- I can create a physical version of a branching database
- I can create questions that will enable objects to be uniquely identified
- I can independently create questions to use in a branching database
- I can create a branching database that reflects my plan
- I can work with a partner to test my identification tool

Key Vocabulary:

attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.

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Year 3 – Creating Media – Desktop Publishing

Objectives:

- Be able to recognise how text and images convey information
- Be able to recognise that text and layout can be edited
- Be able to choose appropriate page settings
- Be able to add content to a desktop publishing publication
- Be able to consider how different layouts can suit different purposes
- Be able to consider the benefits of desktop publishing

Substantive Knowledge:

- I can explain the difference between text and images
- I can identify the advantages and disadvantages of using text and images
- I can recognise that text and images can communicate messages clearly
- I can explain that text can be changed to communicate more clearly
- I can define the term 'page orientation'
- I can recognise placeholders and say why they are important
- I can identify different layouts
- I can match a layout to a purpose
- I can compare work made on desktop publishing to work created by hand
- I can identify the uses of desktop publishing in the real world
- I can say why desktop publishing might be helpful

Disciplinary Knowledge (Think like a computer programmer):

- I can change font style, size, and colours for a given purpose
- I can edit text
- I can create a template for a particular purpose
- I can choose the best locations for my content
- I can make changes to content after I've added it
- I can paste text and images to create a magazine cover
- I can choose a suitable layout for a given purpose

Key Vocabulary:

text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits

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Year 3 – Programming B – Events and Actions in Programs

Objectives:

- Be able to explain how a sprite moves in an existing project
- Be able to create a program to move a sprite in four directions
- Be able to adapt a program to a new context
- Be able to develop my program by adding features
- Be able to identify and fix bugs in a program
- Be able to design and create a maze-based challenge

Substantive Knowledge:

- I can choose which keys to use for actions and explain my choices
- I can explain the relationship between an event and an action
- I can identify a way to improve a program
- I can consider the real world when making design choices
- I can evaluate my project
- I can implement my design
- I can make design choices and justify them

Disciplinary Knowledge (Think like a computer programmer):

- I can choose a character for my project
- I can choose a suitable size for a character in a maze
- I can program movement
- I can choose blocks to set up my program
- I can use a programming extension
- I can build more sequences of commands to make my design work
- I can choose suitable keys to turn on additional features
- I can identify additional features (from a given set of blocks)
- I can match a piece of code to an outcome
- I can modify a program using a design
- I can test a program against a given design

Key Vocabulary:

motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions.