



Claremont Primary and Nursery School Computing Curriculum

Year 4 – Computing Systems and Networks – The Internet

Objectives:

- Be able to describe how networks physically connect to other networks
- Be able to recognise how networked devices make up the internet
- Be able to outline how websites can be shared via the World Wide Web (WWW)
- Be able to describe how content can be added and accessed on the World Wide Web (WWW)
- Be able to recognise how the content of the WWW is created by people
- Be able to evaluate the consequences of unreliable content

Substantive Knowledge:

- I can demonstrate how information is shared across the internet
- I can describe the internet as a network of networks
- I can discuss why a network needs protecting
- I can describe networked devices and how they connect
- I can explain that the internet is used to provide many services
- I can recognise that the World Wide Web contains websites and web pages
- I can describe where websites are stored when uploaded to the WWW
- I can explain the types of media that can be shared on the WWW
- I can explain that internet services can be used to create content online
- I can explain what media can be found on websites
- I can explain that there are rules to protect content
- I can explain that websites and their content are created by people
- I can suggest who owns the content on websites
- I can explain that not everything on the World Wide Web is true
- I can explain why I need to think carefully before I share or reshare content
- I can explain why some information I find online may not be honest, accurate, or legal

Disciplinary Knowledge (Think like a computer programmer):

- I can access websites on the WWW
- I can add content to the WWW

Key Vocabulary:

internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts



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Year 4 – Creating Media – Audio Production

Objectives:

- Be able to identify that sound can be recorded
- Be able to explain that audio recordings can be edited
- Be able to recognise the different parts of creating a podcast project
- Be able to apply audio editing skills independently
- Be able to combine audio to enhance my podcast project
- Be able to evaluate the effective use of audio

Substantive Knowledge:

- I can explain that the person who records the sound can say who is allowed to use it
- I can identify the input and output devices used to record and play sound
- I can discuss what sounds can be added to a podcast
- I can explain how sounds can be combined to make a podcast more engaging
- I can plan appropriate content for a podcast
- I can explain the difference between saving a project and exporting an audio file
- I can suggest improvements to an audio recording

Disciplinary Knowledge (Think like a computer programmer):

- I can use a computer to record audio
- I can inspect the soundwave view to know where to trim my recording
- I can re-record my voice to improve my recording
- I can save my project so the different parts remain editable
- I can improve my voice recordings
- I can record content following my plan
- I can review the quality of my recordings
- I can arrange multiple sounds to create the effect I want
- I can open my project to continue working on it
- I can choose appropriate edits to improve my podcast
- I can listen to an audio recording to identify its strengths

Key Vocabulary:

audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback.



Claremont Primary and Nursery School Computing Curriculum

Year 4 – Programming A – Repetition in Shapes

Objectives:

- Be able to identify that accuracy in programming is important
- Be able to create a program in a text-based language
- Be able to explain what 'repeat' means
- Be able to modify a count-controlled loop to produce a given outcome
- Be able to decompose a task into small steps
- Be able to create a program that uses count-controlled loops to produce a given outcome

Substantive Knowledge:

- I can explain the effect of changing a value of a command
- I can identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves
- I can identify patterns in a sequence
- I can predict the outcome of a program containing a count-controlled loop
- I can explain that a computer can repeatedly call a procedure
- I can identify 'chunks' of actions in the real world
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Disciplinary Knowledge (Think like a computer programmer):

- I can create a code snippet for a given purpose
- I can program a computer by typing commands
- I can test my algorithm in a text-based language
- I can use a template to create a design for my program
- I can write an algorithm to produce a given outcome
- I can use a count-controlled loop to produce a given outcome
- I can choose which values to change in a loop
- I can identify the effect of changing the number of times a task is repeated
- I can use a procedure in a program
- I can design a program that includes count-controlled loops
- I can develop my program by debugging it
- I can make use of my design to write a program

Key Vocabulary:

Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure



Claremont Primary and Nursery School Computing Curriculum

Year 4 – Data and Information – Data Logging

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 choose a data set to answer a given question
- I can identify data that can be gathered over time
- I can suggest questions that can be answered using a given data set
- I can explain what data can be collected using sensors
- I can identify that data from sensors can be recorded
- I can use data from a sensor to answer a given question
- I can talk about the data that I have captured
- I can explain that there are different ways to view data
- I can sort data to find information
- I can propose a question that can be answered using logged data
- I can explain the benefits of using a data logger

Disciplinary Knowledge (Think like a computer programmer):

- I can identify the intervals used to collect data
- I can recognise that a data logger collects data at given points
- I can view data at different levels of detail
- I can plan how to collect data using a data logger
- I can use a data logger to collect data
- I can draw conclusions from the data that I have collected
- I can interpret data that has been collected using a data logger

Key Vocabulary:

data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.



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Year 4 – Creating Media – Photo Editing

Objectives:

- Be able to explain that the composition of digital images can be changed
- Be able to explain that colours can be changed in digital images
- Be able to explain how cloning can be used in photo editing
- Be able to explain that images can be combined
- Be able to combine images for a purpose
- Be able to evaluate how changes can improve an image

Substantive Knowledge:

- I can explain why I might crop an image
- I can explain that different colour effects make you think and feel different things
- I can explain why I chose certain colour effects
- I can identify how a photo edit can be improved
- I can explain why photos might be edited
- I can describe the image I want to create
- I can review images against a given criteria

Disciplinary Knowledge (Think like a computer programmer):

- I can improve an image by rotating it
- I can use photo editing software to crop an image
- I can experiment with different colour effects
- I can add to the composition of an image by cloning
- I can remove parts of an image using cloning
- I can experiment with tools to select and copy part of an image
- I can use a range of tools to copy between images
- I can choose suitable images for my project
- I can create a project that is a combination of other images
- I can combine text and my image to complete the project
- I can use feedback to guide making changes

Key Vocabulary:

image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font.



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Year 4 – Programming B – Repetition in Games

Objectives:

- Be able to develop the use of count-controlled loops in a different programming environment
- Be able to explain that in programming there are infinite loops and count controlled loops
- Be able to develop a design that includes two or more loops which run at the same time
- Be able to modify an infinite loop in a given program
- Be able to design a project that includes repetition
- Be able to create a project that includes repetition

Substantive Knowledge:

- I can list an everyday task as a set of instructions including repetition
- I can predict the outcome of a snippet of code
- I can recognise that some programming languages enable more than one process to be run at once
- I can evaluate the effectiveness of the repeated sequences used in my program
- I can explain what the outcome of the repeated action should be
- I can explain the effect of my changes
- I can evaluate the use of repetition in a project
- I can evaluate the steps I followed when building my project

Disciplinary Knowledge (Think like a computer programmer):

- I can modify a snippet of code to create a given outcome
- I can choose when to use a count-controlled and an infinite loop
- I can modify loops to produce a given outcome
- I can choose which action will be repeated for each object
- I can identify which parts of a loop can be changed
- I can re-use existing code snippets on new sprites
- I can develop my own design explaining what my project will do
- I can select key parts of a given project to use in my own design
- I can build a program that follows my design
- I can refine the algorithm in my design

Key Vocabulary:

Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate.