Claremont Primary and Nursery School Computing Curriculum

Year 2 – Computing Systems and Networks – IT Around Us

Objectives:

- Be able to recognise the uses and features of information technology
- Be able to identify the uses of information technology in the school
- Be able to identify information technology beyond school
- Be able to explain how information technology helps us
- Be able to explain how to use information technology safely
- Be able to recognise that choices are made when using information technology

Substantive Knowledge:

- I can describe some uses of computers
- I can identify examples of computers
- I can identify that a computer is a part of IT
- I can identify examples of IT
- I can identify that some IT can be used in more than one way
- I can talk about uses of information technology
- I can recognise common types of technology
- I can say why we use IT
- I can list different uses of information technology
- I can say how rules can help keep me safe
- I can talk about different rules for using IT
- I can explain the need to use IT in different ways
- I can identify the choices that I make when using IT

Disciplinary Knowledge (Think like a computer programmer):

- I can sort school IT by what it's used for
- I can find examples of information technology
- I can sort IT by where it is found
- I can demonstrate how IT devices work together
- I can use IT for different types of activities

Key Vocabulary:

Information technology (IT), computer, barcode, scanner/scan

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Year 2 – Creating Media – Digital Photography

Objectives:

- Be able to use a digital device to take a photograph
- Be able to make choices when taking a photograph
- Be able to describe what makes a good photograph
- Be able to decide how photographs can be improved
- Be able to use tools to change an image
- Be able to recognise that photos can be changed

Substantive Knowledge:

- I can explain what I did to capture a digital photo
- I can recognise what devices can be used to take photographs
- I can talk about how to take a photograph
- I can explain the process of taking a good photograph
- I can explain why a photo looks better in portrait or landscape format
- I can discuss how to take a good photograph
- I can identify what is wrong with a photograph
- I can explain why a picture may be unclear
- I can explore the effect that light has on a photo
- I can explain my choices
- I can recognise that images can be changed
- I can identify which photos are real and which have been changed
- I can recognise which photos have been changed

Disciplinary Knowledge (Think like a computer programmer):

- I can take photos in both landscape and portrait format
- I can improve a photograph by retaking it
- I can experiment with different light sources
- I can use a tool to achieve a desired effect
- I can apply a range of photography skills to capture a photo

Key Vocabulary:

device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,

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Year 2 – Programming A – Robot Algorithms

Objectives:

- Be able to describe a series of instructions as a sequence
- Be able to explain what happens when we change the order of instructions
- Be able to use logical reasoning to predict the outcome of a program
- Be able to explain that programming projects can have code and artwork
- Be able to design an algorithm
- Be able to create and debug a program that I have written

Substantive Knowledge:

- I can show the difference in outcomes between two sequences that consist of the same commands
- I can follow a sequence
- I can compare my prediction to the program outcome
- I can predict the outcome of a sequence
- I can explain the choices I made for my mat design
- I can identify different routes around my mat
- I can test my mat to make sure that it is usable
- I can create an algorithm to meet my goal
- I can explain what my algorithm should achieve

Disciplinary Knowledge (Think like a computer programmer):

- I can choose a series of words that can be enacted as a sequence
- I can follow instructions given by someone else
- I can give clear instructions
- I can use an algorithm to program a sequence on a floor robot
- I can use the same instructions to create different algorithms
- I can use my algorithm to create a program
- I can plan algorithms for different parts of a task
- I can put together the different parts of my program
- I can test and debug each part of the program

Key Vocabulary:

instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition

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Year 2 – Data and Information – Pictograms

Objectives:

- Be able to recognise that we can count and compare objects using tally charts
- Be able to recognise that objects can be represented as pictures
- Be able to create a pictogram
- Be able to select objects by attribute and make comparisons
- Be able to recognise that people can be described by attributes
- Be able to explain that we can present information using a computer

Substantive Knowledge:

- I can explain what the pictogram shows
- I can give simple examples of why information should not be shared
- I can share what I have found out using a computer

Disciplinary Knowledge (Think like a computer programmer):

- I can compare totals in a tally chart
- I can record data in a tally chart
- I can represent a tally count as a total
- I can enter data onto a computer
- I can use a computer to view data in a different format
- I can use pictograms to answer simple questions about objects
- I can organise data in a tally chart
- I can use a tally chart to create a pictogram
- I can answer 'more than'/'less than' and 'most/least' questions about an attribute
- I can create a pictogram to arrange objects by an attribute
- I can tally objects using a common attribute
- I can choose a suitable attribute to compare people
- I can collect the data I need
- I can create a pictogram and draw conclusions from it
- I can use a computer program to present information in different ways

Key Vocabulary:

more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing

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Year 2 – Creating Media – Digital Music

Objectives:

- Be able to say how music can make us feel
- Be able to identify that there are patterns in music
- Be able to experiment with sound using a computer
- Be able to use a computer to create a musical pattern
- Be able to create music for a purpose
- Be able to review and refine our computer work

Substantive Knowledge:

- I can describe music using adjectives
- I can identify simple differences in pieces of music
- I can say what I do and don't like about a piece of music
- I can explain that music is created and played by humans
- I can connect images with sounds
- I can relate an idea to a piece of music
- I can explain how my music can be played in different ways
- I can identify that music is a sequence of notes
- I can explain how I changed my work
- I can listen to music and describe how it makes me feel
- I can review my work

Disciplinary Knowledge (Think like a computer programmer):

- I can create a rhythm pattern
- I can play an instrument following a rhythm pattern
- I can use a computer to experiment with pitch
- I can refine my musical pattern on a computer
- I can add a sequence of notes to my rhythm
- I can create a rhythm which represents an animal I've chosen
- I can create my animal's rhythm on a computer

Key Vocabulary:

music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.

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Year 2 – Programming B – Programming Quizzes

Objectives:

- Be able to explain that a sequence of commands has a start
- Be able to explain that a sequence of commands has an outcome
- Be able to create a program using a given design
- Be able to change a given design
- Be able to create a program using my own design
- Be able to decide how my project can be improved

Substantive Knowledge:

- I can identify that a program needs to be started
- I can identify the start of a sequence
- I can show how to run my program
- I can predict the outcome of a sequence of commands
- I can decide which blocks to use to meet the design
- I can work out the actions of a sprite in an algorithm
- I can compare my project to my design

Disciplinary Knowledge (Think like a computer programmer):

- I can change the outcome of a sequence of commands
- I can match two sequences with the same outcome
- I can build the sequences of blocks I need
- I can choose backgrounds for the design
- I can choose characters for the design
- I can create a program based on the new design
- I can build sequences of blocks to match my design
- I can choose the images for my own design
- I can create an algorithm
- I can debug my program
- I can improve my project by adding features

Key Vocabulary:

sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.