YEAR 6

To return to the *Computing @ White Woman Lane* menu, click here.

Unit 1 -

Programming in Scratch

National Curriculum Content

Design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts.

Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Progression of skills in this unit

1. Program keyboard/touch screen inputs, selection (conditions), loops and random variables for unpredictability (operators).
2. Program inputs, conditions, sensing, random variables, operators for direction and data variables for scoring.
3. Use inputs, conditions, loops, sensing, costume changes and broadcasts.
4. Work with multiple sprites to send broadcast messages between them.

Unit 2 -

Graphic Design

National Curriculum Content

Design and create digital content to accomplish goals.

Progression of skills in this unit

1. Add, adjust and fill shapes.
2. Group shapes to improve accuracy and speed.
3. Add and customise gradient effects.
4. Adjust transparency/opacity for a purpose.
5. Use a colour picker correctly.
6. Accurately rotate shapes.

Computers; Past, Present and Future.

Unit 3 -

National Curriculum Content

Design and create digital content to accomplish goals.

Use search technologies effectively and be discerning in evaluating digital content.

Progression of skills in this unit

1. Understand how technology has changed over time. Combine text and images to present ideas.
2. Understand the impact (positive/negative) technological changes have on society.
3. Predict how technology will change in the future.

Unit 4 -

Binary Code

National Curriculum Content

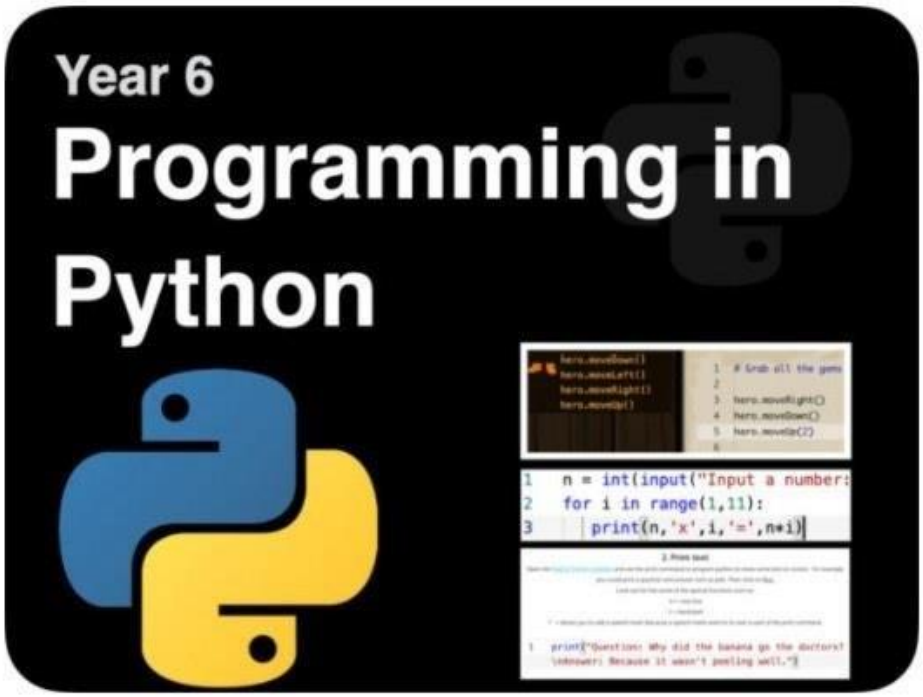
Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits. (Key Stage 3)

Progression of skills in this unit

1. Understand why computers/electronics use binary.
2. Match a sequence of binary code to create digital art.
3. To convert binary code to denary numbers (decimal numbers) and visa versa.

Unit 5 -

Python Programming Language



National Curriculum Content

Design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts.

Use sequence, selection, and repetition in programs; work with variables.

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Use a textual programming language to solve a variety of computational problems. (Key Stage 3)

Progression of skills in this unit

1. Use the PRINT command for text.
2. Program a simple calculator in Python.
3. Program loops to repeat text.
4. Program interactive inputs.
5. Program a trivia chatbot using ‘send message’ functions (challenge)

Unit 6 -

Image Editing

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

Progression of skills in this unit

1. Take and crop a screenshot and understand ratios.
2. Adjust the colours, brightness, contrast and filters.
3. Add drawing and text layers.
4. Import new images as layers and resize/add effects.
5. Save finished image to use in other projects.

Unit 7 -

HTML

National Curriculum Content

Design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts.

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, presenting data and information.

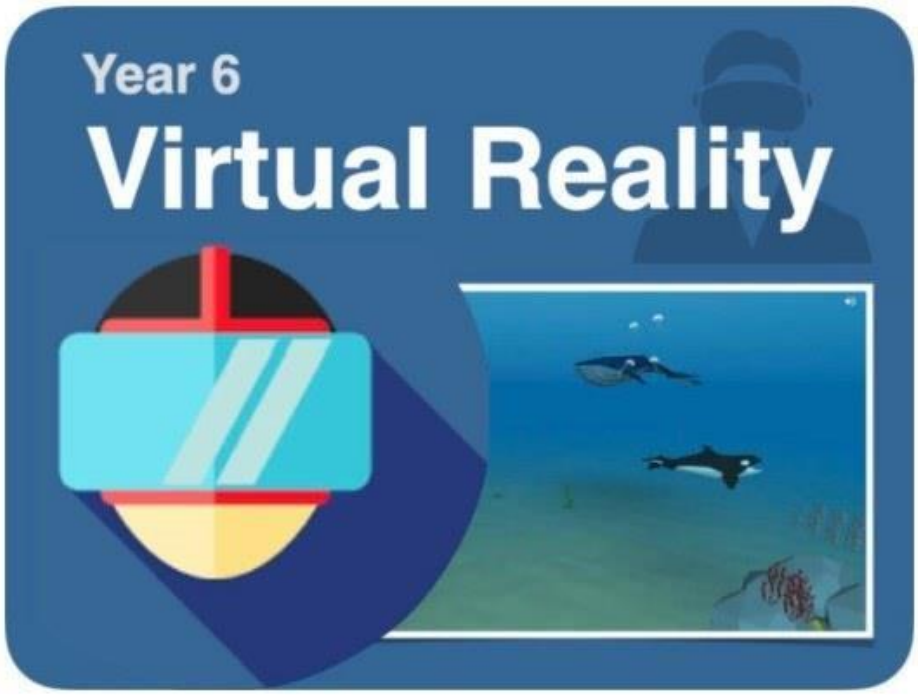
Use a textual programming language to solve a variety of computational problems. (Key Stage 3)

Progression of skills in this unit

1. Add and align text and change colour.
2. Program background colour.
3. Add and align images.
4. Add hyperlinks to other websites.
5. Add an iframe (such as a Google Map) and adjust the height and width.

Unit 8 -

Virtual Reality



National Curriculum Content

Design and create digital content to accomplish goals.

Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.

Progression of skills in this unit

1. Understand what virtual reality is and how it can be used to help people.
2. Add, move and resize objects in a virtual reality environment.
3. Animate objects for realism.
4. Use code blocks to add movement (with grouping) and interactions (conditions).
5. Create multiple scenes of VR environments.

Unit 9 -

Web Design

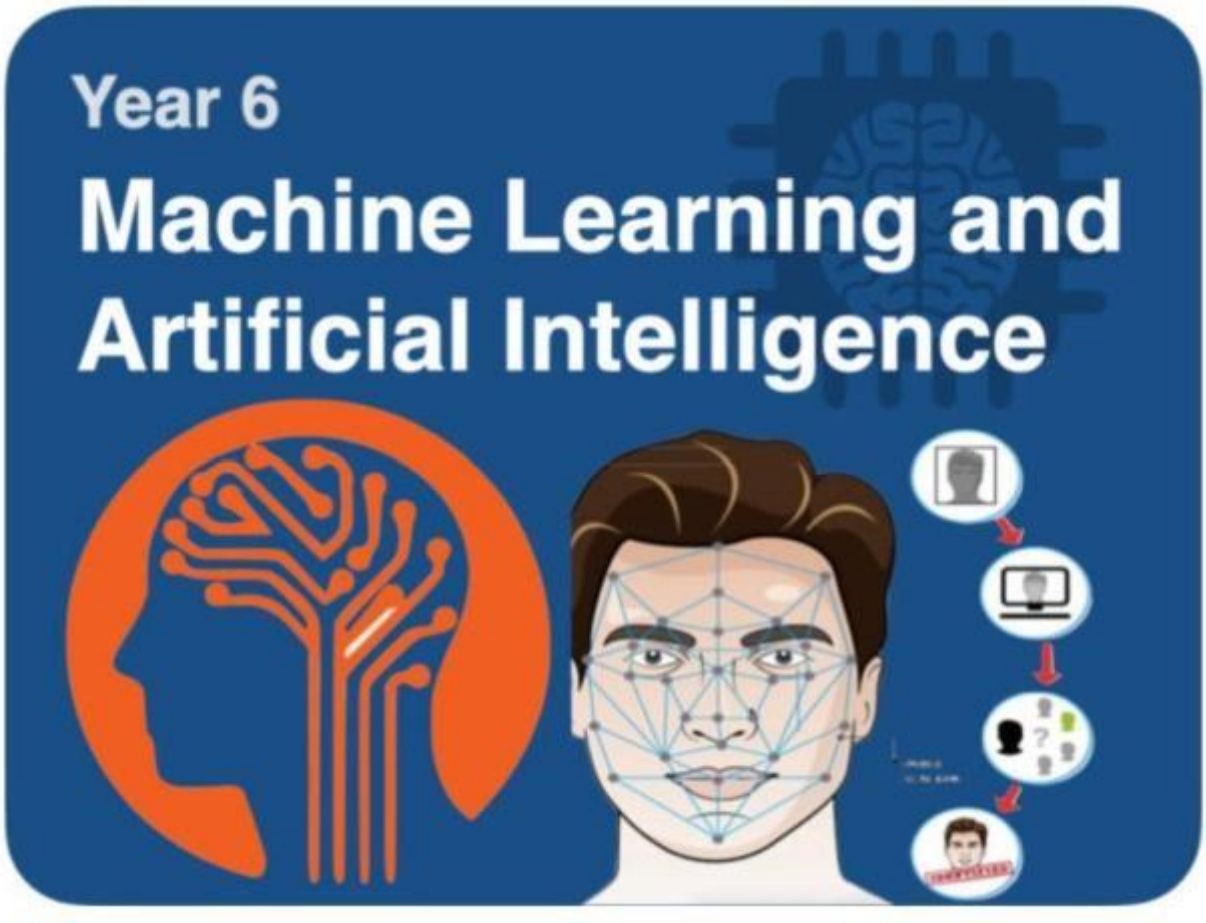
National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

Progression of skills in this unit

1. Add and format text within a website.
2. Organise sections of web-pages and multiple page with relevant titles.
3. Add and edit images.
4. Include other features such as hyperlinks, buttons and files.
5. Evaluate other websites and provide constructive feedback.
6. Make necessary changes to the website based on feedback.

- Machine Learning and AI



Progression of skills in this unit

1. Understand how computers use information to learn by solving new problems and following new instructions.
2. Understand and use examples of machine learning.
3. Understand how artificial intelligence is used to perform tasks often only performed by humans.
4. Discuss and show awareness of potential dangers of AI.

Unit 1 -

Year 5

To return to the *Computing @ White Woman Lane* menu, click here.

Unit 2 -

Programming in Scratch

National Curriculum Content

Design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts.

Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Progression of skills in this Unit

1. Program inputs, selection (conditions) and sensing for interaction, data variables for scoring and a game timer.
2. Program distance sensing and movement.
3. Program inputs, outputs, loops, selection (conditions), sensing and variables.
4. Program list variables that chooses randomly.

Unit 3 -

App Design

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

Progression of skills in this unit

1. Adjust slide size to mimic a phone/tablet size.
2. Add text and images *(including transparent images)* to a slide.
3. Add icons and text to use as navigation.
4. Duplicate slides to create multiple pages of the app.
5. Create hyperlinks to create navigation.

Unit 4 -

Text Based Programming

National Curriculum Content

Use sequence and repetition in programs; work with variables. Correct errors.

Progression of skills in this unit

1. Change the variables of text-based commands.
2. Write text-based commands accurately and use fill effects, stamps and functions.
3. Write text-based commands to program digital art.
4. Write text commands/functions to program keyboard inputs in a game. (Not compatible with iPad/tablet unless using physical keyboard)
5. Programming a Logo turtle to move and use pen *(Activity 5, lesson 1 and 2)*
6. Use co-ordinates in with a Logo turtle.
7. Print labels in Logo.
8. Program a loop (repetition) and shapes in Logo Turtle.
9. Program colours in Logo turtle.
10. Program variables in Logo turtle.

Unit 5 -

Data Handling

National Curriculum Content

Select, use and combine a variety of software (including internet services). Collecting, analysing, evaluating and presenting data and information.

Progression of skills in this unit

1. Select and use non-adjacent cells plus resize multiple cell widths and copy/paste cells.
2. Use formulae to find totals, averages and maximum/minimum numbers.
3. Find data and create a spreadsheet to suit it.
4. Search a database for specific information.

Unit 6 -

Programming with Sphero

National Curriculum Content

Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.

Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Progression of skills in this unit

1. Understanding Bluetooth Technology as Input Device
2. Write programs for the Sphero using movement and repetition (loops).
3. Write a program to trace a maze/route with Sphero and De-bug.
4. Write a program with outputs.
5. Write a program with random variables

Unit 7 -

Computer networks + the internet.

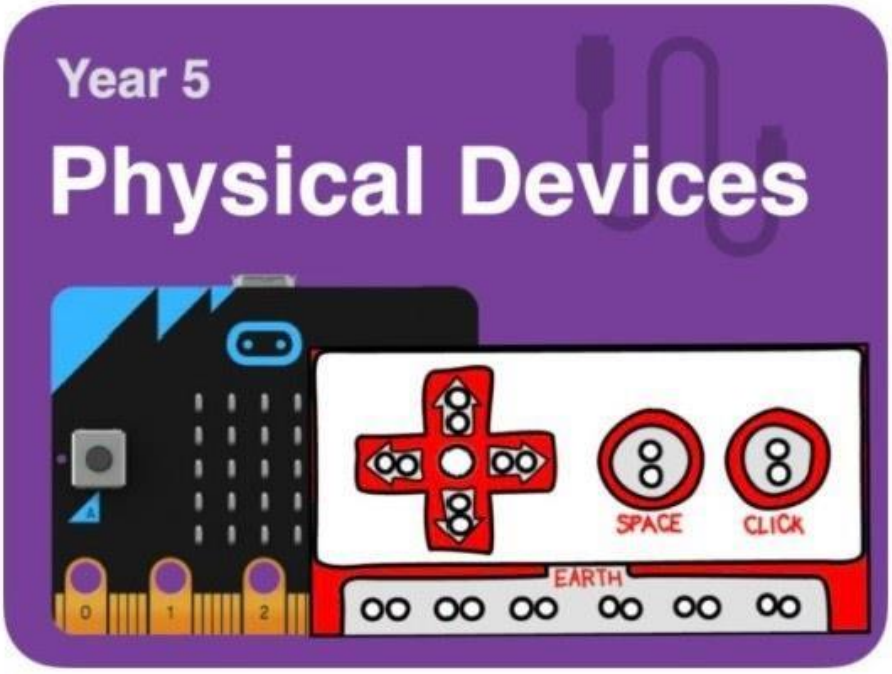
National Curriculum Content

Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.
Progression of skills in this unit

1. Understand Computer Networks, Internet and Cloud Computing and how they help us.
2. What is email and how can we use it safely?
3. Understand how and why we collaborate online (including blogging).

Unit 8 -

Physical Devices



National Curriculum Content

Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.

Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.

Progression of skills in this unit

1. Understand that computers use physical inputs and outputs and give examples.
2. Program physical inputs, outputs (e.g program LED lights) and random variables.
3. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.

Unit 9 -

Ebook Creation

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

Progression of skills in this unit

1. Add page colour and style.
2. Add, position and format text on different pages.
3. Add and position images.
4. Add audio, including hiding it behind an object.
5. Add hyperlinks to text and images.
6. Search for shapes.
7. Lock and arrange shapes (extension task).

Unit 10 -

Music Creation

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

Progression of skills in this unit

1. Layer tracks using sounds and effects.
2. Create effective instrument tracks.
3. Edit tracks and effectively adjust volume and add effects.

E-Safety

National Curriculum Content

Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Progression of skills in this unit

1. Keep personal information private.

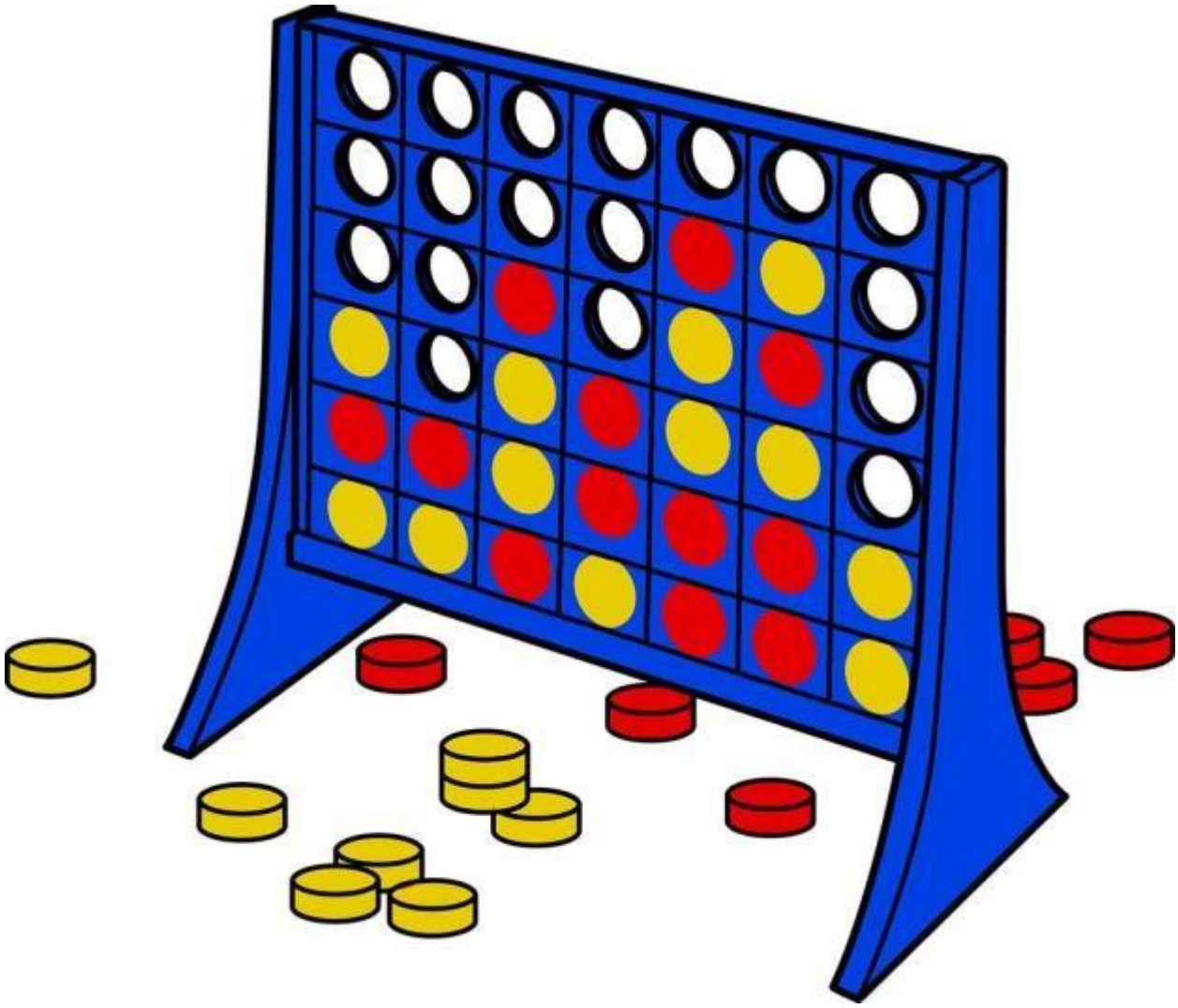
2.Respect and protect again online bullies.

3. Understand the consequences of sharing photo/videos online.

4. Understand the term digital footprint.

5. How can we check online content is trustworthy.

6.How and where and who can we report concerns we have to.



Year 4

To return to the *Computing @ White Woman Lane* menu, click here.

Animation

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

Progression of skills in this unit

1. Create a stop-motion video by duplicating slides that include backgrounds and shapes.
2. Create animation using transition and animation effects (morph, motion paths, pulse etc), including taking and editing a screenshot.
3. Animate individual elements of objects.
4. Create animated GIF files by animating pixels.

Programming in Scratch

National Curriculum Content

Design, write and debug programs that accomplish specific goals.

Use sequence, selection, and repetition in programs; work with various forms of input and output.

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Progression of skills in this unit

1. Use sequence, selection, and repetition in programs.
2. Work with variables and various forms of input and output.
3. Debug programs that accomplish goals.
4. Work with variables and conditions.

Internet Research

National Curriculum Content

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

Progression of skills in this unit.

1. Use search technologies to find specific pieces of information.
2. Understand features of an Internet Browser.
3. Reference the correct source of information.
4. Be discerning in evaluating digital content.
5. Check the internet for fake news by cross-referencing facts.

Data Handling

National Curriculum Content

Collecting, analysing, evaluating and presenting data and information.

Progression of skills in this unit.

1. Change appearance of cells in a spreadsheet (fill colour and border) then add and align text.
2. Find and add data to a spreadsheet, resize cells and use the software to create a suitable chart with a title.

3D Design

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals Progression of skills in this Unit

3D Village Pupil Activity Pack skills:

1. Understand 3D spacial awareness.
2. Add 3D shapes, resize, adjust height, duplicate and use the different perspective.
3. Re-create different types of buildings using 3D shapes.
4. Create roads/paths by adjusting the height of 3D shapes.
5. Add windows and door shapes.

Lego Modelling Pupil Activity Pack skills:

1. Add, move, change colour and duplicate a brick.
2. Rotate bricks.
3. Use sloping bricks and special bricks for a purpose.

4. Change the transparency of bricks.

Video Editing

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

Progression of skills in this unit.

1. Add scene images.
2. Add scripted voiceover audio, adjust the volume and crop clips (including splitting a clip).
3. Add more clips and use transition effects.
4. Add titles.
5. Use elements such as shapes.
6. Add music background music and adjust the volume.
7. Export a project.

Ebook Creation

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

Progression of skills in this unit

1. Add page colour and style then position and format text.
2. Add and position images from camera/internet.
3. Add audio, including hiding it behind an object.
4. Add hyperlinks to text and images.
5. Add and format shapes.
6. Use hyperlinks for navigation.

Inside a Computer

National Curriculum Content

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

Progression of skills in this unit

1. Understand what important parts of inside a computer or mobile device do to help with the performance (CPU, Fan, Hard Drive, RAM, Graphics Card).
2. Understand that memory is measured in bytes and gigabytes.
3. Use search filters on websites to find suitable information.

E-safety

National Curriculum Content

Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Progression of skills in this unit

1. Understand what to do if something upsets you online.
2. Understand why and how people can be nasty online.
3. Describe the term ‘sharing online’ and why we need to get permission to share photos and videos of other people.
4. Understand why people pretend to be someone else online.
5. Understand why we only talk to people we know in the real world, when online.
6. Understand why we should not always trust what we read online and how to check
7. Understand the importance of being kind in the real world and also online

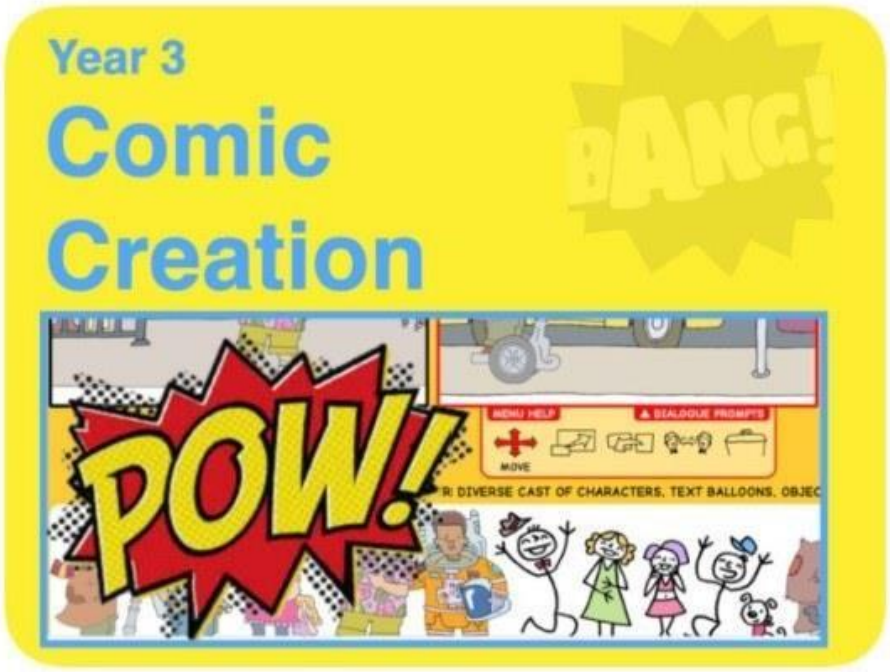
Year 3

To return to the *Computing @ White Woman Lane* menu, click here.

Introduction to 'Teams'

At the beginning of the school year, new Year 3 pupils will be give a **Microsoft 365** account which includes Teams. Each pupil will receive their own *log in* and *password* and will most likely spend the majority of the first half term learning how to use this platform competently before moving onto Unit 1 of the programmes of study found below.

Unit 1 - Comic Creation



National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

Progression of skills in this unit.

1. Add, resize and organise colour or picture backgrounds.
2. Add, resize, organise characters/object to different panels.
3. Add narration using text and direct speech using speech bubbles.

Unit 2 - Digital Storyboards

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

Progression of skills in this unit

1. Add and edit backgrounds.
2. Add and edit characters, including changing posture, expression and clothing.
3. Add narration and speech bubbles, including formatting text.
4. Duplicate objects to match scenes.
5. Search for objects to use.

Unit 3 -

Digital Art

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

Progression of skills in this unit

1. Use various lines and fill tools plus copy/paste and rotation to create pattern effects.
2. Use shapes, fill, copy/paste, zoom and flip to create reflective symmetry effects.
3. Use stamps, copy/paste, layers and multiple frames to create animated GIF computer graphics.

Unit 4

- Programming in Scratch

National Curriculum Content

Design, write and debug programs that accomplish specific goal, including simulating physical systems.

Use sequence and repetition in programs; work with various forms of input.

Progression of skills in this unit

1. Design, write and debug programs that accomplish specific goals. (Including outputs)
2. Use repetition in programs.
3. Work with various form of inputs; keyboard, mouse and touch screen.
4. Write programs to simulate physical systems.

Unit 5 -

Music Creation

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

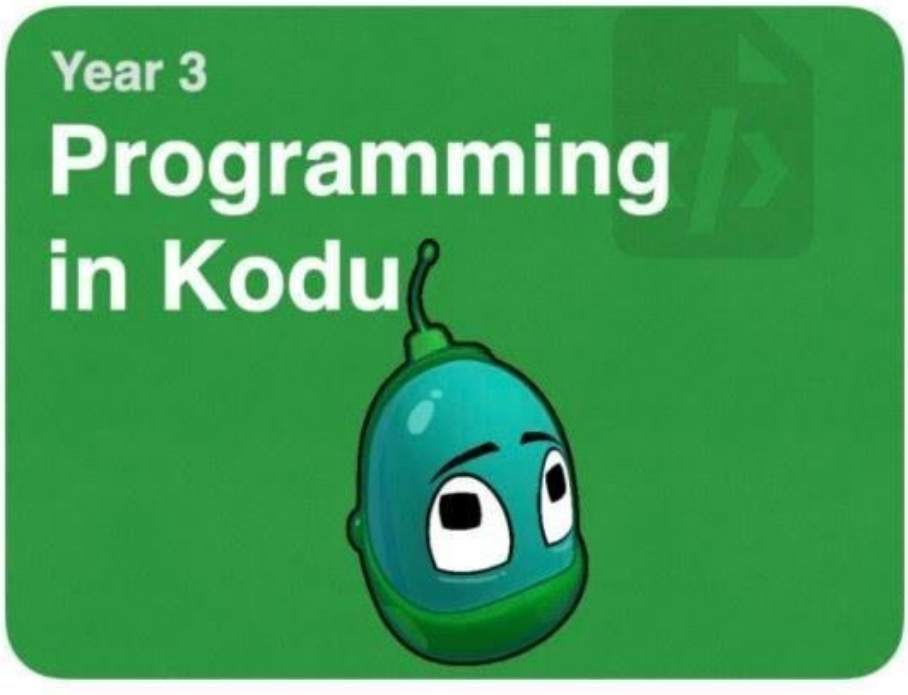
Progression of skills in this unit

1. Create ascending and descending scales.
2. Add chords evenly across the scales.
3. Add arpeggios and melodies.
4. Add a steady and even rhythm.
5. Use sampled sounds to create an effective mix.

Unit 6

6. Build beats, melody (tones) and effects.

- Programming in Kodu



National Curriculum Content

Design, write and debug programs that accomplish specific goal, including simulating physical systems.

Use sequence, selection, and repetition in programs; work with various forms of input. Progression of skills in this unit

1. Create a 3D place using various design tools.
2. Write a program to control using keyboard inputs.

Unit 7 -

3. Write a program with conditions (selection).

4. Write a program with variables

Document Editing

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

Progression of skills in this unit 1.

Copy and Paste text and images.

2. Find and replace words.

3. Format text for a purpose.

Unit 8

4. Add bullet points to make lists.

5. Experiment with keyboard shortcuts.

Unit 9 -

3D Design

National Curriculum Content

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.

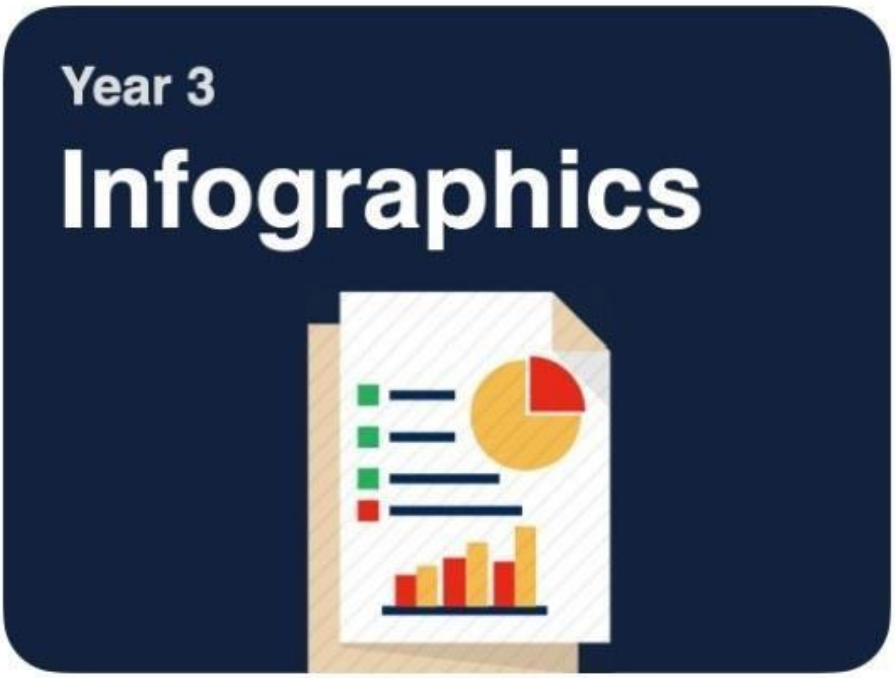
Progression of skills in this unit

1. Understand and use 3D space on a grid.
2. Re-create or design familiar 3D models using cubes, such as tables and chairs.
3. Use chisel tool to improve and adapt models.

Unit 10

4. Colour individual blocks or whole models.

Infographics



National Curriculum Content

Design and create content that accomplish given goals.

Progression of skills in this unit

1. Understand what an infographic is and why we use them.
2. Search for and add suitable graphic elements.
3. Add and format suitable titles and text.

Unit 11 -

4. Label an image with arrows and text.

- Branching Databases

National Curriculum Content

Collect, classify and present data.

Progression of skills in this unit

1. Add and label objects within a branching database.
2. Ask questions to sort (classify) objects.

- E-Safety

National Curriculum Content

Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Progression of skills in this unit

1. Understand what to do if something upsets you online.
2. Understand why and how people can be nasty online.
3. Describe the term 'sharing online' and why we need to get permission to share photos and videos of other people.
4. Understand why people pretend to be someone else online.
5. Understand why we only talk to people we know in the real world, when online.
6. Understand why we should not always trust what we read online and how to check
7. Understand the importance of being kind in the real world and also online.