Computing Knowledge Organisers Summer Term

Key Stage 1

Key Learning

- To understand what instructions are and predict what might happen when they are followed.
- To use code to make a computer program.
- To understand what object and actions are.
- To understand what an event is.
- To use an event to control an object.
- To begin to understand how code executes when a program is run.
- To understand what backgrounds and objects are.
- To plan and make a computer program.

Real life contexts/ Other opportunities to apply my skills

PM Resources

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2Dos

Free code chimp

Tools

Key Questions

What is coding?
Why is it useful to design before coding?
How can you make characters move in a program?

Key Vocabulary

Action
The way that objects change when programmed to do so. For example, move.

Algorithm
A precise, step-by-step set of instructions used to solve a problem or achieve an objective.

Background
In 2Code the background is an image in the design that does not change.

Code
Instructions that a programmer enters into a computer that cause the computer to perform a certain way.

Coding
Writing instructions that the computer can process (understand) to make programs (software).

Command
A single instruction in 2Code.

Debug/ Debugging
Fixing code that has errors so that the code will run the way it was designed.

Event
An occurrence that causes a block of code to be run. The event could be the result of user action such as the user pressing a key or clicking the screen.

Execute
This is the proper word for when you run the code. We say, 'the program (or code) executes.'

Instruction
Detailed information about how something should be done or operated.

Object
Items in a program that can be given instructions to move or change in some way (action).

Output
Information that comes out of the computer e.g. sound that comes out of the speakers.

Plan
When coding, a plan means including the objects and actions into a written document that shows what the program should look like (the design) and what the objects should do (the actions).

Programmer
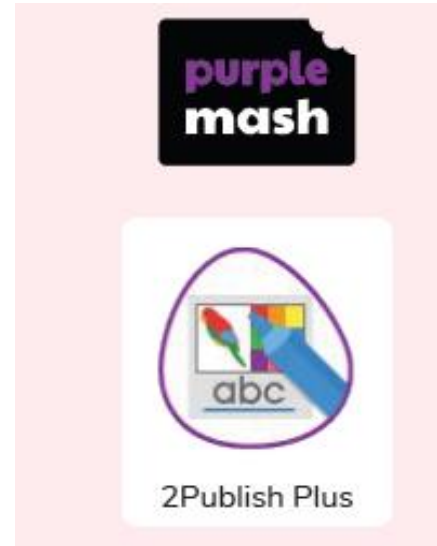A person who writes computer programs. Sometimes called a coder.

Properties
These determine the look and size of an object. Each object has properties such as the image, scale and position of the object.

Run
This is what you do when you click the Play button in 2Code: The program runs.

Year 1- Coding

Key Learning

- To walk around the local community and find examples of where technology is used.
- To record examples of technology outside school.

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2Publish Plus

Key Vocabulary

Computer
An electronic device for storing and processing data.

Technology
Science and engineering knowledge put into practical use to solve problems or invent useful tools.

Real life contexts/ Other opportunities to apply my skills

Teach computing unit - technology around us

Key Questions

What is technology?
How does technology make our lives easier?

Year 1- Technology Outside School

Key Learning

- To make music digitally using 2Sequence.
- To explore, edit and combine sounds using 2Sequence.
- To edit and refine composed music.
- To think about how music can be used to express feelings and create tunes which depict feelings.
- To upload a sound from a bank of sounds into the Sounds section.
- To record and upload environmental sounds into Purple Mash.
- To use these sounds to create tunes in 2Sequence.

Real life contexts/ Other opportunities to apply my skills

Teach computing – digital music
Google music suite

PM Resources

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2Sequence

Key Questions

What is digital music?
How can I change how my music sounds?

Key Vocabulary

bpm
The number of beats played in a minute.

Composition
A creative work, especially a poem or piece of music.

Digitally
By means of digital or computer technology.

Instrument
An object or device for producing musical sounds.

Music
Vocal or instrumental sounds (or both) played alone or combined.

Sound Effects (Sfx)
A sound other than speech or music made artificially for use in a play, film, or piece of music.

Soundtrack
A recording of the musical accompaniment of a film.

Tempo
The speed at which a passage of music is, or should be, played.

Volume
How loud a piece of music is.

Year 2- Making Music

Key Learning

- To explore how a story can be presented in different ways.
- To make a quiz about a story or class topic.
- To make a fact file on a non-fiction topic.
- To make a presentation to the class.

PM Resources

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2Create a story | 2Connect | 2Quiz | 2Publish

Key Vocabulary

Concept Map (Mind Map)
A tool for organising and representing knowledge. They form a web of ideas which are all interconnected.

Node
A way to represent a concept or idea using text and/or images.

Animated
A process by which we see still pictures appear to move.

Quiz
A test of knowledge, especially as a competition between individuals or teams as a form of entertainment.

Non-Fiction
Informative or factual writing.

Presentation
A speech or talk in which a new product, idea, or piece of work is shown and explained to an audience.

Narrative
A narrative (story or tale) is any account of a series of related events or experiences. This could be fictional or non-fictional.

Audience
The people giving attention to something.

Real life contexts/ Other opportunities to apply my skills

Powerpoint

Key Questions

What do we need to think about when planning a presentation? How and why do I plan my presentation first?

Year 2- Presenting Ideas

Lower Key Stage 2

St Andrew's Church of England Primary School, Stanstead Abbotts

Key Learning

- To think about different methods of communication.
- To open and respond to an email using an address book.
- To learn how to use email safely.
- To add an attachment to an email.
- To explore a simulated email scenario.

Real life contexts/ Other opportunities to apply my skills

PM Resources

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2Email   2Connect   2Do It Yourself

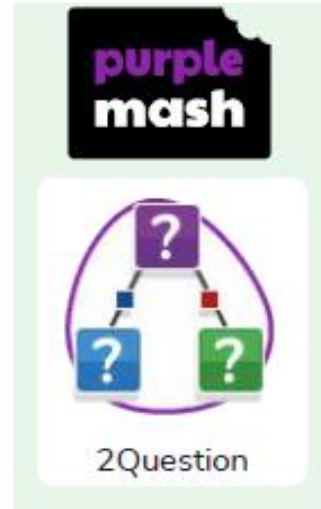## Key Questions

What is email?
What should I do if I receive an email that makes me upset or scared?
What information can I send in an email?

Key Vocabulary

Address book
A list of people who you regularly send an email to.

Attachment
A file, which could be a piece of work or a picture, that is sent with the email.

BCC
Blind Carbon Copy: A way of privately sending a copy of your email to other people so they can see the information in it, without the recipient knowing.

CC
A way of sending a copy of your email to other people so they can see the information in it.

Communication
The sharing or exchanging of information by speaking, writing, or using some other medium such as email.

Compose
To write or create something.

Email
(Electronic Mail) An Internet service that allows people who have an email address to send and receive instant electronic letters.

Inbox
The folder where new emails go into when they are received.

Password
A secret word, phrase or combination of letters, numbers and symbols that must be used to gain admission to a site or application such as email.

Personal Information
Identifying information about yourself such as your name, address and telephone number.

Save to draft
Allows you to compose an email and save it to draft folder to review later before sending.

Trusted Contact
A person who you know and trust, making an email from them safe to open.

Year 3- Email

Key Learning

- To sort objects using just 'yes' or 'no' questions.
- To complete a branching database using 2Question.
- To create a branching database of the children's choice.

Real life contexts/ Other opportunities to apply my skills

PM Resources

2Question

Key Questions

What is meant by data?
What is a database?
What is a branching database?

Key Vocabulary

Binary Tree
Another name for a branching database.

Database
A collection of data organised in such a way that it can be searched, and information found easily. Database usually refers to data stored on computers.

Branching database
Used to classify groups of objects. It is used to help identify the objects by answering questions with either 'yes' or 'no'. Branching databases can also be called binary trees.

Data
A collection of information, especially facts or numbers, obtained by observation, questions or measurement to be analysed and used to help decision-making.

Debugging
The process of identifying and removing errors from computer hardware or software.

Year 3- Branching Databases

- To learn the structure of the coding language of Logo.
- To input simple instructions in Logo.
- Using 2Logo to create letter shapes.
- To use the Repeat function in Logo to create shapes.
- To use and build procedures in Logo.

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2Logo

Debugging
The process of identifying and removing errors from computer hardware or software.

LOGO Commands (e.g FD, BK, RT, LT)
A list of commands inputted into 2Logo to move the turtle around the screen.

Pen Up
Raises the screen pen so the 2Logo turtle doesn't draw on screen.

Repeat
A set of instructions that is run a specified number of times.

Grid
The template around which the 2Logo turtle moves.

Multi Line Mode
Type several lines of commands in the text area.

Prediction
When you say what is going to happen when you run the instructions.

Run Speed
The speed at which the 2Logo turtle moves around the screen.

SETPS
Set the thickness of the pen's line.

LOGO
A text-based coding language used to control an on screen turtle to create mathematical patterns.

Pen Down
Lowers the screen pen so the 2Logo turtle draws a line on the screen.

Procedure
Pieces of Logo text with a procedure name that can be run by calling them by name. Saves time if you want to print to screen lots of the same shape.

SETPC
Set pen colour to a given colour.

Real life contexts/ Other opportunities to apply my skills

Key Questions

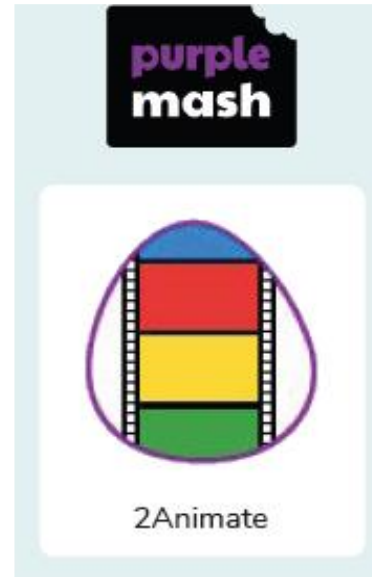Will make use of Teach Computing resources for application of skills.

What is Logo?

Year 4- Logo

- To discuss what makes a good animated film or cartoon.
- To learn how animations are created by hand.
- To find out how animation can be created in a similar way using the computer.
- To learn about onion skinning in animation.
- To add backgrounds and sounds to animations.
- To be introduced to 'stop motion' animation.
- To share animation on the class display board and by blogging.

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2Animate

Animation
The process of adding movement to still objects.

FPS (Frames Per Second)
The number of frames played per second.

Frame
A single image in an animation.

Onion Skinning
A process where the shadow image of the previous frame is present to help you line up the objects of the animation correctly.

Pause
To temporarily stop the animation.

Stop motion
A technique whereby the camera is repeatedly stopped and started, for example to give animated figures the impression of movement.

We will explore the use of Apple iPads to create a short film in stop motion.

What is animation?
What is meant by onion skinning?
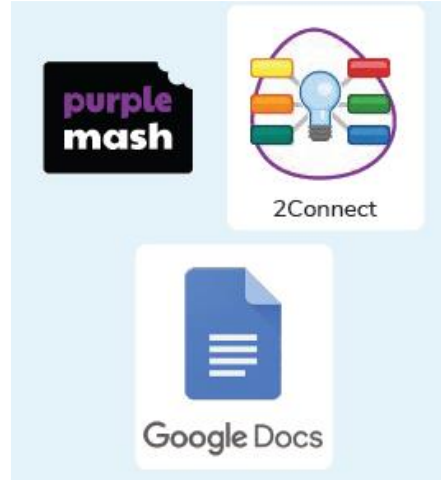What is meant by stop motion animation?

Year 4- Animation

Upper Key Stage 2

- To know what a word processing tool is for.
- To add and edit images to a word document.
- To know how to use word wrap with images and text.
- To change the look of text within a document.
- To add features to a document to enhance its look and usability.
- To use the sharing capabilities in Google Docs.
- To use tables within to present information.
- To introduce children to templates.

Real life contexts/ Other opportunities to apply my skills

Exposure to Word Processing on Microsoft Word.

PM Resources

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2Connect

Google Docs

Key Questions

What is a word processing tool used for? What features can you use to make a document more readable? How do you successfully add an image to a document?

Key Vocabulary

Bulleted lists
A list with bullet points, used when the items do not have an order.

Copy and Paste
A way of transferring words or images from one location to another.

Cursor
The flashing vertical line that shows your place in a Word document.

Hyperlink
A clickable link from a document to another location, often a webpage.

Formatting
Changing the look of a document by selecting fonts, colours and how the text is spaced or aligned.

Word Processing tool
A program which allows you to write, edit and print different documents.

Caps Lock
A button on the computer keyboard which changes the letters to upper case (capital letters).

Copyright
When an image, logo or idea has a legal right to not be copied or used without the owner's permission.

Document
A type of file which shows written information and/or images and sometimes charts and tables.

Merge cells
A tool you can use when making a table to join cells which are next to each other in columns or rows.

Text wrapping
A feature which helps you place and position an image neatly on a page or within a paragraph of text.

Captions
Text under an image to provide more information about what is shown.

Creative Commons
Images where the copyright holder, often the creator, has given permission for the image to be used as long as the creator is attributed.

Font
A set of type which shows words and numbers in a particular style and size.

Page Orientation
The direction that the rectangular page is viewed. Portrait means longer side going upwards, Landscape means the longer side going sideways.

Readability
How easy and pleasant it is to read and understand a document.

Word Art
A way to treat text as a graphic so that you can add special effects to text.

Year 5- Word Processing with Google Docs

Key Learning

- To learn how to search for information in a database.
- To contribute to a class database.
- To create a database around a chosen topic.

Real life contexts/ Other opportunities to apply my skills

Exposure to Microsoft Access, J2Data (Teach Computing Curriculum) or Google Chrome equivalent

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2Investigate   Avatar builder

Key Questions

What is a database?
Why is the collaborative feature important?
In what ways can I sort information in a database?

Key Vocabulary

Arrange
Sorting information in order against a search request.

Avatar
An icon or figure representing a person in a video game, Internet forum, etc.

Chart
A diagram that represents data. Charts include graphs and other diagrams such as pie charts or flowcharts.

Collaborative
Produced by, or involving, two or more parties working together.

Data
A collection of information, especially facts or numbers, obtained by observation, questions or measurement to be analysed and used to help decision-making.

Database
A set of data that can be held in a computer in a format that can be searched and sorted for information.

Field
A heading in a database record against which information is entered.

Record
A collection of data about one item entered into a database.

Group
Putting similar pieces of information together in a database so it is easy to read, understand and interpret.

Search
A way of finding information.

Database Report
A way of producing a written paragraph that incorporates the data from the fields and records of the database.

Statistics
The study and manipulation of data, including ways to gather, review, analyse, and draw conclusions from data.

Sort
Organising data by a rule such as alphabetical or numerical.

Year 5- Databases

Key Learning

- To learn about what the Internet consists of.
- To find out what a LAN and a WAN are.
- To find out how the Internet is accessed in school.
- To research and find out about the age of the Internet.
- To think about what the future might hold.

Real life contexts/ Other opportunities to apply my skills

PM Resources

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Tim Berners- Lee Profile

Communication Questionnaire

Key Questions

What is the difference between the Internet and the World Wide Web? What is the difference between a LAN and a WAN? Who is Tim Berners-Lee?

Key Vocabulary

Hub\Switch
The connection point for networks where data packets from many locations converge and are then sent out to different devices.

Network
Several interconnected computers, machines, or operations.

Wide area network (WAN)
A collection of local-area networks (LANs) or other networks that communicate with one another over a large physical area or even globally.

Internet
A global computer network providing a variety of information and communication facilities consisting of interconnected networks using standardized communication protocols.

World Wide Web
An information system on the Internet which allows documents to be connected to other documents by hypertext links, enabling the user to search for information by moving from one document to another.

Local area network (LAN)
A computer network that links devices within a building or group of adjacent buildings, especially one with a radius of less than 1 km.

Router
A device which forwards data packets to the appropriate parts of a computer network.
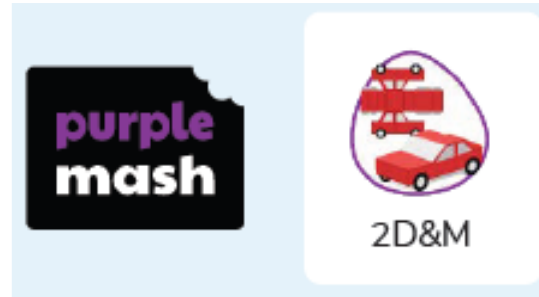
Wi-Fi
A facility allowing computers, smartphones, or other devices to connect to the Internet or communicate with one another wirelessly within a particular area.

Year 6- Networks

- To be introduced to 2Design and Make and the skills of computer aided design.
- To explore the effect of moving points when designing.
- To design a 3D Model to fit certain criteria.
- To refine and print a model.

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2D&M

2D
Something that has only two dimensions; height and width.

3D
Something that has three dimensions; height, width and depth.

3D Printing
The action or process of making a physical object from a three-dimensional digital model, typically by laying down many thin layers of a material in succession.

CAD – Computer aided Design
A CAD computer program or app allows you to design a 3D object or environment in 2D and visualise it in 3D on the screen from many angles.

Design Brief
A document for a design project, defining the core details, including the goal and strategy.

Net
What a 3D shape would look like if it was unfolded and opened out flat.

Points
The points on a 3D net which create the corners of the 3D shape.

Pattern Fill
A tool where you can add a customised repeating pattern to the surface of the net.

Template
Something that serves as a model for others to copy and edit.

Intending to move to using TinkerCAD (Teach Computing Curriculum) with exposure to 2D&M on Purple Mash

Links to Art and Design curriculum - Henry Moore sculpture

What are the different view of an object available?
How can the objects designed be turned into 3D objects?
How is CAD software used in industry?

Year 6- 3D Modelling