Purple Mash Computing Scheme: Knowledge Organiser

Year 3
Branching Databases

Key Learning

- To understand the concept of using 'Yes' or 'No' questions to sort objects.
- To understand and use a branching database effectively.
- To plan and create a branching database.
- To test and debug branching databases to correct errors.

Key Resources

2Question

Key Vocabulary

Binary Choice
A decision between only two distinct options.

Binary Tree
Another name for a branching database.

Branching Database
A type of database that uses yes or no questions to help sort and identify objects.

Data
A set of facts or information that help us learn something or make decisions.

Database
A place where data is stored or organised. It helps us find information quickly.

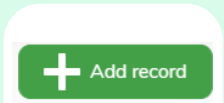
Debug/Debugging
The process of finding and fixing mistakes (known as bugs) in computer code or a program so that it works the way it's supposed to.

Record
A collection of related data or information that is stored together as a single unit.

Purple Mash Computing Scheme: Knowledge Organiser

Year 3
Branching Databases

Key Images



Click to add a new record

Click to sort records in the tree

Edit records

Edit tree

Key Questions

What is meant by data?

Facts about something; data can be words, numbers or pictures. For example, the class register contains data about the names, addresses and attendance of the children in the class.

What is a database used for?

A database is used to store, organise, manage and retrieve data and information quickly and easily.

What is a branching database?

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

What makes a good question on a branching database?

Questions on a branching database should be binary choice, which means they can only have one or two answers. On a branching database, these answers should be 'yes' or 'no'. A good question should split the group roughly in half, with half of the records answering 'yes' and half the records answering 'no'.

Purple Mash Computing Scheme: Knowledge Organiser

Year 3
Touch Typing

Key Learning

- To learn correct finger positioning on the keyboard and understand when to use the left or right hand.
- To learn how to type numbers accurately and to use the shift key for capital letters.
- To practise typing punctuation marks and symbols and build accuracy with simple words.
- To practise typing sentences using capital letters, spaces, and full stops.

Key Resources

2Type

Key Vocabulary

Bottom Keys
The row of letters on a keyboard below the home row.

Home Keys
The middle row of letters on the keyboard where your fingers rest when you are not typing.

Keyboard
A device with a set of keys (buttons) that you press to type letters, numbers, punctuation, and commands into a computer.

Number Row
The horizontal row of number keys (0-9) found at the top of a keyboard.

Posture
The position in which someone holds their body when standing or sitting.

Shift Key
A special key on the keyboard that you hold down while pressing another key to make a capital letter or a symbol.

Space Bar
The long key at the bottom of the keyboard that makes a space between words when typing.

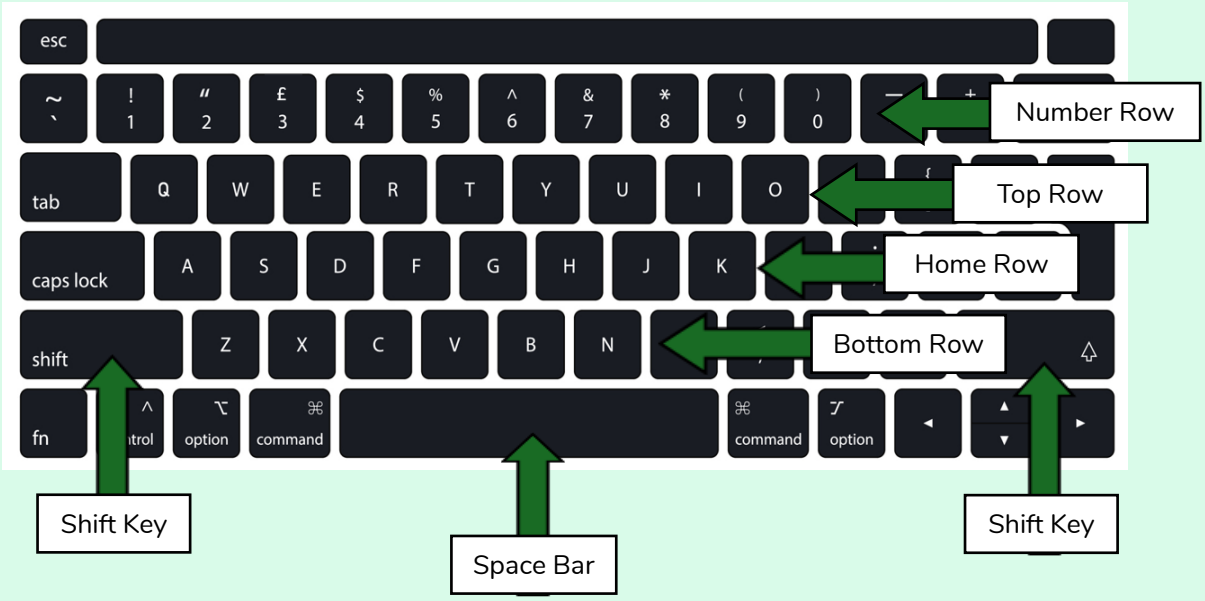
Top Keys
The row of letters on a keyboard above the home row.

Typing
The action or skill of writing something by means of a typewriter or, in this case, a computer.

Purple Mash Computing Scheme: Knowledge Organiser

Year 3
Touch Typing

Key Images



Key Questions

What is touch typing?

Touch typing means typing without looking at the keys. Instead, you use your sense of touch to find the correct letters. You start with fingers on the home row and use the correct fingers for each key. This builds accuracy and speed so you can type more confidently.

Why is posture important when typing?

Good posture keeps your body comfortable and safe while typing. Sitting up straight with both feet flat helps you to avoid aches, see the screen clearly and move your fingers quickly.

What are the home row keys?

The home row keys are the middle row of the keyboard: A, S, D, F, G, H, J, K, L, and ;. They are the starting point for touch typing, helping fingers reach other keys quickly. The F and J keys have small bumps to guide index fingers, making it easier to find the home row and type accurately.

Purple Mash Computing Scheme: Knowledge Organiser

Year 4
Animation

Key Learning

- To understand what animation is.
- To know what onion skinning is and be able to use this technique for 2D computer animations.
- To know how to enhance simple animations using animation software.
- To plan an animation.
- To create a narrative.
- To evaluate animations.

Key Resources

2Animate

Key Vocabulary

Animation
A method that turns still pictures into moving images. This technique can make drawings, computer graphics, or photographs appear to move.

Animation Software
A computer program that helps users create animations from images created on a computer or from images captured in the real world.

Background
An image on the frame that shows behind the animated objects.

Copy Frame
A feature in animation software where frames can be copied. This can be used to repeat frames at the end of an animation to help make it look smoother.

Frame
A single image in an animation.

Frame Per Second
The number of frames played per second.

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.

Sharing Controls
The menu that allows work to be shared with others. For example, sharing to a Display Board.

Sound Effect
A sound other than speech or music.

Stop Motion
A way of making objects or pictures look like they are moving by repeatedly taking photos for each tiny change of movement and then playing the photos back.

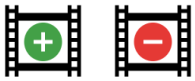
Storyboard
A visual planning tool used to map out the sequence of a narrative.

Purple Mash Computing Scheme: Knowledge Organiser

Year 4
Animation

Key Images

Open, close, save or share animation

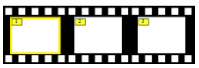


Add/delete frames

Play animation

Onion skin off/on

Add/remove sound



Frame reel

Add background

Change animation speed (FPS)

Key Questions

What is animation?

Animation is the process of giving the illusion of movement to drawings, models or objects. Animated motion pictures and television shows are highly popular forms of entertainment.

What is 2D animation?

2D Animation is one of the most known animation methods and is achieved by drawing lots of pictures. The pictures are flat in appearance and are not to be confused with 3D Animation.

How is stop motion animation created?

Characters are made out of plasticine or clay. Animators then move them a tiny bit at a time and take a photo. They will then move them again and take another photo. Once animators have taken all the photos (frames), they combine them. When they are played, they look like they are moving.

What features in animation software help create smooth animations?

Onion skinning is an example of one feature that lets an animator see a shadow image of the previous frame. Using this shadow, animators can carefully draw the next frame making small changes.

What is 3D animation?

3D Animation is a very popular animation method that involves computers. Images appear realistic with life like shading used. Toy Story is an example of this.

Purple Mash Computing Scheme: Knowledge Organiser

Year 4
Composing Beats

Key Learning

- To identify and discuss the main elements of music.
- To understand and experiment with rhythm and tempo.
- To create a melodic phrase using varied notes and pitch.
- To compose a piece of electronic music.

Key Resources

Busy Beats

Key Vocabulary

BPM
Beats per Minute. Changing the BPM changes the speed of the music.

Dynamics
How loud or quiet a sound is.

Electronic Music
Music that is made using electronic instruments, computers, or other technology, rather than only traditional acoustic instruments.

Melody
A sequence of notes which make up a tune.

Patch
A saved collection of sound settings that creates a specific tone or effect.

Pitch
How high or low a sound is.

Pulse
The steady beat of a piece of music.

Rippler
The moving line in Busy Beats that travels across the screen and "plays" the sounds you've put on the grid.

Rhythm
A pattern of long and short sounds and silences.

Sample
A short recording of a sound that you can use in your music e.g. a drumbeat.

Synths
Short for synthesizer. Electronic musical instrument sounds.

Tempo
How slow or fast a piece of music is.

Texture
The different sounds you can hear in a piece of music.

Purple Mash Computing Scheme: Knowledge Organiser

Year 4
Composing Beats

Key Images

Play and add different synth notes

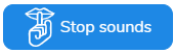
Play and add different sample sounds

Clicking on the ripplers triggers the sounds

Add a new patch

Switch between different patches

Change the speed – Beats per minute



Stop the music by pressing here

Record, play and download your composition

Key Questions

What are the main elements of music?

The main elements of music are pulse, rhythm, tempo, pitch, melody, dynamics, and texture. The pulse is the steady beat, like a heartbeat. Rhythm is a pattern of long and short sounds. Tempo describes how fast or slow the music is, while pitch tells us how high or low notes sound. A melody is the tune, the part we usually hum or sing. Dynamics describe volume, and texture refers to the layers of sounds in a piece.

How do rhythm and tempo affect music?

Rhythm and tempo help shape the mood and feel of music. Rhythm is the arrangement of long and short sounds and silences, while the tempo controls the speed at which the music is played. Changing the BPM (beats per minute) can transform a piece; slower tempos may feel calm, while faster tempos can feel exciting or tense. Together, rhythm and tempo provide the structure and energy that keep music moving and make it engaging.

How can we compose electronic music using Busy Beats?

We can compose electronic music in Busy Beats by combining samples and synths to create rhythm and melody. Samples are short, recorded sounds, while synths are electronic instrument tones. Pupils experiment with pitch and layer patches for variety. Recording and switching between patches creates arrangements, mirroring how producers use technology to refine music.

Purple Mash Computing Scheme: Knowledge Organiser

Year 4
Introduction to Artificial Intelligence (AI)

Key Learning

- To understand what Artificial Intelligence is and some of the tasks it can carry out.
- To learn to communicate effectively with AI tools by writing clear and precise prompts.
- To understand how to be a good digital citizen when using AI.
- To think about how AI might develop in the future.

Key Vocabulary

Artificial Intelligence (AI)
A type of technology that can make predictions, take actions and create content, by learning from data.

Automation
When machines or AI do tasks humans normally do.

Data
Pieces of information (like words, pictures, sounds or numbers) that AI uses as "ingredients" to learn.

Digital Citizenship
Making smart, kind, and safe choices online, including how we behave when using AI.

Future Technology
New inventions or tools that people create to help do things better or more easily.

Generative AI
A kind of AI that makes brand new things (stories, images, etc.).

Human Oversight
Humans being in charge, checking, and making rules for AI.

Innovation
A new idea, improvement, or helpful invention.

Prediction
When AI looks at data, finds patterns and guesses what comes next.

Privacy
Deciding what personal information to share, and who can see it.

Prompt
The instruction given to generative AI (like asking for a story or picture).

Refine
To improve or make something better by making small changes.

Responsible Behaviour
Being respectful, thinking about the impact of our actions, and acting kindly.

Trustworthy / Reliable
Considering whether information (or AI output) is real, true, and fair.

Purple Mash Computing Scheme: Knowledge Organiser

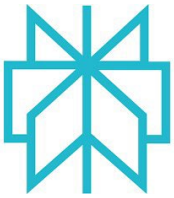
Year 4
Introduction to Artificial Intelligence (AI)

Key Images

ChatGPT

Claude

Gemini



Perplexity

Key Questions

What is Artificial Intelligence (AI)?

Artificial Intelligence is when computers are designed to learn and make simple decisions like humans. They spot patterns, solve problems and improve at tasks using the information they're given. AI doesn't think or feel, but it follows rules to work things out.

How can Artificial Intelligence help us?

AI makes everyday tasks quicker and easier. It helps doctors find illnesses, suggests fast travel routes and recommends books or films. It's especially useful for jobs with lots of data or tasks that repeat.

What makes a good digital citizen?

A good digital citizen uses technology safely and responsibly. They protect personal information, think before sharing and treat others respectfully online. They also check if information is reliable and use technology to help themselves and others.

Purple Mash Computing Scheme: Knowledge Organiser

Year 4
Logo

Key Learning

- To know key commands and input simple instructions.
- To use a variety of commands to create shapes using multi-line mode.
- To use the Repeat command.
- To change the line thickness and colour.
- To use procedures to write instructions.

Key Resources

Logo

Key Vocabulary

Logo
A text-based coding language used to control an on-screen turtle to create.

Logo Commands
Instructions inputted to move the turtle around the screen.

Multi-Line Mode
A way of typing several lines of commands in the text area before the code is run.

Pen Down
A command which lowers the screen pen, so the Logo turtle draws a line on the screen.

Pen Up
A command which raises the screen pen, so the Logo turtle doesn't draw on screen.

Procedure
A set of named instructions that Logo can remember and use again later.

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

Set PC
Changes the colour of the line.

Set PS
Changes the thickness of the line.

Purple Mash Computing Scheme: Knowledge Organiser

Year 4
Logo

Key Images

Execute the Logo instructions

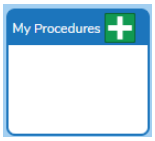
Single-Line Mode

Multi-Line Mode

Grid On / Off

Reset screen turtle position

Write commands here



Write procedures

Key Questions

What is Logo?

Logo is a programming language that uses commands to move a turtle on the screen. It can be used to draw shapes and patterns. It is a good way to learn more about how coding works.

What is a procedure in Logo?

A procedure is a set of saved commands. Instead of typing them every time, you give the procedure a name and run it quickly.

How do repeats make Logo coding more efficient?

Repeats let you use fewer commands by repeating actions. This saves time, keeps code tidy, and avoids writing the same thing many times.

Purple Mash Computing Scheme: Knowledge Organiser

Year 4
Sound Stories

Key Learning

- To understand what makes audiobooks effective and identify the key features that make them engaging.
- To plan and write a script for an engaging audiobook.
- To record clear narration and add sound effects to an audiobook.
- To edit, improve and finalise an audiobook using recording and sound design tools.

Key Resources

2Cast

Key Vocabulary

Audiobook
A recorded version of a book that is read aloud.

Background Music
Music that plays softly behind a story, scene, or activity.

Edit
To cut, move, or improve parts of a recording.

Editor
A person who checks and improves written work, videos, or sound recordings by fixing mistakes and making it flow smoothly.

Final Mix
The complete, polished version of your audio.

Playback
Listening to a recording to check how it sounds and decide what to change.

Recording
Capturing sounds, voices, or music so they can be played back later.

Sound Effects
A recorded sound other than speech or music that is added to make something more exciting or realistic.

Sound Effects Manager
A person who finds or creates sounds to make a project more interesting and realistic.

Sound Technician
Someone who sets up and controls the equipment for recording or playing sound, making sure everything can be heard clearly.

Timeline
The area in an audio recording and editing tool where you can see and move your audio clips.

Track
A row or layer where a piece of sound (like speech or music) is added when using an audio recording tool.

Purple Mash Computing Scheme: Knowledge Organiser

Year 4
Sound Stories

Key Images


Add track


Delete track


Import audio file


Play


Stop


Record


Go to start


Go to end


Snip event


Glue event


Sound clip

Solo or mute track

Key Questions

What is an audiobook?

An audiobook is a story or book that is read aloud and recorded so people can listen to it.

What are the main features of an audiobook?

An audiobook often includes a narrator who reads a story aloud with clear speech and expression. It often has different voices for characters, background music to set the mood, and sound effects to match the action. These features help bring the story to life and make it more interesting for the listener.

What are the main advantages of an audiobook?

Audiobooks make stories easier to enjoy because you can listen instead of reading. They help with understanding how words sound, are useful for early readers or those with reading difficulties and allow people to enjoy stories while doing other things. Audiobooks also bring stories to life with expressive voices, sound effects, and music, making the experience more exciting and engaging.

What is the process of creating an audiobook?

A story is selected and a script is written that includes narration, dialogue, and sound effect cues. Next, the team rehearses and records the narration and any required sound effects using audio software. Once recording is complete, the audio is edited to remove mistakes, adjust volume levels, and arrange tracks on the timeline. Finally, the completed version is reviewed to ensure it flows smoothly and engages the listener.