



Y5 Computing – Flat File Database

Key Concept – Data and Information



Essential Knowledge

How can I make a paper-based database?

A database organises information, so it is easy to find and compare. Paper-based databases use cards or tables to store records and fields.

vs How can I compare paper-based and computer databases?

Paper and computer databases both organise information into fields and records. Computer databases can search, sort and update large amounts of information much more quickly.

How can I sort and group information using a database?

Sorting changes the order of information to make it easier to read. Grouping places similar records together using shared features. These tools help users find information more quickly.

Which tools can be used to select data?

Filters use criteria to show only the records that match specific conditions. More than one condition can be combined using 'AND' and 'OR'. This helps users find exactly the information they need.

How do I compare data visually?

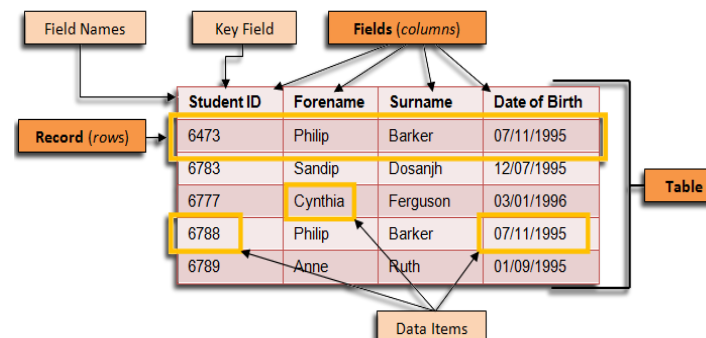
Charts and graphs help present data clearly. Different types of charts make it easier to spot patterns, trends and comparisons.

How are databases used in real-life?

Many organisations use databases to store and manage information safely. Schools, hospitals, libraries and businesses all rely on databases to organise large amounts of data. Accurate data helps people make informed decisions.

Aspirational Knowledge

By learning how to use databases, you are developing skills used by scientists, game designers, doctors, and business owners to make smart decisions from information. You are learning how computers help people organise large amounts of data quickly and accurately in the real world, such as planning journeys, tracking wildlife, or running companies.



Key Vocabulary

database	information stored in an organised way
record	all the information about one item or person
field	one piece of information (e.g. name or age)
sort	to put information in order (e.g. a–z or smallest to biggest)
filter	to choose only the information you want to see



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Key Concept – Data and Information



<u>Essential Knowledge</u>		<u>Key Vocabulary</u>	
 What is a paper database? A database organises information, so it is easy to find and compare. Paper-based databases use cards or tables to store records and fields.		database	 a place where information is kept on paper or on a computer
 What is different about paper and computer databases? Paper and computer databases both organise information into fields and records. Computer databases can search, sort and update large amounts of information much more quickly.		record	 all the information about one thing in one place
 How can I sort and group data? Sorting changes the order of information to make it easier to read. Grouping places similar records together using shared features. These tools help users find information more quickly.		field	 one small piece of information about something
 How can I choose data? Filters use criteria to show only the records that match specific conditions. More than one condition can be combined using 'AND' and 'OR'. This helps users find exactly the information they need.		filter	 choose what you want to see
 How can I show data? Charts and graphs help present data clearly. Different types of charts make it easier to spot patterns, trends and comparisons.			
 How are databases used? Many organisations use databases to store and manage information safely. Schools, hospitals, libraries and businesses all rely on databases to organise large amounts of data. Accurate data helps people make informed decisions.			



Y5 Computing – Selection (Crumbles)

Key Concept – Programming



Essential Knowledge

How can I create a simple circuit connected to a microcontroller?

A microcontroller can control electronic components such as lights and buzzers. A complete circuit allows electricity to flow so the programmed device can work correctly. The program tells the microcontroller when the light should turn on and off.

How do I code loops?

A loop repeats a set of instructions automatically. Using loops means programmers do not need to write the same code many times.

How can I use conditions to end a loop?

A condition checks whether something is true or false. A loop can continue repeating until the condition changes. Conditions help programs make decisions and respond to different situations.

How can I use a loop to check conditions have been met?

An 'if...then' statement allows a program to choose what happens next. A program can repeatedly check a condition until it is met.

How can I design a physical project that includes selection?

Physical computing projects combine computer programs with electronic components. Selection allows the program to respond differently depending on an input or condition. Careful planning helps systems behave as expected.

How can I write, test and debug my program?

Programs often contain mistakes called bugs. Testing helps identify problems and debugging fixes them, so the program works correctly.

Aspirational Knowledge

Microcontrollers are found in many everyday devices from toasters to microwaves, they use inputs and conditions to make things start or stop. Your toaster starts toasting the bread when a lever is pressed and the microcontroller completes a circuit to release the toast after a set period has passed.



Key Vocabulary

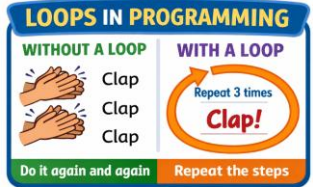
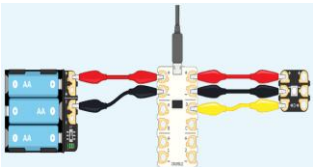
algorithm	a process or a set of rules to be followed in a program
loop	a repeated algorithm
microcontroller	a small computer able to complete basic functions
input	a change the microcontroller looks for (a pressed switch for example)
debug	to check for errors and fix them



Y5 Computing – Selection (Crumbles)

Key Concept – Programming



Key Knowledge		Key Vocabulary	
How can I create a simple circuit connected to a mini-computer? A microcontroller can control electronic components such as lights and buzzers. A complete circuit allows electricity to flow so the programmed device can work correctly. The program tells the microcontroller when the light should turn on and off.		loop 	tells the program to do the same thing over and over again
How can I code loops? A loop repeats a set of instructions automatically. Using loops means programmers do not need to write the same code many times.		input 	a way of telling a computer what to do (a button to press or a switch)
How can I use conditions to end a loop? A condition checks whether something is true or false. A loop can continue repeating until the condition changes. Conditions help programs make decisions and respond to different situations.		debug 	to check through the code you have created, to test it and fix any issues with it
How can I use a loop to check conditions have been met? An 'if...then' statement allows a program to choose what happens next. A program can repeatedly check a condition until it is met.		circuit 	a set of electrical parts that work together
How can I design a project that includes selection? Physical computing projects combine computer programs with electronic components. Selection allows the program to respond differently depending on an input or condition. Careful planning helps systems behave as expected.		micro-controller 	a small computer able to complete basic functions



Y5 Computing – Selection in Quizzes

Key Concept – Programming



Essential Knowledge

How is selection used in computer programs?

'Conditions' are used to control the flow of actions in a program. Scratch uses 'conditions' to decide what happens in the program when a choice is made.

How can '...if....then...else' conditions be used?

Repetition in a program allows you to test what happens when 'if, then or else' blocks are used.

How can selection direct the flow of a program?

'Condition' Scratch blocks are used to answer binary questions such as 'yes / no' questions.

How are programs designed?

Designing a program requires the user to decide exactly what they want the program to do before choosing blocks and pathways to achieve their objective.

How can I check if my program has achieved its objectives?

When a program is finished, it must be tested so that any problems or unexpected things happen – this must be done before the program is shared with other people.

How can I evaluate my quiz?

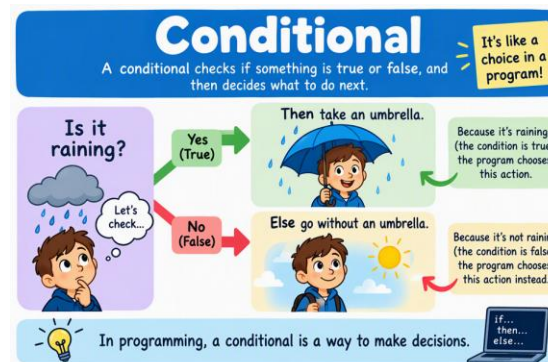
After sharing a program, it is important to take feedback from users and make changes to fix issues that have been found or to change the look or feel of the program to better fit what the user wants or needs.

Key Vocabulary

selection	a choice – I can select yes or no
conditional	'if' and 'then' are conditionals (if i do this, then i get that)
implement	to begin to use a program
test	to check that the code I have written works as it should

Aspirational Knowledge

Conditions in programming are the first steps towards creating systems that interact with the user. Since questions with two possible options become more complex with multiple responses programmed in to fit the needs of the user. Eventually, AI systems will do this job semi-intelligently.

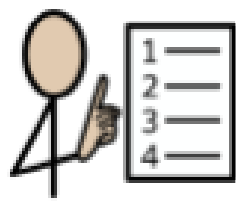
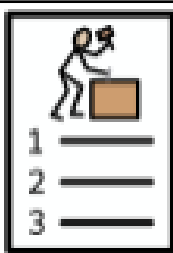




Y5 Computing – Selection in Quizzes

Key Concept – Programming



<u>Key Knowledge</u>		<u>Key Vocabulary</u>	
How do computers make choices? Computers can make choices using conditions. A condition helps the computer decide what to do next.		selection	 a choice – I can select yes or no
How can an "if, then, else" block be used? An if, then, else block tells the computer what to do when different things happen. For example: If the answer is correct, then say, "Well done!", else say "Try again".		conditional	 'if' and 'then' are conditionals (if i do this, then i get that)
How do choices change what happens in a program? A program can ask a yes/no question and then choose what to do next based on the answer.		implement	 to begin to use a program
How are programs planned? Before making a program, we need to think about what we want it to do. Then we choose the right blocks to make it work.		test	 to check that the code i have written works as it should
How can I check that my program works? We need to test our program to make sure it works properly and fix any mistakes before other people use it.			
How can I improve my quiz? After people try my quiz, I can listen to their ideas and make changes to improve it or fix any problems.			



Y5 Computing – Systems and Searching

Key Concept – Computing Systems and Networks



Essential Knowledge

How can computers be connected to form systems?

Computers work together in sequence to achieve a task – for example ordering an item online, causes a factory to make an object to be shipped to my house.

What is the role of computer systems in our lives?

Computers are used in every part of my life from making sure the shop has enough food for me to buy to the register in my classroom telling the kitchen how many meals to cook.

How can I experiment with search engines?

There are several different search engines such as Google, Bing, and DuckDuckGo. Searching in each might provide different results.

How do search engines select results?

I know that search engines select results from an index put together by web crawlers.

Why do some websites appear before others?

Search engines order results for different reasons. The top results are usually sponsored (paid for) by the company that owns that web site.

Why is the order of results important, and to whom?

Results on a search engine's results page is chosen by the search engine based on which results it thinks the user is most likely to want to click on. Website creators often want their pages to appear near the top of the list, as it makes it more likely for you to visit their site.

Aspirational Knowledge

Internet search engines use a wide range of algorithms to order the results that they give the user. The top search results are usually paid for by companies that want the user to buy their product. Using several different search engines and comparing the results can give a more balanced and accurate answer to questions.

Key Vocabulary

system	a collection or chain of parts that work together to complete a task
index	a list of where pieces of information can be found
 web crawler	software that reads every page of the internet and decides what is on each page
ranking	the order web pages appear on a search engine's results page
search engine optimisation (SEO)	changing the words or pictures on a web page to make the page more appealing to web crawlers to improve ranking



Y5 Computing – Systems and Searching

Key Concept – Computing Systems and Networks



Key Knowledge

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Key Vocabulary

system



different parts that work together to complete a task

index



a list of where pieces of information can be found

web crawler



software that reads internet pages and decides what is on each page

ranking



the order web pages appear on a search engine's results page



Y5 Computing – Vector Graphics

Key Concept – Creating Media



Essential Knowledge

How can drawing tools be used to produce different outcomes?

Vector drawings are created using shapes, lines and curves instead of individual pixels. Different drawing tools allow designers to create accurate images that can be edited easily.

How can I identify the shapes that are used to make vector drawings?

Vector images are built from separate objects, such as shapes and lines. Each object can be selected, moved, resized, rotated or duplicated without affecting the rest of the drawing.

How can I increase the complexity of my vector drawings and use the zoom tool to add detail to my work?

The zoom tool helps designers work accurately by making small details easier to see. Combining simple shapes and careful editing creates more detailed vector graphics.

How can I use layers to create overlapping shape images?

Layers control the order in which objects appear in a vector drawing. Moving objects forwards or backwards changes which shapes are visible. Layers help create more realistic and organised designs.

How can I use 'group' to make image creation easier?

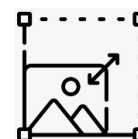
Grouping joins several objects together, so they behave as one object. This makes it easier to move, resize or copy parts of a design while keeping their positions the same.

How can I use what I have learnt to create a finished piece?

Designers use different vector tools together to create images that match a design brief. Planning, editing and reviewing help produce a clear and effective final design.

Aspirational Knowledge

Vector graphics are simple, blocky and easy to recognise. They have created some of the world's most memorable icons that have world-wide instant recognition. Icons such as Apple, McDonalds and Tesla are all instantly recognisable vector graphics.



Key Vocabulary

vector graphic	a block shape – square, triangle, curve etc.
object	a single shape or line which can be individually selected
align	to line up
group	to select a few objects together
resize	to make bigger or smaller



Y5 Computing – Vector Graphics

Key Concept – Creating Media



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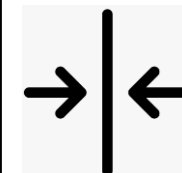
Key Vocabulary

vector graphic



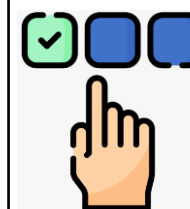
a block shape – square, triangle, curve etc.

align



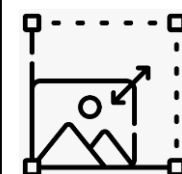
to line up several objects so they are all in a straight line

group



to select several objects and move them together

resize



make an object bigger or smaller



Y5 Computing – Video Production

Key Concept – Creating Media



Essential Knowledge

What makes a video effective?

Effective videos have a clear purpose and keep the audience engaged. Images, sound and careful planning all help communicate a message. Different videos are created for different audiences.

What devices can I use to record?

Many digital devices, such as tablets, cameras and smartphones, can record video. Each device has different features and advantages.

How can I capture a video using different techniques?

Careful filming helps make videos clearer and more interesting. Planning each shot improves the result and basic editing tools can change my video.

How can I make a story board?

Storyboards help organise ideas before filming starts. They show the order of scenes and what will happen in each one. Good planning saves time during production.

How can I improve my video by reshooting and editing?

Editing allows unwanted footage to be removed and clips to be arranged in the best order. Titles, sound and transitions can improve communication. Reviewing work helps create a polished final video.

What do I need to consider when making and sharing a video?

Every decision made during filming and editing changes how the audience understands the message. We want our videos to achieve the outcome we have planned.

Aspirational Knowledge

Filmmaking is the craft of creating a story through moving images. It begins with developing an idea and writing a screenplay. Next comes pre-production, where filmmakers choose locations, cast actors, and plan each shot using storyboards. During production, the crew uses cameras, to capture the performances. Afterward, in post-production, editors assemble the best takes, add visual effects, adjust colour and mix the soundtrack. The final film is then ready to be screened for an audience.

Key Vocabulary

audio	the sounds included in the film
panning	moving the camera from side to side
static	holding the camera steady and still to maintain a steady image
import	to add video and sound to editing software
export	to output a completed film as one single file ready to be viewed



Y5 Computing – Video Production

Key Concept – Creating Media



Key Knowledge

What makes a good video?

Effective videos have a clear purpose and keep the audience engaged. Images, sound and careful planning all help communicate a message. Different videos are created for different audiences.

What can I use to record?

Many digital devices, such as tablets, cameras and smartphones, can record video. Each device has different features and advantages.

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Storyboards help organise ideas before filming starts. They show the order of scenes and what will happen in each one. Good planning saves time during production.

How can I make my video better?

Editing allows unwanted footage to be removed and clips to be arranged in the best order. Titles, sound and transitions can improve communication. Reviewing work helps create a polished final video.

How can I make sure my video is good?

Every decision made during filming and editing changes how the audience understands the message. We want our videos to achieve the outcome we have planned.

Key Vocabulary

audio



the sound in the film

panning



moving the camera from side to side

import



moving a video from the camera to the computer to edit it

export



sending a finished film from the computer so it can be shown on a screen