



Databases

Key Vocabulary:

Condition – A condition is a rule you give to a database to help it find the right information.

Filter – Filtering what information is shown according to any filter rules applied.

Query – A user will run a query to find specific information in a database.

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

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

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

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

Linked Tables – A database can contain more than one table which can be linked together so a query can include information from the linked table.

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

Edit – To change, add or remove data from a record.

Operator – An operator tells a database what to do with data when someone is making a query. Such as: Find everyone whose score 'is equal to' 10.

Validation – A field can have specific data types such as numbers, letters, dates and times which helps minimise input errors.

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

Key Resources:



Key Learning:

- To understand what a database is.
- To design and create a database.
- To build queries to find information.
- To solve problems using a database.

Key Images:



Add record



Edit record



View mode



Create query



Database Design



Report

Key Questions:

What do databases help us do?

Databases help organise data into one place. Data can be added, stored and retrieved by more than one person. When data is retrieved it can be combined to form information that someone might wish to find out. It is much quicker, more convenient and can be used by many people.

What does a record contain?

A record contains fields of data that form information about something or someone. A database will contain lots of records. For example, a database record could be a record on one child at a school that has fields: name, age and class.

How can errors be kept to a minimum when entering data into a database?

Fields can have the data types entered into them set. Additionally, constraints such as always required or has options can be used.

What is a query?

A query is the word used instead of a question when using databases. Someone will create a query to find the answer to something they want to know.

What does the AND operator help someone do?

The AND operator joins rules (conditions) together. Using AND means all the conditions have to be met. AND helps someone find specific information (records).

Why might a database need more than one table?

It can get very messy and confusing for users of a database if all data is kept in one table. For example, a vet surgery might need a table on the pets and a separate table on the customers.



Micro:bit

Key Vocabulary:

Accelerometer – A sensor that detects movement.

Crocodile Clip – Wires used to connect external devices to the pins on a micro:bit.

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

Gestures – A type of input where the micro:bit is moved in different ways such as tilting, dropping, shaking.

IF/THEN – Logical commands that help the computer make decisions or choices based on conditions.

Input – Information going into a device. On a micro:bit, this includes buttons presses, sensor readings and messages via the micro:bit pins.

LED – Light emitting diode – the micro:bit display is made of 25 LEDs.

Logic – How computers make decisions based on whether things are true or false.

Output – Information that comes out of the computer such as sound or lights shown on the LED display.

Pins – Small connection areas on the micro:bit used to communicate with external devices.

Selection – A conditional decision command. When selection is used, a program will choose which bit of code to run depending on a condition.

Sensor – An input that sense things in the real world, such as movement, temperature, and light levels.

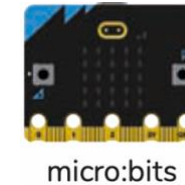
Simulation – A model that represents a real or imaginary situation. Simulations can be used to explore options and to test predictions.

Variable – A names area in computer memory. A variable has a name and a value. The program can change this variable value. Variables are used in programming to keep track of things that can change while a program is running. This data can be accused and updated while a program is running.

Key Learning:

- To use inputs from the accelerometer to execute programs.
- To incorporate conditional logic in programs using IF/THEN coding structures
- To use the sensors of the micro:bit to set the values of variables and trigger action in the programs.
- To use the micro:bit to create simulations.
- To create devices that give input to the micro:bit via the pins.

Key Resources:



Key Images:

