

COMPUTING SUMMER 2 KNOWLEDGE ORGANISERS



Overview

This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to order and answer questions about data. They will create graphs and charts from their data to help solve problems. They will also use a real-life database to answer a question, and present their work to others.

Lesson 1: Creating a paper-based database

In this lesson, learners will create a paper version of a record card database. Using a card template, they will create a data set, with each learner creating eight to ten cards linked to a theme, e.g. animals. They will complete records for each of the animals in their database and then they will physically sort the cards to answer questions about the data.

- To use a form to record information
- I can create a database using cards
- I can explain how information can be recorded
- I can order, sort, and group my data cards

Lesson 2: Computer databases

In this lesson, learners will use a computer-based database to examine how data can be recorded and viewed. They will learn that a database consists of 'records', and that each record contains 'fields'. In addition, they will order records in different ways and compare this database to the paper database they created in Lesson 1.

To compare paper and computer-based databases

- I can explain what a field and a record is in a database
- I can navigate a flat-file database to compare different views of information
- I can choose which field to sort data by to answer a given question
- I can explain the benefits of a given computer system

Lesson 3: Using a database

In this lesson, learners will investigate how records can be grouped, using both the paper record cards created in Lesson 1 and a computer-based database from J2E. They will use 'grouping' and 'sorting' to answer questions about the data.

To outline how you can answer questions by grouping and then sorting data

- I can explain that data can be grouped using chosen values
- I can group information using a database
- I can combine grouping and sorting to answer specific questions

Lesson 4: Using search tools

In this lesson, learners will develop their search techniques to answer questions about the data. They will use advanced techniques to search for more than one field, and will practise doing this through both unplugged methods (without using computers), and using a computer database.

To explain that tools can be used to select specific data

- I can choose which field and value are required to answer a given question
- I can outline how 'AND' and 'OR' can be used to refine data selection
- I can choose multiple criteria to answer a given question

Lesson 5: Comparing data visually

In this lesson, learners will consider what makes a useful chart, and how charts can be used to compare data. They will create charts from their data in order to answer questions about it.

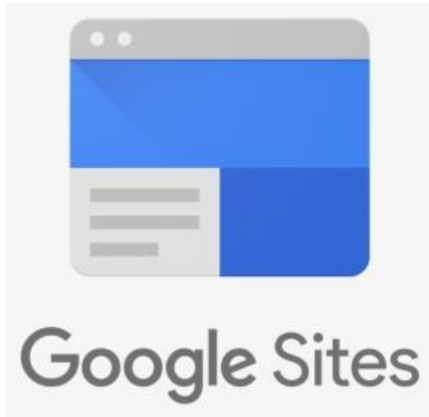
To explain that computer programs can be used to compare data visually

- I can select an appropriate chart to visually compare data
- I can refine a chart by selecting a particular filter
- I can explain the benefits of using a computer to create charts

Lesson 6: Databases in real life

The final lesson requires learners to use a real-life database to ask questions and find answers in the context of a flight search based on set parameters. They will take on the role of a travel agent and present their findings, showing how they arrived at their chosen options. Presentations may be given between groups of learners, or by each group to the whole class, depending on the time available.

- To use a real-world database to answer questions
- I can ask questions that will need more than one field to answer
- I can refine a search in a real-world context
- I can present my findings to a group



OVERVIEW

This unit of work builds up to Y6 pupils creating websites for a chosen purpose. You will learn how to identify what makes a good web page and use this information to design and evaluate your own website using Google Sites.

KEY VOCABULARY

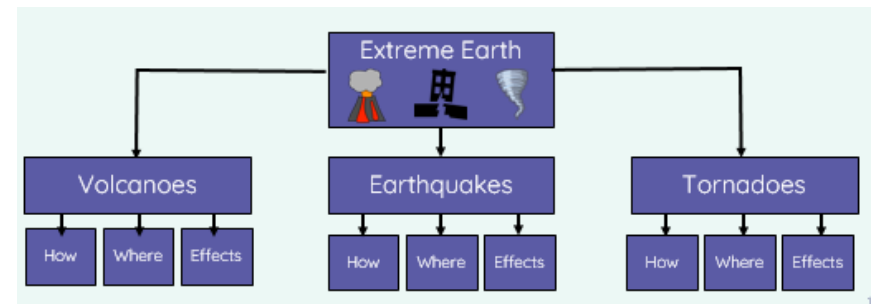
HTML (Hypertext Markup Language) - the code used to structure a web page and its contents

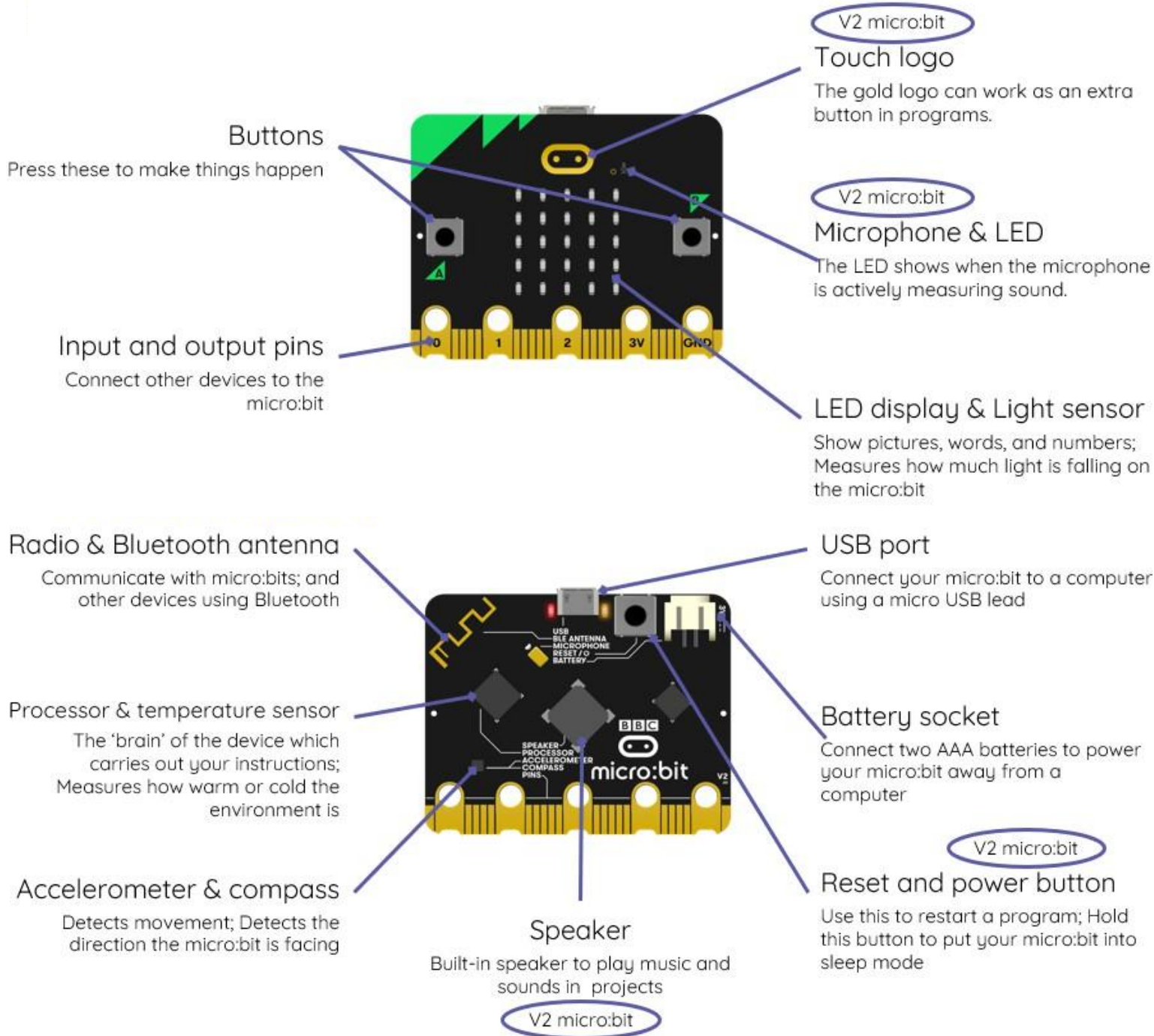
Copyright - protects your work and stops others from using it without your permission

Home page - the main page of a website, typically the first page that visitors will see when they arrive at a website. The home page usually contains an overview of the website, as well as links to the other pages within the website.

Navigation path - the way that pages are linked together

Hyperlink - an element in HTML that links to either another portion of the webpage (**internal**) or to another webpage altogether (**external**) by clicking or tapping.





OVERVIEW

The BBC micro:bit is a pocket-sized computer that introduces you to how software and hardware work together. It has an LED light display, buttons, sensors and many input/output features that, when programmed, let it interact with you and your world.

KEY VOCABULARY

When you type on your laptop or touch the screen on your phone, you're using an **input device**. Inputs allow computers to sense things happening in the real world, so they can act on this and make something happen, usually on an **output** like a screen or headphones.

In between the input and the output, there is the **processor**. This takes information from inputs like buttons, and makes something happen on outputs, like playing a song in your headphones.

Overview

In this unit, learners will explore the technologies that make up the internet and World Wide Web. Starting with an exploration of the building blocks of the World Wide Web, HTML, and CSS, learners will investigate how websites are catalogued and organised for effective retrieval using search engines. By the end of the unit, learners will have a functioning website.

Lesson 1: Website building blocks

We use web pages every day without questioning how they work. This lesson looks behind the curtain to help learners start to understand how web pages are constructed using HTML tags, and how they can be modified to start to resemble the websites they are accustomed to.

Learners will begin by considering the power of automation for repetitive tasks, before delving into some practical web page formatting activities using HTML tags. Firstly, they will practise formatting sections of text to improve readability. Learners will then modify tags to change their appearance in a document, to make them different from the defaults provided.

- Describe what HTML is
- Use HTML to structure static web pages
- Modify HTML tags using inline styling to improve the appearance of web pages

Lesson 2: Words are not enough

It is said that a picture paints a thousand words. Web pages that only use text are not going to be read for long on a screen. The use of images on web pages is important as it can bring them to life and help improve the reader's experience.

Learners will begin by recapping the important fundamentals of web page design, specifically the use of tags and their modification. They will explore the structure and operation of the `img` tag and understand how they can be used to 'add' images to web pages. To consolidate the learning of the first two lessons, they will also try to replicate a given web page design to see if they can use what they have learnt in the most effective way.

- Display images within a web page
- Apply HTML tags to construct a web page structure from a provided design

Lesson 3: Taking shortcuts

Learners will begin by recapping how formatting is controlled using inline HTML formatting. They will appreciate that this approach is time consuming and allows inconsistencies in design to manifest. Learners will start to experiment with using CSS to format tags in a HTML document. They will then progress on to applying their own formatting schemes to work they have already created. As they become more experienced in the structure of CSS learners should look to extend their knowledge by researching the numerous attributes that can be controlled by CSS.

- Describe what CSS is
- Use CSS to style static web pages
- Assess the benefits of using CSS to style pages instead of in-line formatting

Lesson 4: Searching the web

In this lesson, learners will consider how web pages are found and catalogued, ready for people to search for them. By considering how search engines find and rank web pages, they will learn how they can make their designs appear towards the top of search engine lists, so that more people will view what they have created.

- Describe what a search engine is
- Explain how search engines 'crawl' through the World Wide Web and how they select and rank results
- Analyse how search engines select and rank results when searches are made

Lesson 5: Tightening the web

In this lesson learners will investigate advanced search techniques. They will understand how search operators can be used to combine or exclude search terms to either expand or narrow search results. They will practice using these terms for specific purposes and then build on the work from the last lesson to create a new page that can be used to summarise their learning from this lesson. They will also learn how to hyperlink web pages into a complete website allowing navigation between the pages that they create.

- Use search technologies effectively
- Discuss the impact of search technologies and the issues that arise by the way they function and the way they are used
- Create hyperlinks to allow users to navigate between multiple web pages

Lesson 6: Navigating the web

In this lesson learners will begin by creating a web page to summarise their learning over the entire unit by creating an additional 'How to' web page, they will follow this up by adding navigation to all pages of the website. By reviewing what they have created they will also be refreshing their memories for a summative assessment of their learning at the end of the lesson.

- Implement navigation to complete a functioning website
- Complete summative assessment