



# Technology Around Us

Pupils should be taught to recognise common uses of information technology beyond school

- I can recognise the ways we use technology in our classroom.
- I can recognise ways that technology is used in my home and community.
- I can use links to websites to find information.
- I can begin to identify some of the benefits of using technology.

- To recognise the uses and features of information technology
- To identify information technology in the home
- To identify information technology beyond school
- To explain how information technology benefits us
- To show how to use information technology safely
- To recognise that choices are made when using information technology

Pupils should be taught to understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration.  
Pupils should be taught to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

- To explain how digital devices function
- To identify input and output devices.
- To recognise how digital devices can change the way we work.
- To explain how a computer network can be used to share information.
- To explore how digital devices can be connected.
- To recognise the physical components of a network.

- To describe how networks physically connect to other networks
- To recognise how networked devices, make up the internet
- To outline how websites can be shared via the World Wide Web
- To describe how content can be added and accessed on the World Wide Web
- To recognise how the content of the WWW is created by people
- To evaluate the consequences of unreliable content

- I can explain that computers can be connected together to form systems.
- I can recognise the role of computer systems in our lives.
- I can recognise how information is transferred over the internet.
- I can explain how sharing information online lets people in different places work together.
- I can contribute to a shared project online.
- I can evaluate different ways of working together online.

- I can tell you the Internet services I need to use for different purposes.
- I can describe how information is transported on the Internet.
- I can select an appropriate tool to communicate and collaborate online.
- I can talk about the way search results are selected and ranked.
- I can check the reliability of a website.
- I can tell you about copyright and acknowledge the sources of information that I find online.

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|-------------------------------|-----------------------|--|--|--|--|--|--|--|
| <b>Information Technology</b> | <b>Creating Media</b> |  | <p>Pupils should be taught to use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <ul style="list-style-type: none"> <li>I can begin to use a keyboard, mouse, trackpad and touchscreen.</li> <li>I can use the keyboard or a word bank on my device to enter text.</li> <li>I can be creative with different technology tools.</li> <li>I can use technology to create and present my ideas.</li> <li></li> </ul> | <p>Pupils should be taught to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p> <ul style="list-style-type: none"> <li>I can use technology to organise and present my ideas in different ways.</li> <li>I can use the keyboard on my device to add, delete and space text for others to read.</li> <li>I can tell you about an online tool that will help me to share my ideas with other people.</li> <li>I can save information in a special place and retrieve it again.</li> <li>I can save and open files on the device I use.</li> <li>I can use tools to change an image</li> <li>I am starting to understand that other people have created the information I use.</li> </ul> | <p>Pupils should be taught to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p> <ul style="list-style-type: none"> <li>I can create different effects with different technology tools.</li> <li>I can combine a mixture of text, graphics and sound to share my ideas and learning.</li> <li>I can use appropriate keyboard commands to amend text on my device, including making use of a spellchecker.</li> <li>I can evaluate my work and improve its effectiveness.</li> <li>I can use an appropriate tool to share my work online.</li> </ul> | <p>Pupils should be taught to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p> <ul style="list-style-type: none"> <li>I can use photos, video and sound to create an atmosphere when presenting to different audiences.</li> <li>I am confident to explore new media to extend what I can achieve.</li> <li>I can create, modify and present documents for a particular purpose.</li> <li>I can use an appropriate tool to share my work and collaborate online.</li> <li>I can give constructive feedback to my friends to help them improve their work and refine my own work.</li> </ul> | <p>Pupils should be taught to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p> <ul style="list-style-type: none"> <li>I can use a mouse, trackpad and touchscreen confidently and begin to touch type on a keyboard.</li> <li>I can use text, photo, sound and video editing tools to refine my work.</li> <li>I can use the skills I have already developed to create content using unfamiliar technology.</li> <li>I can select, use and combine the appropriate technology tools to create effects that will have an impact on others.</li> <li>I can select an appropriate online or offline tool to create and share ideas.</li> <li>I can review and improve my own work and support others to improve their work.</li> </ul> | <p>Pupils should be taught to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p> <ul style="list-style-type: none"> <li>I can use a mouse, trackpad and touchscreen confidently and can type on a keyboard at a reasonable rate of speed and accuracy.</li> <li>I can talk about audience, atmosphere and structure when planning a particular outcome.</li> <li>I can confidently identify the potential of unfamiliar technology to increase my creativity.</li> <li>I can combine a range of media, recognising the contribution of each to achieve a particular outcome.</li> <li>I can tell you why I select a particular online tool for a specific purpose.</li> <li>I can be digitally discerning when evaluating the effectiveness of my own work and the work of others.</li> </ul> |
|                               | <b>Data handling</b>  |  | <ul style="list-style-type: none"> <li>I can talk about the different ways in which information can be shown.</li> <li>I can use technology to collect information, including photos, video and sound.</li> <li>I can sort different kinds of information and present it to others.</li> <li>I can add information to a pictograph and talk to you about what I have found out.</li> </ul>   | <ul style="list-style-type: none"> <li>I talk about the different ways I use technology to collect information, including a camera, microscope or sound recorder.</li> <li>I can make and save a chart or graph using the data I collect.</li> <li>I can talk about the data that is shown in my chart or graph.</li> <li>I am starting to understand a branching database.</li> <li>I can tell you what kind of information I could use to help me investigate a question.</li> </ul>   | <ul style="list-style-type: none"> <li>I can talk about the different ways data can be organised.</li> <li>I can search a ready-made database to answer questions.</li> <li>I can collect data help me answer a question.</li> <li>I can add to a database.</li> <li>I can make a branching database.</li> <li>I can use a data logger to monitor changes and can talk about the information collected</li> </ul>  | <ul style="list-style-type: none"> <li>I can organise data in different ways.</li> <li>I can collect data and identify where it could be inaccurate.</li> <li>I can plan, create and search a database to answer questions.</li> <li>I can choose the best way to present data to my friends.</li> <li>I can use a data logger to record and share my readings with my friends.</li> </ul>   | <ul style="list-style-type: none"> <li>I can use a spreadsheet and database to collect and record data.</li> <li>I can choose an appropriate tool to help me collect data..</li> <li>I can present data in an appropriate way.</li> <li>I can search a database using different operators to refine my search.</li> <li>I can talk about mistakes in data and suggest how it could be checked.</li> </ul>  | <ul style="list-style-type: none"> <li>I can plan the process needed to investigate the world around me.</li> <li>I can select the most effective tool to collect data for my investigation.</li> <li>I can check the data I collect for accuracy and plausibility.</li> <li>I can interpret the data I collect.</li> <li>I can present the data I collect in an appropriate way.</li> <li>I use the skills I have developed to interrogate a database</li> </ul>  |

# Computer Science

## Programming

Pupils should be taught to understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.  
 To create and debug simple programs.  
 To use logical reasoning to predict the behaviour of simple programs .

- I can give instructions to my friend and follow their instructions to move around.
- I can describe what happens when I press buttons on a robot.
- I can press the buttons in the correct order to make my robot do what I want.
- I can describe what actions I will need to do to make something happen and begin to use the word algorithm.
- I can begin to predict what will happen for a short sequence of instructions.
- I can use the word debug when I correct mistakes when I program.

- I can give instructions to my friend (using forward, backward and turn) and physically follow their instructions.
- I can tell you the order I need to do things to make something happen and talk about this as an algorithm.
- I can program a robot or software to do a particular task.
- I can begin to understand the vocabulary and importance of sequence and repetition.
- I can look at my friend's program and tell you what will happen.
- I can use programming software to make objects move around the screen.
- I can watch a program execute and spot where it goes wrong so that I can debug it.

Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.  
 To use sequence, selection, and repetition in programs; work with variables and various forms of input and output.  
 To use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

- I can break an open-ended problem up into smaller parts.
- I can put programming commands into a sequence to achieve a specific outcome.
- I keep testing my program and can recognise when I need to debug it.
- I understand and can use basic selection and repetition in algorithms.
- I can create and describe the algorithm I will need for a simple task.
- I can detect a problem in an algorithm which could result in unsuccessful programming.

- I can use logical thinking to solve an open-ended problem by breaking it up into smaller parts.
- I can understand and can use selection (as well as sequence and repetition) in algorithms and programming.
- I can use inputs to determine or trigger an action within my program.
- I know that I need to keep testing my program while I am putting it together.
- I can use a variety of tools to create a program.
- I can recognise an error in a program and debug it.
- I recognise that an algorithm will help me to sequence more complex programs.
- I recognise that using algorithms will also help solve problems in other learning such as Maths, Science and Design and Technology.

- I can decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program.
- I can refine a procedure using repeat commands to improve a program.
- I can understand and use variables within my programming.
- I can use input to alter and affect my variables.
- I can confidently use sequence, selection and repetition within my algorithms and programming.
- I can design, build and program physical systems using inputs, process and outputs.
- I can use logical reasoning to detect and debug mistakes in a program.
- I use logical thinking, imagination and creativity to extend a program.

- I can deconstruct a problem into smaller steps, recognising similarities to solutions used before.
- I can explain and program each of the steps in my algorithm.
- I can evaluate the effectiveness and efficiency of my algorithm while I continually test the programming of that algorithm.
- I can recognise when I need to use a variable to achieve a required output.
- I can use a variable and operators to stop a program (and understand why 'forever loops' can be inappropriate).
- I can use different inputs (including sensors) to control a device or onscreen action and predict what will happen.
- I can use logical reasoning to detect and correct errors in algorithms and programs.