

The Wokingham Computing Curriculum

Upper KS2: Year 5 and Year 6

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The Computing Curriculum

The core of computing is **computer science**, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use **information technology** to create programs, systems and a range of content. Computing also ensures that pupils become **digitally literate** – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world. –

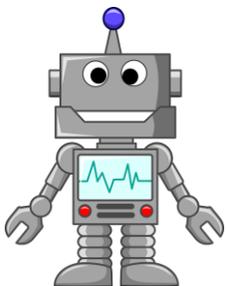
Computing in the National Curriculum – A Guide for Primary Teachers by CAS NAACE



National Curriculum Computing programmes of study: Key Stage 2

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
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- 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
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- 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
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.



For Guidance on how to plan and use the Wokingham Computing curriculum, please see **The Wokingham Computing Curriculum Planning Guidance 2014**

The Wokingham Schemes Overview for Upper KS2 (Years 5 and 6)

NB Statements in red are specific to e-safety

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Computer Science (CS)</p>	<p>Programming, Coding and Controlling Devices</p> <p>In this strand pupils will explore computer programming and computational thinking in different contexts. They should have opportunities to explain the thinking behind their algorithms, talking through the steps and explaining why they've solved a problem the way they have. They also need to be able to look at a simple programming project and explain what's going on.</p> <ul style="list-style-type: none"> • Undertake creative projects using procedures and variables to achieve specific outcomes to create a game or an App or control a specific device • Build a sequence of instructions Algorithms to control a device, create a simulation, an App or game considering the inputs and outputs • The code can draw upon their knowledge of <ul style="list-style-type: none"> • Sub-procedures • Physical inputs and outputs • Values, including random numbers • If . . . then conditional commands • Variables • Explain the purpose and function of the code in the project • Compare and contrast different coding languages they use recognising similarities and differences
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Computer Science (CS) & Digital Literacy (DL)</p>	<p>Digital Exploration</p> <p>In this strand pupils will explore finding information on the Internet efficiently and safely considering plausibility, bias and accuracy of information They will explore concepts such as where information and digital files are stored, who might create them, how they can find information in a safe and productive way. They will understand not all information is correct and use methods to check for bias, and plausibility.</p> <ul style="list-style-type: none"> • Understand the need for responsible use on all connected devices and know how to deal with content that upsets them or is inappropriate. • Store and retrieve digital content in different contexts • Begin to understand search engine technologies and develop search techniques to refine searches for specific content • Evaluate and analyse information for plausibility, bias and accuracy of information • 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
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Digital Literacy (DL)</p>	<p>Communicating and Collaborating</p> <p>In this strand the pupils will explore communication and collaboration tools. They will consider the e-safety rules and how this keeps them safe at school but also consider them in a wider context. They will learn how contributions online are stored and how to be a responsible member of online communities.</p> <ul style="list-style-type: none"> • Understand the importance of keeping personal information private on the web • Use a wide range of tools to communicate and collaborate online in different curriculum contexts • Talk confidently about cyber-bullying and how to prevent and respond to it • Show an understanding of personal safety when using devices and the possible implications of misuse • Know the risks when communicating and publishing within and beyond the school • Understand that the internet has many features that can enable communication between groups beyond their school and be aware of the impact of their own contributions and online presence • Understand the implications of being a responsible member of a connected community

Multimedia

In this strand pupils will create multimedia content in different curriculum contexts:

(This unit relates closely to Digital Imagery, Music and Sound as well as Communicating and Collaborating)

- Select an appropriate medium to communicate information choosing content and structure showing awareness of audience and purpose
- Plan, design and style content for a presentation, combine a range of sources, images, text, sound, considering the intended audience
- Use formatting, design and editing tools to present different styles of information
- Publish work collaboratively on a VLE/ learning platform for different audiences (Also see the strand Communicating, Collaborating and Publishing)
- **Be confident in all aspects of the school's e-safety rules and consider issues such as copyright and plagiarism when using resources from the Internet – images and or sounds**

Digital Media

In this strand pupils will explore digital images and moving images in different contexts:

- Use a range of graphics, paint packages, cameras and capture devices, photo manipulation software, animation and film creating and editing.
- Consider safe searching, copyright and privacy issues when sharing images with a wider audience
- Use a variety of tools and Apps to create and manipulate an images
- Select, use and combine a variety of software on a range of digital devices to design and create content that accomplish given goals
- Choose appropriate tools and techniques to create imagery for a specific task
- Amend and combinedigital images , animations and movies for a specific audience or task
- Understand how images can be shared – **understand who might see an image they have shared**
- **Be able to talk about privacy in the context of digital imagery**

Music and Sound

In this strand pupils will explore sound in different contexts:

- Understand that their sound can be added to different software to create multimedia
- Use different software to create, edit and manipulate sounds
- Learn how to save, retrieve, edit and share their compositions or podcasts

Collecting, Analysing, Evaluating and Presenting Data

In this strand pupils will explore data in different contexts. They will use charting software and databases to collect and present their data to support other areas of the curriculum such as science, geography, maths D and T. They will use data loggers or Apps on tablets to capture data. They will be introduced to spreadsheets to solve specific problems. They will consider data in the wider context; what types of information are stored, how to keep data secure and private

- Begin to develop knowledge about how data is used in the world around them how/where it is collected. They will also consider issues such as accuracy, privacy and keeping data safe
- Use spreadsheets to develop an understanding of simple functions and create a simple budgetUse a variety of tools to collect data – Data loggers, weather stations, Apps on tablets, sport related tools
- Use the data collected to interpret, recognise patterns, describe events and answer questions
- Use databases to detect anomalies and inaccuracies and understand the need for accuracy when entering data
- **Understand that personal data is collected by others for a variety of purposes – understand the consequences of losing data or incorrect data**
- Use a spread sheet to write formulae to carry out calculations and use them to solve problems

Upper KS2: Programming Coding and Controlling Devices (Computer Science)

Year Group	Year 5	Year 6
Learning Objectives	<ul style="list-style-type: none"> • Debug some pre-prepared code to accomplish a specific goal, including controlling or simulating physical systems • Solve problems by decomposing code into smaller parts by using procedures and sub-procedures • Work with conditional commands and use various forms of input and output using onscreen sprites or a control box • Explain the function of the algorithm behind each part of the code 	<ul style="list-style-type: none"> • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems • Work with variables, random variables, conditionals and various forms of input and output • Use logical reasoning to explain how some algorithms work and detect and correct errors
Teachers enable progress	<ul style="list-style-type: none"> • Provide code illustrating a real life problem to be analysed and debugged • Demonstrate when to make procedures more efficient by using sub-procedures • Set investigations involving refining sequences of code using procedures, sub-procedures, if . . . then conditional commands and inputs and outputs either on screen or with a control box • Show how to use feedback from a monitoring device (e.g. sensor) to control procedures • Set investigations that demonstrate a deeper understanding of programming by allowing the children to independently design and write programs that accomplish specific goals, including controlling or simulating physical systems • Challenge children to design a program to control a model created in design technology with inputs and outputs (See Design and Technology POS) • Challenge children to explain how their sequences work step by step 	
Children will...	<ul style="list-style-type: none"> • Find errors and improve given code (debug) • Create flow diagrams to explain what is happening and illustrate how control impacts on our lives • Build code to control a device or create a game which includes inputs and outputs and make use of: <ul style="list-style-type: none"> • Sub-procedures • Physical inputs such as a sensor and outputs • Values and/or variables • If . . . then conditional commands • Refine procedures to improve desired outcomes through the use of loops or repeats • Evaluate, test and debug the code explaining the processes 	<ul style="list-style-type: none"> • Undertake creative projects using procedures and variables to achieve specific goals – E.g. control a device linked to work created in Design and Technology • Build a sequence of instructions to control a device, simulation, App or game with inputs and outputs which includes: <ul style="list-style-type: none"> • Sub-procedures • Physical inputs and outputs • Values, including random numbers • If . . . then conditional commands • Variables • Explain the purpose and function of the code in the project • Compare and contrast different coding languages e.g. Flowol, Scratch, Espresso Coding recognising similarities and differences
Lesson content (Exemplars)	<ul style="list-style-type: none"> • Evaluate and correct given code that contains errors for e.g. a burglar alarm • Programme an onscreen sprite to draw nested squares using procedures and sub-procedures • Programme a Probot to switch on lights when going through a tunnel • By the use of a light sensor turn on a lighthouse light when it gets dark • In Scratch create a racing track where the car must stay on the track • Use Scratch to set a scoring system which counts how many times the car hits the side of the track • Check that coding includes procedures, loops or repeats to make it as efficient as possible 	<ul style="list-style-type: none"> • Using a control box, control the speed of a motor that drives a fairground ride • Use a control box to simulate a fairground ride e.g. stopping , starting, flashing lights • Extend the code to include a light sensor so the ride only works in the dark • Use Scratch to write a simple game e.g. of Ping-Pong • Devise a scoring system for a game • Use Kodu to plan and create a game for an infant aged child • Draw a chart that explains how each part of the code works • Create a dictionary of commands explaining the meaning of each part of the code
Suggested Resources	Flowol (with FlowGo, mimics, models and home-made models), CoCo and simulations, Scratch – Scratch 2.0 (online and free download), BYOB, Mission Maker Immersive, Kodu Microsoft free download, Espresso Coding, Lego Mindstorms, K'nex, 2Code – Purple Mash	

Upper KS2: Digital Exploration (Digital Literacy and Computer Science)

Year Group	Year 5	Year 6
Learning Objectives	<ul style="list-style-type: none"> Begin to use search technologies more effectively Appreciate how results are selected Begin to be discerning in evaluating digital content Use technology safely, respectfully and responsibly Understand computer networks including the internet (the hardware; cabling, servers etc.) and how it can provide multiple services such as the world wide web and email 	<ul style="list-style-type: none"> Use search technologies effectively Appreciate how results are selected and ranked Be discerning in evaluating digital content Use technology safely, respectfully and responsibly Understand computer networks, including the internet and mobile networks, and how they can provide multiple services such as the world wide web, SMS, 3G etc. Understand that personal data is collected and may be used for a number of purposes
Teachers enable progress	<ul style="list-style-type: none"> Demonstrate different ways to use search technologies effectively, e.g. entering +, -, "" and Boolean logic operators Demonstrate how results are selected and ranked such as popularity, number of links, titling, words related to the search, paid linking, reputation Discuss the legality of copyright and the acknowledgement of the copyright holder. Explain plagiarism and the importance of acknowledging source material Provide opportunities for children to use a range of sources to check the validity of data. Discuss the possibility of different viewpoints and the impact of incorrect data Explain and demonstrate that the Internet may contain material that is irrelevant, biased and implausible Discuss personal safety when using the Internet and how to keep safe and what to do if inappropriate materials are found either in school or at home Explain the basics of how data is stored and transferred across the internet, e.g. world wide web, cloud storage, cookie and that some sources are filtered Illustrate how computer networks including the internet are connected. Discuss how the sorts of services they provide, such as the world wide web; and the opportunities they offer for communication and collaboration 	
Children will...	<ul style="list-style-type: none"> Use pictures, text and sound in a presentation acknowledging their source Check the plausibility and accuracy of information by using more than one source Use a selection of Boolean searches to make searches more efficient Talk about where web content might originate from by looking at web addresses including websites that are designed to sell products (specifically to children) Discuss how they are kept safe in school or at home whilst undertaking an internet search activity and understand that content may be filtered Demonstrate an understanding of the main parts of a network and the internet and the ways that data can be transferred and stored 	<ul style="list-style-type: none"> Acknowledge the source when taking pictures, text and sound from the Internet Check the plausibility, bias and accuracy of information by using information from more than one source Understand how search engines tailor results to the user through the use of cookies, ranking, profiling and paid for results Talk about where web content might originate by looking at web address, the author and other linked pages Discuss responsible use of all connected devices and why the school has e-safety rules Demonstrate an understanding of computer networks including the internet; discuss the kinds of services they provide such as the World Wide Web and how different communication tools connect.
Lesson content (Exemplar)	<ul style="list-style-type: none"> Children complete a project including acknowledgement of the copyright holder Children compare search results from different search engines Children create a diagram of the main parts of the fixed computer network which connects them to the internet, such as Wi-Fi, internal network, server, external network, data centre (cloud storage) 	<ul style="list-style-type: none"> Children are given an activity which uses both "fake" and genuine information without prior knowledge and recognise the difference either during the activity or on evaluation Children identify sections of a search results page including information which is ranked, which is advertising and which may be the result of either a cookie or a profile Children create a diagram of how their personal digital devices connect to the internet, the kind of content that reaches their devices and where and how the data is tracked. (Bluetooth, 3G network, SMS, GPS tracking). To know which Apps are accessing this information and how they can control their uses
Suggested Resources	<p>A variety of internet enabled devices, internet search engines, school e-safety rules, word processor or VLE/ platform to edit information, www.commoncraft.com/videolist</p> <p>Fake websites http://www.thedogisland.com , www.allaboutexplorers.com More resources will be curated on the Wokingham WSH hub</p> <p>We recommend when planning this unit you refer to a key resource available through the SWGfL: http://www.digital-literacy.org.uk/Home.aspx</p>	

Upper KS2: Communicating and Collaborating (Digital Literacy)

Year Group	Year 5	Year 6
Learning Objectives	<ul style="list-style-type: none"> • Be knowledgeable about the school's e-safety policy and reflect on its relevance to access to home and mobile devices • Understand ways of preventing and responding to cyberbullying • Understand the importance of privacy when online and that certain information should not be publicly available • Understand how their contributions in a connected community can reflect on their self-image 	<ul style="list-style-type: none"> • Understand the responsibility of publishing on the Internet in terms of personal safety, appropriateness and relevance of content • Follow the schools e-safety policy and help younger pupils to do so. • Be aware of the e-safety rules when working from home and on mobile devices • Understand the need for a positive online profile in order to be a responsible member of a connected community
Teachers enable progress	<ul style="list-style-type: none"> • Discuss the importance of e-safety on all devices in the wider context of school, home and beyond • Provide opportunities for children to understand the importance of behaving responsibly when using on-line communities • Create opportunities for pupils to share and contribute ideas online through blogs, wikis and forums enable them to respond to peers/guests considering style and audience • Discuss ways to prevent cyber-bullying and how to respond if it occurs 	
Children will...	<ul style="list-style-type: none"> • Talk confidently about cyber-bullying and how to prevent and respond to it • Show an understanding of personal safety when using devices and the possible implications of misuse • Know the risks when communicating and publishing within and beyond the school • Discuss the different styles of language, layout and format of different electronic communications • Design their own pages online, using a range of skills (such as hyperlinks, embedding video, tables, flash files, games) • Contribute/edit/refine from self and peer evaluation wiki / blog entries and understand that all changes are visible 	<ul style="list-style-type: none"> • Discuss e-safety, develop and keep personal rules to keep themselves safe at school and home using communication devices • Construct a positive online profile for school • Understand that the internet has many features that can enable communication between groups beyond their school and be aware of the impact of their own contributions and online presence • Independently use previously learnt skills to choose, initiate and take part in learning activities by using responsibly a range of online communications • When communicating online, refine their use of layout tools, considering the intended audience
Lesson content (Exemplar)	<ul style="list-style-type: none"> • Children create e-safety quizzes or surveys for use beyond the school • Set up a wiki on a school visit to plan, prepare and add to on their return • Children create pages on a topic. They use forums to gather evacuation memories from grandparents and families • Children use a forum to hot-seat a character from a book; children in role consider the most appropriate responses • Children gather information from other schools using forum tools on a sports project • Create a guide to sharing information online for use with younger users • Share games created in Computer science – use a survey to get feedback 	<ul style="list-style-type: none"> • Children create a questionnaire to obtain information about their locality and invite pupils in the school to take part • Children correspond with pupils in other countries to find out about how they celebrate various festivals, their education system etc. • As part of a transfer project children use forum tools to ask questions to Year 7 pupils about what their new school is like • Children create a resource to support their peers learning for maths or science • Use drama to explore consequences of cyberbullying or posting inappropriate content online • Write a leaflet for a parent explaining how to keep themselves safe online
Suggested Resources	<p>VLE/ learning platform, Online Educational Community e.g. Edmodo, blogs, wikis, and forum tools , publishing software</p> <p>*Key resources can also be found through the SWGfL Digital Literacy Curriculum to support key aspects of safety and being a responsible digital citizen http://www.digital-literacy.org.uk/Home.aspx</p>	

Upper KS2: Multimedia (Information Technology)

Year Group	Year 5	Year 6
Learning Objectives	<ul style="list-style-type: none"> Plan a presentation, combined from a range of sources, organised and refined to suit purpose and audience Know that there are risks when accessing resources on the Internet 	<ul style="list-style-type: none"> Communicate information having made choices about the appropriate medium, content and structure demonstrating an understanding of audience and purpose Be confident in all aspects of the school's e-safety rules
Teachers enable progress	<ul style="list-style-type: none"> Demonstrate a variety of hyperlinking within multimedia to include sound, video, animation and web links (previously evaluated) To consolidate the school's e-safety rules including the risks involved in accessing online resources and the importance of copyright Model non-linear presentation such as a multimedia story with several possible endings Model and compare different multimedia applications showing how they can be enhanced by using a variety of tools Encourage children to understand the merit of different applications 	
Children will...	<ul style="list-style-type: none"> Develop and use criteria to evaluate the design and layout when creating a range of multi-layered multimedia resources Understand how pages are linked together and recognise the need for clarity in the structure. Produce a diagram to show the links between pages Create a range of hyperlinks to produce a non-linear presentation Select and import sounds from their own recordings; create their own effects and music and also import from other sources Know the risks involved when accessing resources from the Internet in school and at home Format and edit work to improve consistency, clarity and mood, use a range of tools e.g. cut and paste, justify, insert and replace and format text to indicate relative importance of certain aspects of their presentations 	<ul style="list-style-type: none"> Introduce choice when creating non-linear presentations so that the viewer can choose where to go within the presentation Create a page of sounds which are activated by appropriately named and positioned action buttons Choose and use a range of software appropriate to the task to communicate their ideas effectively Choose and evaluate appropriate techniques to create an effective and well-polished piece of work considering purpose and intended audience
Lesson content (Exemplar)	<ul style="list-style-type: none"> Create and publish a presentation about their school for the community being able to justify their choice of medium and content Create a narrated big book for a younger audience including sound (literacy) Create an EBook resource on a specific topic to be shared in the library Create an interactive map or game 	<ul style="list-style-type: none"> Presentation of a design and technology project such as building a fairground to potential theme park developers Children collaborate to develop and extend their fiction writing through the creation of a text adventure on screen with a choice of outcomes Presentation of any topic, aimed at a specific audience but with children given full choice on how to plan and carry out presentation
Suggested Resources	<p>DTP Tools: Purple Mash Creative Tools: 2Publish, 2Publish Extra, 2Publish Projects, Word, Publisher</p> <p>Multimedia Authoring Tools: 2Create a Super Story, Clicker, Textease, Kar2ouche, PowerPoint, iPad and tablet Apps, Web2 applications</p> <p>Other Resources: microphone and digital sound recorder, camera. Web and publishing: VLE/ learning platform</p>	

Upper KS2: Digital Imagery/Media (Information Technology)

Year Group	Year 5	Year 6
Learning Objectives	<ul style="list-style-type: none"> Combine and evaluate digital images from a variety of sources Evaluate the difference between object based graphic packages (CAD) and paint packages Consider the quality of their work and their intended audience when creating animation, images or film 	<ul style="list-style-type: none"> Choose appropriate tools and techniques to create imagery for a specific task Amend and combine digital images and movies from different sources for a specific audience or task
Teachers enable progress	<ul style="list-style-type: none"> Provide opportunities to generate, amend and combine digital images from different sources for a specific audience or task Demonstrate the impact of how specific graphics including logos, branding and adverts are used to enhance a presentation or communicate an idea Encourage pupils to evaluate routinely and improve as part of a design process Discuss and demonstrate the difference between object based graphic packages (CAD) and paint style packages. Look at different genre types in media and film, discuss how they are different and how they have certain styles or formats (new broadcast, advert, documentary- or film types: drama, funny , scary, romantic, sci-fi etc) Discuss how they are filmed and edited to make them fit a genre – sound, light, camera position etc Provide creative opportunities for pupils to generate media, amend and combine digital content (video, images, animation) and consider genre and audience Discuss how photos can be altered digitally, consider the creative upsides of photo alteration, as well as its power to distort perceptions Discuss and illustrate the concept of digital rights, illustrate the concept of copyright and how we abide by its laws 	
Children will...	<p>Graphics Packages</p> <ul style="list-style-type: none"> Develop a range of techniques to illustrate their work. Explore different digital tools and mediums to create different effects on screen. Through peer and self-evaluation, children refine and make appropriate changes to their graphic work Use an object based graphics package (CAD) in a design activity Also see POS for Design technology <p>Digital Video</p> <ul style="list-style-type: none"> To use different filming techniques and camera angles e.g. zoom, panning, wide shots etc. to create a different mood or perspective Develop an awareness of purpose and audience through evaluation and editing <p>Animation (Long Unit)</p> <ul style="list-style-type: none"> Consider different types of animation (stop motion, computer generated) Plan and create an animated sequence to communicate a specific idea, or tell a story. Develop a storyboard create animation, add titles, credits and sound effects. Children discuss and evaluate their own and others' animations and refine them for a given audience or task 	<p>Graphics Packages</p> <ul style="list-style-type: none"> Find a solution to a specific problem using an object based graphics package (CAD) Also see POS for Design technology Deliberately edit images to create fakes or enhanced – talk about images can distort perceptions <p>Digital Video – (Long Unit)</p> <ul style="list-style-type: none"> Consider different genres of film and media – consider use of sound, imagery and light (documentary, news, film – scary, sci-fi, funny) Plan a short film considering genre type – select appropriate shots, music and when using devices they take into account background, camera position and sound quality to ensure the recording is fit for purpose Edit their movies considering genre and add appropriate effects and sound. Children discuss and evaluate their own and others' movies and refine them for a given audience or task Understand issues relating to sharing content and issues surrounding permissions, who can see it and issues of copyright
Lesson content (Exemplar)	<ul style="list-style-type: none"> Design a new playground for the school Children create their own silent film with music they have composed Create an advert for healthy food, using either live action or animation Children learn how photos can be altered digitally. They will consider the creative upsides of photo alteration, as well as its power to distort perceptions 	<ul style="list-style-type: none"> Presenting work on “Britain since 1948”, children could create a TV programme incorporating sounds, photographs and video from different decades, with voice-overs and linked pieces Different artistic styles could be explored in art packages, and CAD tools could be used to design buildings of different architectural styles as well as predicting those of the future.
Suggested Resources	<p>Graphics: Paint.NET, 2Simple – 2Paint a Picture, Purple Mash: 2Paint, 2design and Make, CAD Package or object orientated manipulation – Publisher, Powerpoint Animation: 2Animate,Puppet Pals app, Stop Motion app A range of digital capture tools: e.g. Digital camera, tablet, other image capture devices, visualisers, microscope Video Editing : Imovie, Windows Live Movie Maker, Sharing their work on the VLE/ learning platform</p>	

Upper KS2: Music and Sound (Information Technology)

Year Group	Year 5	Year 6
Learning Objectives	<ul style="list-style-type: none"> Select and use suitable software and hardware to produce a multi-track audio presentation Begin to compose, manipulate and refine music and sound for a given audience or project Use audio broadcasting tools to share their work with a wider audience Understand their responsibility towards copyright issues 	<ul style="list-style-type: none"> Understand that a professional broadcast is made up of many parts and to identify key features of different broadcasts Create music or soundtracks to accompany a story, multimedia presentation or digital movie considering specific audience and purpose (see Digital Media Unit)
Teachers enable progress	<ul style="list-style-type: none"> Listen to radio broadcasts and identify different sound elements and key features Demonstrate how to use software with a timeline to layer sound, adding voice, music and sound effects Demonstrate manipulation and editing existing sound files using computer software, e.g. reverse, layer, trim, fade in/out Discuss issues of copyright when downloading and uploading files Teach the difference between sound file formats and how to convert or export files as necessary 	
Children will...	<ul style="list-style-type: none"> Create their own sounds and compositions to add to their presentations/films/images/photos Begin to have an awareness of different sound file formats. – e.g. MP3 files are smaller than .WAVs and may be more suited to import into a multimedia presentation <p>Podcasting (longer Unit)</p> <ul style="list-style-type: none"> Plan and create a broadcast considering genre and style Record and edit a radio style broadcast use sound manipulation software to edit their broadcast considering audience and style Upload their work on the internet for self and peer evaluation Know the risks in uploading resources to the Internet 	<ul style="list-style-type: none"> Independently choose and use an appropriate device to record sounds in order to create a sound file Choose to use software independently to manipulate sounds using computer software e.g. remove unwanted silences, trimming start and end Use technology to produce sound and music for a specific purpose, considering the impact on the audience e.g. length or sound level of performance Use the sounds, music created in a film project (see digital media unit)
Lesson content (Exemplar)	<ul style="list-style-type: none"> Record a live performance Compose space-themed music by manipulating a variety of recorded and found sound files using Audacity Compose music to accompany dance or dramatic performances 	<ul style="list-style-type: none"> Extended compositions Composition to accompany a presentation/film/animation/image on a given topic Add narration over film/video/animation/multimodal writing using a microphone linked to a computer Select suitable music and/or sound to add atmosphere and enhance a multimedia presentation/film/image/photo, considering specific audience and purpose
Suggested resources	<p>Music composition software: e.g. Black Cat Compose, Compose World, Notate, 2simple music toolkit, Online tools: Purple Mash 2Sequence, Garage Band</p> <p>Multimedia software: to record sound straight into (e.g. 2Create a super Story, Kar2ouche, PowerPoint, Photostory)</p> <p>Sound resources: www.findsounds.com, , http://audio.lgfl.org.uk</p> <p>Sound Manipulation: Audacity (free), Podium,</p> <p>Sound Capture: Microphone and digital sound recorder; electronic keyboard, sound recording apps</p>	

Upper KS2: Data Handling - Collecting, Analysing, Evaluating and Presenting Data (Information Technology)

Year Group	Year 5	Year 6
Learning Objectives	<ul style="list-style-type: none"> Model and set problem solving activities that require the children to carry out complex searches of databases Develop independence in their use of data loggers and measuring Apps to investigate and interpret changes in a variety of conditions Use a prepared database with anomalies and inaccuracies, model how to check for accuracy and plausibility Understand that personal data is collected by others for a variety of purposes and it needs to be accurate and secure Use a spreadsheet to carry out calculations that require formulae 	<ul style="list-style-type: none"> Set up a database with appropriate fields in order to reach specific conclusions Understand the use of appropriate presentation to represent different types of data by the use of e.g. pie chart, bar chart or line graph Become more familiar with database tools such as logical searches, sorts and filtering Understand how variables in a spreadsheet formula can be used to solve a problem Use formulae within a spreadsheet to plan/model a variety of events Plan and carry out how data from a data logger could be used to prove various hypotheses Understand the difference between sensitive and non-sensitive personal data. Understand the need for data to be accurate and secure.
Teachers enable progress	<ul style="list-style-type: none"> Discuss how ICT is used in their lives and how data is used in the world around them. Discuss issues such as plausibility, accuracy, privacy and keeping data safe. Talk about sensitive and non-sensitive data and how to protect it Demonstrate that information held on databases may contain errors and that this can affect the use of data in the outside world (e.g. police/ doctors/banks/school database) Demonstrate how tools such as searches, filters, sorting and graphing refine the information and may identify anomalies Model how to organise data in a spreadsheet and how formulae function 	
Children will...	<ul style="list-style-type: none"> Determine the data needed to answer a set of related questions, select and organise relevant information Use frequency tables, pictograms, bar graphs and line graphs representing the frequencies of events and changes over time, use ICT to present and highlight features that lead to further questions Make simple searches using and/or/>/< to search data when looking for relationships and patterns in data Check for the accuracy of data by using different views, search tools and graphs Model a familiar situation using appropriate formulae in a spreadsheet e.g. a birthday party or Christmas present list Use a data logger to compare the efficiency of various materials Know that personal data needs to be kept safe such as passwords and personal information and this is protected by law 	<ul style="list-style-type: none"> Choose appropriate applications to solve data handling problems Independently collect and organise data in an efficient and accurate way by designing fields and records in a database Interpret data by using a range of searches, sorting, filtering and graphing and check for accuracy Become confident in the use of logical operators whilst carrying out database or internet searches, and/or/>/<, not, "" Set up a spreadsheet to model the cost of an event e.g. mini-enterprise or class outing and provide a variety of costed options Use a data logger to demonstrate how changes in the environment can be illustrated in a variety of ways Know that personal data may be sensitive or non-sensitive and different rules apply to each
Lesson content (Exemplars)	<p>Example Cross Curricular links and outcomes</p> <ul style="list-style-type: none"> Children create a database to record responses from a survey of parents/grandparents about games they played? Toys they had? Where Holidays were, comparing data with today's experiences. Children record and analyse the results of an experiment stretching elastic bands Prepare a spreadsheet that demonstrates the frequency and variation of litter found on the playground Use a data logger to find the best fabric for curtain material, or the best material for insulating sound 	<p>Example Cross Curricular links and outcomes</p> <ul style="list-style-type: none"> Children compare data about themselves with those from a younger class (Starting with a hypothesis e.g. do children with longer legs run faster or can taller children throw a ball further; Use a database to answer the hypothesis.) Children gather data about local issues e.g. litter, traffic or pedestrian flow, accidents, to make conclusions and to present this to others Use a spreadsheet to model a car wash mini-enterprise or class outing, and present their findings giving reasons for the choices made Use a data logger and camera to compare daily variation in cloud cover and sunlight
Suggested Resources	<p>Database Software: e.g. Textease database, Information Workshop, Purple Mash – 2Investigate Graphing Software: 2Graph, Excel, RM Starting Graph, Textease, Spreadsheet: 2Calculate, Excel Other: Data loggers and software – Apps on iPads or Android devices</p>	