

for Primary Schools

Y1-Y6

iCompute
Primary Computing



IT

Progression

Information Technology

IT Progression in Primary Computing

This guide is intended to support teachers using iCompute's Primary Computing Scheme of Work for pupil progression in the Information Technology (IT) strand of the National Curriculum for Computing for Key Stage 1 and Key Stage 2.

It forms part of a comprehensive Computing Assessment Toolkit for Primary Computing covering all strands of the National Curriculum:

- 📁 Computer Science
- 📁 Digital Literacy (incl. eSafety)
- 📁 Information Technology

IT Progression

To demonstrate good practice in developing learning across the curriculum, this guide has been arranged into five sections:

- 📁 Digital Media
- 📁 Digital Communication
- 📁 Online Research
- 📁 Data Handling
- 📁 Spreadsheets

It shows how expectations for children's IT capability can progress throughout Year 1 to Year 6. The content of each section is divided into KS1, LKS2 and UKS2.

It is a guide only and should be adjusted to suit your school setting and the capabilities and competencies of your pupils.

Declarative and Procedural Knowledge

For progress in computing to take place, pupils need to be taught components of learning and acquire declarative and procedural knowledge.

At iCompute, we think of knowledge components in terms of **know that... understand that... know how...**

Procedural Knowledge refers to the knowledge of "how to" perform a specific skill or task.

Declarative Knowledge involves "knowing that" and "understanding that".

Working Towards

Meeting

Greater Depth

Declarative Knowledge

Pupils understand/know that..

- ✔ a keyboard is a way of entering letters and numbers in to a device
- ✔ you can make choices on a device using a mouse and by touch
- ✔ you can use computers to make things

Procedural Knowledge

Pupils know how to...

- ✔ use a keyboard sometimes with support
- ✔ use a mouse or touch to make choices with help
- ✔ have created simple digital content with support
- ✔ have explored a limited range technology, digital content and tools

Declarative Knowledge

Pupils understand/know that..

- ✔ you can make choices using devices
- ✔ you can move things on screen using a mouse and touch

Procedural Knowledge

Pupils know how to...

- ✔ use a keyboard to make choices
- ✔ use the mouse or touch to select icons and items
- ✔ move onscreen objects
- ✔ operate digital equipment

Declarative Knowledge

Pupils understand/know that..

- ✔ a mouse or touch helps you make choices and move around a screen
- ✔ a keyboard can be used to write using a computer
- ✔ you can save your work so that you can go back to it again

Procedural Knowledge

Pupils know how to...

- ✔ use a mouse or touch to select, tap/click and drag objects around a screen
- ✔ enter simple words using a keyboard and made choices
- ✔ have created and saved their work
- ✔ print work

Working Towards		Meeting		Greater Depth	
Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge
Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...
<ul style="list-style-type: none"> you can make things using computers a keyboard is used to enter words into a computer a mouse or touch can be used to select things on screen work needs to be saved to go back to it later art can be created using a computer digital art can be made with shapes different tools do different jobs 	<ul style="list-style-type: none"> use a keyboard use a mouse to point, click and drag objects around a screen with help. create digital content using IT tools save a file with support use a limited range of tools create simple digital drawings choose appropriate shapes for digital art 	<ul style="list-style-type: none"> you can draw using software text can be different colours and sizes IT can be used to communicate ideas by combining media (e.g. text, images and sound) some digital media might need permission to use I need to be careful when searching online for digital media 	<ul style="list-style-type: none"> enter simple sentences using a keyboard use a mouse or touchscreen to point at, select and move objects around a screen print & save work with help navigate a website using buttons and image links use shape and line tools use appropriate shape and colours in digital art Record audio and add to work, sometimes with support select text 	<ul style="list-style-type: none"> you can create and save different versions of your work there might be benefits to making things using computers text can be different colours, sizes and styles and that these can be changed some digital media might need permission to use 	<ul style="list-style-type: none"> create and save different versions of their work compare creating my own work using IT with manual methods explain why a particular tool has been chosen and its effect use a range of digital paint tools to create particular effects experiment with different styles of text open, save and print work sometimes with support

Working Towards

Meeting

Greater Depth

Declarative Knowledge Pupils understand/know that..	Procedural Knowledge Pupils know how to...	Declarative Knowledge Pupils understand/know that..	Procedural Knowledge Pupils know how to...	Declarative Knowledge Pupils understand/know that..	Procedural Knowledge Pupils know how to...
<ul style="list-style-type: none">you can correct mistakes using a computeryou can show people things using a computeryou need to save your work to go back to it later	<ul style="list-style-type: none">move around a screen or document with helpmake things using a computer (e.g. draw a picture)save my work	<ul style="list-style-type: none">you can delete wordsyou can use a computer to present your workthere are different tools you can use for different purposesyou can save different versions of your worktext can be different colours and sizesmultimedia includes, audio, text and imagesimages, audio and text cannot always be used without permission	<ul style="list-style-type: none">navigate a document using arrow keys and a mouseuse the backspace button and the delete button to remove textuse tools to create simple presentations that communicate somethinglocate, edit and save different versions of their work	<ul style="list-style-type: none">you can make things that combine audio, text and imagesimages, audio and text found online does not belong to metext can be different colours, sizes and styles can be changedIT can be used to communicate ideas by combining digital media	<ul style="list-style-type: none">create something that combines words, images and soundtalk about the particular effects that combining digital media may have

Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge
Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...
<ul style="list-style-type: none"> information in the form of text, sound and pictures can be combined to create digital content and communicate with an audience I should think about who I'm trying to communicate with when creating digital content 	<ul style="list-style-type: none"> use a keyboard to write draw/import a picture into my work record and add sound to work 	<ul style="list-style-type: none"> some content that uses multimedia (e.g. presentations and/or webpages) looks better and is more efficient than others multimedia includes audio, text and images images, audio and text cannot always be used without permission I need to be aware of audience text and digital media may be subject to copyright 	<ul style="list-style-type: none"> use a word processor to create work use both hands for typing use graphics, video and audio navigate around text make changes to selected text create simple presentations save, print, retrieve and amend work 	<ul style="list-style-type: none"> you can combine images and text using a computer make different effects copy text and images use appropriate effects and resize graphics copy text from a webpage to a document copy images from a webpage you can undo and redo work digital media can be varied according to audience (e.g. reporting and advertising) IT can automate manual processes (e.g. cut/paste; find/replace) 	<ul style="list-style-type: none"> combine graphics with text use appropriate effects and re-size graphics copy text from an internet page to a document copy images from an internet page save, print and retrieve work use software, computers and devices to make simple presentations and create things use bold, italic and underline know how to undo and redo

Working Towards

Meeting

Greater Depth

Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge
Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...
<ul style="list-style-type: none"> you can make changes to your work more easily using digital tools you can be creative using computers you can add things from your computer or from online to work you are making shows basic understanding of what photo editing is and its usefulness basic ethical considerations in photo editing there are differences between real and edited images 	<ul style="list-style-type: none"> edit my work import images and sound into my work create digital work make things look better using a limited set of tools can perform basic photo editing operations like cropping and rotating with support apply colours and filters when editing photos with help use tools like duplicating objects when editing photos complete simple photo editing tasks with help 	<ul style="list-style-type: none"> you can change page sizes and orientation you can change the way things look using digital tools you can add things or take things out you should think about who you are communicating with when you make something text and digital media may be subject to copyright and abide by rules in producing work the purpose of photo editing the ethical implications of photo editing 	<ul style="list-style-type: none"> change page size and orientations import text, audio and graphics from devices, networks or online use design features such as borders, shading, columns and text boxes insert and edit text create work for an intended audience consider the use of appropriate features for a given audience (e.g. reporting, advertising, instructing) use IT to automate some processes (e.g. use cut/paste; find/replace etc) 	<ul style="list-style-type: none"> there are lots of different tools that have a particular purpose when making digital work you can use a range of methods to improve the way things look audiences differ and have particular needs (e.g. use of images for a young audience) a thorough understanding of photo editing and its broader applications provides insightful views on the ethics of photo editing and AI generated images 	<ul style="list-style-type: none"> vary layouts, formats, graphics and media for a particular purpose and for an intended audience manipulate images using cropping tools, resize and edit insert and edit hyperlinks recognise the features of good design in using multimedia (e.g. presentations and/or webpages) create work for an intended audience and improve work to better communicate ideas efficiently use operations in photo

Working Towards

Meeting

Greater Depth

Declarative Knowledge

Pupils understand/know that..

Procedural Knowledge

Pupils know how to...

Declarative Knowledge

Pupils understand/know that..

- the differences between real and digitally created/altered images

Procedural Knowledge

Pupils know how to...

- independently perform basic photo editing operations like cropping and rotating
- select and apply appropriate colours and filters
- use photo editing tools like duplicating and selection
- independently complete photo editing tasks

Declarative Knowledge

Pupils understand/know that..

Procedural Knowledge

Pupils know how to...

- editing and can help peers use them
- creatively use colours and filters to enhance images
- use more advanced tools and can combine multiple techniques effectively when editing photos
- use software to add creative elements and demonstrates a higher level of skills when editing photos

Working Towards

Meeting

Greater Depth

Declarative Knowledge

Pupils understand/know that..

- ✔ my work will have an audience
- ✔ work can be improved
- ✔ you can persuade people in your work
- ✔ multi media is combining images, text, audio and video
- ✔ you can draw lines and shapes using digital tools
- ✔ images can be made up entirely of lines and shapes and this is called vector
- ✔ 3D shapes have three dimension
- ✔ text, video, images and audio can be subject to copyright

Procedural Knowledge

Pupils know how to...

- ✔ create work for an intended audience
- ✔ look critically at my work
- ✔ create simple vector art using lines and shapes
- ✔ create simple 3D models using a computer

Declarative Knowledge

Pupils understand/know that..

- ✔ I need to be aware of audience in work
- ✔ importance of editing to enhance work
- ✔ the potential for digital media to inform or persuade
- ✔ multi-media can combined for particular audiences and purposes
- ✔ text, video, images and audio can be subject to copyright
- ✔ objects can be combined and layered to create vector images
- ✔ 3D images have height, width, depth and can be combined to create graphical models

Procedural Knowledge

Pupils know how to...

- ✔ use a keyboard with increasing speed and accuracy
- ✔ plan interactive presentations
- ✔ use hyperlinks in interactive presentations
- ✔ use digital drawing tools to create vector images
- ✔ talk about the shapes and lines that make up vector images
- ✔ use graphical modelling software to create 3D models
- ✔ demonstrate an awareness of audience in work

Declarative Knowledge

Pupils understand/know that..

- ✔ style is an important factor in conveying information and communicating with an audience
- ✔ digital content needs to be planned to take account of the intended audience, the content and the layout of information

Procedural Knowledge

Pupils know how to...

- ✔ use a consistent style throughout work (e.g. headings, fonts and colours)
- ✔ use criteria to evaluate the design of a variety of digital resources
- ✔ discuss the rationale behind digital creations including content, media used and layout
- ✔ develop and refine digital content for a specified audience

Working Towards

Meeting

Greater Depth

Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge
Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...
<ul style="list-style-type: none"> there are a variety of digital tools and media that can be used to develop content and communicate with an audience digital content needs to be engaging, clear and targeted 	<ul style="list-style-type: none"> select some appropriate tools for an intended purpose and audience create digital content (e.g. a webpage) that incorporates text, images and sound 	<ul style="list-style-type: none"> I can improve/enhance work I need to abide by copyright rules when creating digital media 	<ul style="list-style-type: none"> plan and develop interactive presentations using a variety of digital media use graphical modelling software to create 3D models use a consistent style throughout work (e.g. headings, fonts, colours and themes) use digital media to inform or persuade and combine text, images, video and audio creatively for different audiences and purposes 	<ul style="list-style-type: none"> some tools are more appropriate than others depending upon the circumstances and audience I need to look at my work and make changes to improve it design and plan projects use a variety of content to engage, inform and communicate 	<ul style="list-style-type: none"> select the most appropriate tools for an intended purpose and audience independently evaluate work for purpose and audience improve work, format and edit work to improve clarity discuss the rationale behind designs create content that combines images, sounds & text and is organised into pages that matches the needs of a specified audience analyse digital content and make judgements about its suitability for a specific audience

Digital Communication

Working Towards

Meeting

Greater Depth

Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge
Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...
<ul style="list-style-type: none">you can use computers to do talk to peoplecharts are a way of showing informationwe can get information from pictures and video as well as wordsyou can use computers to draw	<ul style="list-style-type: none">create pictures that mean something using digital tools with supportuse multimedia software to make something that has meaning	<ul style="list-style-type: none">pictures, words and sound can communicate informationyou can draw and write using computersyou can get information from pictures, words, video and soundyou can use computers to communicate through text, images and sound	<ul style="list-style-type: none">draw and using digital toolsuse technology to show what I knowtalk about different kinds of information such as pictures, words, video and sound	<ul style="list-style-type: none">you can present information using computersaudio can convey information	<ul style="list-style-type: none">talk about information they have found out from images, text, video and soundput together simple presentations with multimedia aspects to communicate ideas

Digital Communication

Working Towards

Meeting

Greater Depth

Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge
Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...
<ul style="list-style-type: none">you can message people using devicessome information is personalyou need to be careful what you tell other people online	<ul style="list-style-type: none">talk about my use of digital communication in school and at homecommunicate using simple tools	<ul style="list-style-type: none">messages can be sent using devices between peoplesome messages may be mean or inappropriatemessages can be in the form of video, images, audio, text or a combination of thosesome information is personal and should not be shared without permissionsome situations may be risky when communication online	<ul style="list-style-type: none">contribute ideas to class emails, eBooks, blogs etc.express ideas using digital content (e.g. using digital drawing tools or word processing)behave when communicating digitally	<ul style="list-style-type: none">there are a number of different ways people can use technology to communicateyou can communicate ideas using different software	<ul style="list-style-type: none">use different communication methodsmake myself understood using a range of communication methods

Digital Communication

Working Towards

Meeting

Greater Depth

Declarative Knowledge

Pupils understand/know that..

- ✓ messages can be sent between people using technology
- ✓ email is a type of communication
- ✓ I need to be careful using email and other types of communication
- ✓ some information is private and I shouldn't share it with people I don't know

Procedural Knowledge

Pupils know how to...

- ✓ recognise situations where I don't feel safe and know how to seek help
- ✓ keep personal information private
- ✓ send a simple email

Declarative Knowledge

Pupils understand/know that..

- ✓ messages can quickly be sent electronically over distances and that people can reply to them
- ✓ an email has an address
- ✓ some emails you receive may be risky
- ✓ I need permission before sharing personal information online or offline
- ✓ tell a trusted adult immediately if they are asked by someone they have met online to meet in person

Procedural Knowledge

Pupils know how to...

- ✓ contribute a variety of suitable ideas to class emails, eBooks, blogs etc.
- ✓ send an email to a known recipient (e.g. teacher or class)
- ✓ open and reply to an email from a known sender
- ✓ contribute to a blog
- ✓ behave if I see something inappropriate online

Declarative Knowledge

Pupils understand/know that..

- ✓ an email has to be sent to a unique email address and that it is important to enter them accurately
- ✓ some emails may be malicious or inappropriate and the need to be cautious
- ✓ personal information (e.g. usernames, passwords, email addresses, home addresses, telephone numbers etc, should not be shared with online or offline without a trusted adult's permission

Procedural Knowledge

Pupils know how to...

- ✓ use email to send and receive messages
- ✓ add and send attachments to an email

Digital Communication

Working Towards

Meeting

Greater Depth

Working Towards		Meeting		Greater Depth	
Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge
Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...
<ul style="list-style-type: none">some messages can be nastyyou can attach things to messagesI should be kind when I communicate onlineI should keep personal information to myselfsome devices and apps have passwordsyou can be bully and be bullied online	<ul style="list-style-type: none">communicate using digital toolskeep myself safe when communicatingreport any concerns I have about cyberbullying	<ul style="list-style-type: none">some messages may be malicious or inappropriateattachments may be unsafe to openI should be respectful and kind onlineto keep personal information and passwords privatehow to respond if asked for personal detailsI shouldn't meet anyone I met online in real liferecognise that cyber bullying is unacceptableI need to be careful online	<ul style="list-style-type: none">use digital tools to communicate (e.g. posting/commenting)begin to publish work to a wider audiencebehave responsibly when communicatingstay safe when communicating	<ul style="list-style-type: none">meeting anyone you met online is riskywe need for rules when using live forms of communicationI need to be responsible and use appropriate language when communicating with othersI should respect the ideas and communications of otherspeople can communicate and collaborate online	<ul style="list-style-type: none">use a range of tools to communicate digitallydemonstrate an awareness of appropriate behaviour when communicating digitally

Digital Communication

Working Towards

Meeting

Greater Depth

Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge
Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...
<ul style="list-style-type: none">there are a number of risks associated with meeting people in real life that I have been communicating with onlinesome forms of cyberbullying	<ul style="list-style-type: none">send/receive emailsopen and save digital communicationstell someone if I encounter cyberbullying	<ul style="list-style-type: none">the effect that content in my communications may have on othersI should tell a trusted adult immediately if they are asked to meet in personcyber bullying can come in various forms and that it is unacceptablehow to report cyber bullying	<ul style="list-style-type: none">log on to an email account, open emails, create and send themattach files to digital communications (e.g. email and/or blog posts)open and save attachmentsuse a range of digital tools to communicate (e.g. blogs, chat, commenting) with purposeshare digital work with a wider audience (e.g. emails or blogs involving more than one school)demonstrate respect for the ideas and communications of others	<ul style="list-style-type: none">I need to behave appropriately when communicating digitallyI need to be careful communicating onlinethere are a range of online communication tools and some may be better than others depending upon the circumstances	<ul style="list-style-type: none">log on to an email account, open emails, create and send appropriate repliesforward an emailselect recipients from address booksdemonstrate caution when communicating onlinediscuss the differences between online communication tools used in school and those used at home (e.g. social media)

Digital Communication

Working Towards

Meeting

Greater Depth

Declarative Knowledge

Pupils understand/know that..

- I need to be aware of appropriate language to use in digital communications

Procedural Knowledge

Pupils know how to...

- use cameras, video, email, messaging, blogs and other forms of digital communication

Declarative Knowledge

Pupils understand/know that..

- there are many different ways to communicate digitally
- you need a strong password to secure accounts

Procedural Knowledge

Pupils know how to...

- use a range of digital tools to communicate
- send group communications
- publish to a wide audience (e.g. creating videos, podcasts or web content)

Declarative Knowledge

Pupils understand/know that..

- you can communicate using a wide variety of methods inside and outside of school
- you need to be safe and responsible when communicating digitally

Procedural Knowledge

Pupils know how to...

- use digital communication to collaborate and communicate inside and outside of school (e.g. email, blogs and other digital tools)
- evaluate the effectiveness of a range of digital communication tools

Digital Communication

Working Towards

Meeting

Greater Depth

Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge
Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...	Pupils understand/know that..	Pupils know how to...
<ul style="list-style-type: none">there are many different ways to communicate digitallyI need to be aware of appropriate language to use in digital communications	<ul style="list-style-type: none">use a range of digital tools to communicatesend group communicationspublish to a wide audience (e.g. creating videos, podcasts or web content)	<ul style="list-style-type: none">you can communicate using a wide variety of methods inside and outside of schoolyou need to be safe and responsible when communicating digitally	<ul style="list-style-type: none">talk about which tools would be best suited for an audience or tasksend group communications and be aware of the implications of responsesuse a variety of digital tools to publish to a wide audience and engage with that audience appropriately	<ul style="list-style-type: none">you can communicate using a wide variety of methods inside and outside of schoolyou need to be safe and responsible when communicating digitally	<ul style="list-style-type: none">independently use digital communication to collaborate and communicate inside and outside of school (e.g. email, chats, blogs, messaging and other digital tools)critically evaluate the effectiveness of a range of digital communication tools and suggest appropriateness for audience and/or tasks

Declarative Knowledge

Procedural Knowledge

Declarative Knowledge

Pupils understand/know that..

- you can find things out online

Procedural Knowledge

Pupils know how to...

- explore, access and make choices to find things out online

Declarative Knowledge

Pupils understand/know that..

- you can get information online from pictures, words, video and sound
- you can search for things online

Procedural Knowledge

Pupils know how to...

- find information online
- conduct a basic search

Declarative Knowledge

Pupils understand/know that..

- you can present information you have found out online

Procedural Knowledge

Pupils know how to...

- obtain information online from more than once source
- talk about the information I have found online
- make choices about the kind of information I collect online

Declarative Knowledge

Pupils know/understand that...

- ✔ IT can give access to information, including the internet
- ✔ text, images, audio and video can be used to impart information
- ✔ websites have a unique address
- ✔ not everything online is true
- ✔ I need to be careful when online

Procedural Knowledge

Pupils know how to...

- ✔ explore appropriate buttons, arrows, menus and hyperlinks to navigate websites, sometimes with support
- ✔ search with provided key words
- ✔ find websites using shortcuts, favourites and bookmarks
- ✔ talk about when some forms of information may be more appropriate than others in a given situation (e.g. when video may be better than using text)
- ✔ talk about use of IT and other ways of finding things out (e.g. looking in books)
- ✔ talk about which websites are better than others and give reasons

Declarative Knowledge

Pupils know/understand that...

- ✔ IT can give rapid access to a wide variety of information and resources, including the internet and video)
- ✔ information can come in many forms (e.g. text, images, audio)
- ✔ some forms of information are more appropriate than others in some situations
- ✔ websites have a unique address and the need for accuracy when entering it into an address bar
- ✔ not everything online is true
- ✔ I should not click/tap buttons on pop-ups and to alert a trusted adult if a pop-up is displayed
- ✔ what to do, and who to tell, if they see something inappropriate online

Procedural Knowledge

Pupils know how to...

- ✔ use appropriate buttons, arrows, menus, image and text links to navigate websites
- ✔ use key words to search resources
- ✔ find websites by typing URLs (web addresses) into an address bar and using shortcuts, favourites and/or bookmarks
- ✔ evaluate web content by talking about online content that are the most appropriate, useful or preferred
- ✔ find things out using IT and other resources (e.g. using books)

Declarative Knowledge

Pupils know/understand that...

- ✓ some web content may be protected by copyright and cannot be used without permission
- ✓ searches may include unwanted advertising
- ✓ I can allow useful pop-ups
- ✓ what to do and who to tell if they encounter inappropriate content online
- ✓ how search engines work
- ✓ recognise that anyone can author content online
- ✓ web content can be filtered and that this may not be the case at home
- ✓ not everything online can be used without permission
- ✓ I need to ignore unwanted advertising as they may be a source of adware or malicious software

Procedural Knowledge

Pupils know how to...

- ✓ use a search engine to find things online
- ✓ develop key questions and key words to search for specific things online
- ✓ talk about the accuracy and reliability of information found online
- ✓ retrieve, use and save sources of information found online (e.g. bookmarks, copy/paste and Save As), sometimes with support

Declarative Knowledge

Pupils know/understand that...

- ✔ information found as a result of using a search engine is ranked on relevance
- ✔ anyone can author content online and that it is not always accurate and may be inappropriate
- ✔ web content can be filtered and that this may not be the case at home
- ✔ understand the concept of copyright (e.g. what content can be used in their own work)
- ✔ copying text directly from any source without permission is theft (plagiarism)
- ✔ to ignore unwanted advertising and the risks of clicking links within them

Procedural Knowledge

Pupils know how to...

- ✔ use a range of appropriate search engines to locate online content
- ✔ evaluate search engines
- ✔ consider the effectiveness of key words on search results and refine where necessary
- ✔ verify the accuracy and reliability of information found online
- ✔ distinguish between opinion and fact; and question sources
- ✔ retrieve, use and save sources of information found online (e.g. history, bookmarks, copy/paste and saving)
- ✔ identify whether content has copyright restrictions and can, legally, be used
- ✔ identify and cancel unwanted advertising, pop-ups and downloads
- ✔ discern between useful or unwanted pop-ups and know how to allow or cancel them
- ✔ know what to do and who to tell if they encounter inappropriate content online

Declarative Knowledge

Pupils know/understand that...

- ✓ the internet can be used for research
- ✓ the concept of copyright
- ✓ effective online research does not consist of direct copying, but involves gathering a number of sources and evaluating them for validity and effectiveness
- ✓ linking to the work of others online (rather than copying it) protects the author's work
- ✓ information online can be fact or opinion and understand that it should be evaluated
- ✓ domain name extensions can be used to help evaluation the veracity of online information (e.g. .co.uk; .com; .ac; .sch; .org; .gov; and .net)

Procedural Knowledge

Pupils know how to...

- ✓ choose to use online sources, where appropriate, for research and resources
- ✓ use a range of search techniques (e.g. including or omitting particular phrases and words)
- ✓ use appropriate strategies for finding, evaluating and verifying information
- ✓ talk about the validity, reliability and relevance of online content

Declarative Knowledge

Pupils know/understand that...

- ✓ when, and where, the internet can be used for research
- ✓ the concept of copyright and how it applies to material they would like to use
- ✓ the need to obtain permission when using the work of others online; but know that it is safe to link to the resources without obtaining permission
- ✓ know what to do and who to tell if I encounter inappropriate content online

Pupils know how to...

- ✓ use more advanced search techniques (e.g. using Boolean search criteria such as "Space" AND "Neptune")
- ✓ use the most appropriate search techniques for a particular task (e.g. image search, in-site searches)
- ✓ question the origin of web content and understand that key information can be checked to help evaluate reliability; such as domain name; author; dates; links and contact details
- ✓ use domain name extensions to help evaluate online information (e.g. .co.uk; .com; .ac; .sch; .org; .gov; and .net)
- ✓ distinguish between fact and opinion and make informed choices about sources of online information to use
- ✓ collate, evaluate and interpret online content for relevance and suitability to own work
- ✓ critically evaluate the validity, reliability and relevance of online content

Data Handling

Working Towards

Meeting

Greater Depth

Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge	Declarative Knowledge	Procedural Knowledge
I know/understand that..	I know how to...	I know/understand that..	I know how to...	I know/understand that..	I know how to...
<ul style="list-style-type: none">you can get information from picturescharts are a way of showing information	<ul style="list-style-type: none">sort a small set of objects according to criteria, sometimes with supportorganise data into simple charts and graphs with supportanswer questions using data with support	<ul style="list-style-type: none">you can sort thingspictures on a pictogram represent numerical values	<ul style="list-style-type: none">sort a set of objects according to criteriaconstruct simple pictograms	<ul style="list-style-type: none">graphs and charts can help you answer questions	<ul style="list-style-type: none">compare data using simple charts and graphssuggest different ways data could be organised or displayeduse graphs to answer a range of questionscreate own questions that could be answered by interpreting data on a graphmake comparisons between data on a graph

Data Handling

Declarative Knowledge

Procedural Knowledge

Year 1

Pupils know/understand that...

- ✔ IT can be used to sort items and information
- ✔ simple graphs and charts represent information
- ✔ data needs to be entered accurately to be used to answer questions correctly

Pupils know how to...

- ✔ sort and classify items and objects, sometimes with support
- ✔ use digital tools to produce simple graphs, sometimes with support
- ✔ use graphs to answer questions, sometimes with support
- ✔ save, retrieve and edit work with support

Year 2

Pupils know/understand that...

- ✔ IT can be more efficient than manual methods for sorting and classifying
- ✔ IT can be used to create, display, add to and change graphs
- ✔ simple graphs and charts can be used to ask and answer questions

Pupils know how to...

- ✔ Sort and classify a variety of items and/or objects
- ✔ Use digital tools to produce a variety of basic graphs (e.g. pictograms and bar charts)
- ✔ Use graphs to ask and answer questions
- ✔ Save, retrieve and edit work

Data Handling

Declarative Knowledge

Procedural Knowledge

Year 3

Pupils know/understand that...

- ✔ data is structured in a database
- ✔ there are similarities and differences between computerised and paper-based databases
- ✔ data is represented digitally by computer systems; by a series of zeros and ones and that this is called the binary number system
- ✔ a database consists of records and fields
- ✔ there are different types of data (e.g. numbers and text)

Pupils know how to...

- ✔ create diagrams and charts to ask and answer questions
- ✔ identify what data to collect to ask and answer specific questions
- ✔ enter data into a database and use search/sort to answer questions
- ✔ use and compare graphs and charts produced by database software
- ✔ select and use appropriate methods to organise, present and interpret data
- ✔ talk about the advantages of using databases
- ✔ make choices about how to present data

Year 4

Pupils know/understand that...

- ✔ you need to structure data in a database
- ✔ the basic structure of a database and that you can sort and search them
- ✔ there are data types: numeric; alphabetic, dates, currency
- ✔ databases can be used to create a variety of tables and graphs that can be used for different purposes
- ✔ data is represented digitally by computer systems; by a series of zeros and ones and that this is called the binary number system

Pupils know how to...

- ✔ use the vocabulary: file, record, field, sort and search
- ✔ talk about the advantages of using databases to sort, query and classify information quickly
- ✔ create diagrams and charts to ask and answer questions
- ✔ identify what data to collect to ask and answer specific questions
- ✔ enter data into a database and use search/sort to answer questions
- ✔ use and compare graphs and charts produced by database software
- ✔ select and use appropriate methods to organise, present and interpret data

Data Handling

Declarative Knowledge

Procedural Knowledge

Year 5

Pupils know/understand that...

- ✓ the need for accuracy when entering and querying data
- ✓ incorrect conclusions can be drawn from inaccurate data
- ✓ IT enables large quantities of data to be organised and sorted
- ✓ the basic principles of data protection

Pupils know how to...

- ✓ construct and interpret graphs and charts
- ✓ design questions and perform searches on more than one criterion on more complex databases
- ✓ identify and correct errors with data
- ✓ present findings to an audience

Data Handling

Declarative Knowledge

Procedural Knowledge

Year 6

Pupils know/understand that...

- ✓ the need for accuracy when designing, entering and querying data
- ✓ the consequences of using inaccurate data
- ✓ the need for data protection and some of the rights of individuals over stored data and how it affects the use and storage of data
- ✓ where and when it is appropriate to use a spreadsheet to support an investigation and explain choices
- ✓ spreadsheets can automate functions, making it easier to test variables
- ✓ spreadsheets can be used to explore mathematical models
- ✓ the need for accuracy when entering formulae
- ✓ the consequences of using inaccurate data and/or formulae

Pupils know how to...

- ✓ construct, refine and interpret graphs and charts
- ✓ design questions and perform searches on more than one criterion on more complex databases; identifying patterns and relationships
- ✓ check the reliability of data; identify and correct errors
- ✓ present data to a given audience and display findings using other digital tools (e.g. multi-media)
- ✓ explore the effects of changing variables in spreadsheets
- ✓ make and text predictions
- ✓ enter formulae into a spreadsheet to explore the effects of changing variables (e.g. simple calculations)
- ✓ identify and enter formulae into cells
- ✓ develop simple spreadsheets to investigate problems
- ✓ discuss how IT enables large quantities of data to be organised and sorted and discuss the advantages