

Key	NC Objectives
Stage 1	
	Pupils should be taught to:
	<ul> <li>understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instruction</li> </ul>
	create and debug simple programs
	use logical reasoning to predict the behaviour of simple program
	<ul> <li>use technology purposefully to create, organise, store, manipulate and retrieve digital content</li> </ul>
	recognise common uses of information technology beyond school
	<ul> <li>use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</li> </ul>



Year 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	We are Digital Detectives! What is a computer?	We are Robot Programmers! How does a robot move?	We are digital artists What is digital art?	We are algorithm creators What is an algorithm?	We are digital authors What is digital text?	We are data detectives What is data?
	Technology Around Us	Moving a robot	Digital Painting	Barefoot Computing	Digital writing	Grouping data
Key Skills (Sheffield e- learning Service)	Recognise a range of digital devices.  Select a digital device to fulfil a specific task, e.g. to take a photo.  Name a range of digital devices e.g. laptop, phone, games console.  Log on to the school computer /unlock a tablet with support.  Identify the basic parts of a computer, e.g. mouse, keyboard, screen.  Use a suitable access device (mouse, keyboard, touchscreen, switch) to access and control an activity on a computer.  Open key applications independently.  Save and open files with support.  Add an image to a document from a given folder/source with support.					



#### **ONLINE SAFETY**

#### Autumn

#### Self-Image and Identity:

I can recognise that there may be people online who could make someone feel sad, embarrassed or upset. If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help.

### Online Relationships:

I can give examples of when I should ask permission to do something online and explain why this is important. I can use the internet with adult support to communicate with people I know (e.g. video call apps or services).

I can explain why it is important to be considerate and kind to people online and respect their choices.

I can explain why things one person finds funny or sad online may not always be seen in the same way as others.

#### Spring

### Online Reputation:

I can recognise that information can stay online and could be copied.

I can describe what information I should not put online without asking a trusted adult first.

#### **Online Bullying:**

I can describe how to behave online in ways that do not upset others and can give examples.

#### **Managing Online Information:**

I can give simple examples of how to find information using digital technologies e.g. search engines, voice activated searching.

I know/understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe/ a joke. I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.

#### Health, Wellbeing and Lifestyle

I can explain rules to keep myself safe when using technology both in and beyond the home.

#### Summer

#### Privacy and security

I can explain that passwords are used to protect information, accounts and devices.

I can recognise more detailed examples of information that is personal to someone (e.g. where someone lives and goes to school, family names).

I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.

#### Copyright and ownership

I can explain why work I create using technology belongs to me. I can say why it belongs to me (e.g. I designed it or I filmed it). I can save my work under a suitable title/name so that others know it belongs to me (e.g. filename, name on content). I understand that work made by others does not belong to me even if I save a copy.



Year 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	We are Digital Detectives  How is information technology (IT) being used for good in our lives?  We are Algorithm Testers  We are Digital Photographers  What is debugging?  What makes a good digital photograph?  We are Digital Musicians  What is animation?  How does data help us?					
Key Skills (Sheffield e- learning Service)	Recognise what a computer is (input > process > output). Recognise that a range of digital devices contain computers, e.g. phone, games console, smart speaker. Explain what the basic parts of a computer are used for. Identify and use input devices, e.g. mouse, keyboard; and output devices, e.g. speakers, screen. Open key applications independently. Save and open files to/from a given folder. Add an image to a document from a given folder/source. Resize an image in a document. Highlight text and use the arrow keys. Capture media independently (e.g. take photos, record audio).					

# Autumn term Self-Image and Identity: Online Reputation: I can explain how information put online about ONLINE SAFETY Summer Term Health, Wellbeing and Lifestyle



I can explain how other people may look and act differently online and offline.

I can give examples of issues that might make someone feel sad, worried, uncomfortable or frightened; I can give examples of how they might get help.

### **Online Relationships:**

I can give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a penpal in another school/country).

I can explain who I should ask before sharing things about myself and others online.

I can describe different ways to ask for, give or deny my permission online and can identify who to help me if I am not sure.

I can explain why I have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do.

someone can last for a long time.

I can describe how anyone's online information could be seen by others.

I know who to talk to if something has been put online without consent or if it is incorrect.

#### **Online Bullying:**

I can explain what bullying is, how people may bully others and how bullying can make someone feel.

I can explain why anyone who experiences bullying is not to blame.

I can talk about how anyone experiences bullying can get help.

### **Managing Online Information:**

I can use simple keywords in search engines.

I can demonstrate how to navigate a simple webpage to get information I need (e.g. home, forward, back buttons; links, tabs and sections.

I can explain what voice activated searching is and how it might be used, and know it is not real person (e.g. Alexa, Google Now, Siri).

I can explain the difference between things that

I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment.

I can say how those rules/guides can help anyone accessing online technologies.

### **Privacy and security**

I can explain how passwords can be used to protect information, accounts and devices.

I can explain and give examples of what is meant by 'private' and 'keeping things private'.

I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords).

I can explain how some people may have devices in their homes connected to the internet and give some examples (e.g. lights, fridges, toys, televisions).

### Copyright and ownership

I can recognise that content on the internet may belong to other people.

I can describe why other people's work belongs to them.



I can identify who can help me if something happens online without my consent.

I can explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online.

I can explain why I should always ask a trusted adult before clicking 'yes', 'agree', or 'accept' online.

are imaginary, 'made up', or 'make believe' and things that are 'true' or 'real'.

I can explain why come information I find online may not be real or true.



Key Stage 2	NC Objectives
	Pupils should be taught to:
	<ul> <li>design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> </ul>
	<ul> <li>use sequence, selection, and repetition in programs; work with variables and various forms of input and out</li> </ul>
	<ul> <li>use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>
	• 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
	<ul> <li>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</li> </ul>
	<ul> <li>use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li> </ul>



esenters.  hat is desktop  blishing?	We are programmers.  How can I use algorithms in programming?	We are digital producers.  What is a podcast?	We are programmers.  How can I use sequencing to	We are animators.  Who are Walt Disney and John	We are programmers.  What are 'Events' and 'Actions' in	
blishing?	algorithms in	What is a podcast?				
publishing? algorithms in sequencing to Disney and John and						
Describe what a computer is (input > process > output).  Explain the difference between input and output devices on a computer.  Know where to save and open files (e.g. in shared folder).  Save files with appropriate names.  Use a keyboard effectively to type in text.  Use left-, right- and double-click on the mouse.  Add an image to a document from the internet.  Resize and move an image in a document.  Use a search engine to find simple information.  Recognise that school computers are connected (if using PCs).						
ov ve e a e l d a siz	wwhere to save and op files with appropriate in a keyboard effectively the eft-, right- and double- an image to a document as earch engine to find	wwhere to save and open files (e.g. in shared for files with appropriate names. It is keyboard effectively to type in text. It is eft-, right- and double-click on the mouse. It is mage to a document from the internet. It is and move an image in a document. It is search engine to find simple information.	where to save and open files (e.g. in shared folder).  files with appropriate names.  a keyboard effectively to type in text.  eft-, right- and double-click on the mouse.  an image to a document from the internet.  te and move an image in a document.  a search engine to find simple information.  gnise that school computers are connected (if using PCs).	where to save and open files (e.g. in shared folder).  files with appropriate names.  a keyboard effectively to type in text.  eft-, right- and double-click on the mouse.  an image to a document from the internet.  te and move an image in a document.  a search engine to find simple information.  gnise that school computers are connected (if using PCs).	w where to save and open files (e.g. in shared folder).  files with appropriate names.  a keyboard effectively to type in text.  eft-, right- and double-click on the mouse.  an image to a document from the internet.  te and move an image in a document.  a search engine to find simple information.	

ONLINE SAFETY



#### Autumn term

#### Self-Image and Identity:

I can explain what is meant by the term 'identity'.

I can explain how people can represent themselves in different ways online.

I can explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why.

### **Online Relationships:**

I can describe ways people who have similar likes and interests can get together online.

I can explain what it means to 'know someone' online and why this might be different from knowing someone offline.

I can explain what is meant by 'trusting someone' online, why this is different to 'liking someone' online, and why it is important to be careful about who to trust online including what information and content they are trusted with.

### Spring term

#### **Online Reputation:**

I can explain how to search for information about others online.

I can give example of what anyone may or may not be willing to share about themselves online. I can explain the need to be careful before sharing.

I can explain who someone can ask if they are unsure about putting something online.

### **Online Bullying:**

I can describe appropriate ways to behave towards other people online and why this is important.

I can give examples of how bullying behaviour could appear online and how someone can get support.

### **Managing Online Information:**

I can demonstrate how to use key phrases in search engines to gather accurate information online.

I can explain what autocomplete is and how to

#### Summer term

#### Health, Wellbeing and Lifestyle

I can explain why spending too much time using technology can sometimes have a negative impact on anyone, e.g. mood, sleep, body, relationships; I can give examples of both positive and negative activities where it is easy to spend a lot of time engaged (e.g. doing homework, games, films, videos).

I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).

### **Privacy and security**

I can describe simple strategies for creating and keeping passwords private.

I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure of feel pressured then they should tell a trusted adult.

I can describe how connected devices can collect and share anyone's information with others.



I can explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried.

I can explain how someone's feelings can be hurt by what is said or written online.

I can explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and photos. choose the best suggestion.

I can explain how the internet can be used to buy and sell things

I can explain the difference between a belief, an opinion and a fact and give examples of how and where they might be shared online. E.g. In videos, memes, posts, news stories etc.

I can explain that not all opinions shared may be accepted as true or fair by others (E.g. monsters under the bed)

I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.

### Copyright and ownership

I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.



Year 4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	We are digital storytellers.  What is a digital comic? What is repetition in programming? What is repetition world Wide Web?  We are digital technicians.  We are programmers.  We are programmers.  What is repetition in programming? We are digital photographers.  What is repetition in programming? We are digital photographers.  What is repetition in programming?					
Key Skills (Sheffield e-learning Service)	Recognise that you can organise files using folders.  Explain what a good file name would look like.  Delete and move files.  Use key parts of a keyboard effectively, e.g. shift, arrow keys, delete).  Know how to copy and paste text or images in a document.  Crop an image and apply simple filters.  Use a search engine to find specific information.  Recognise that school computers are connected					

# Autumn term Spring term Self-Image and Identity: Online Reputation: I can describe how to find out information about I can explain how using technology can be a distraction



I can explain how my online identity can be different to my offline identity.

I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them.

I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.

### Online Relationships:

I can describe strategies for safe and fun experiences in a range of online social environments e.g. livestreaming, gaming platforms.

I can give examples of how to be respectful to others online and how to recognise healthy and unhealthy behaviours.

I can explain how content shared online may feel unimportant to one person but may be important to other people's thoughts, feelings and beliefs. others by searching online.

I can explain ways that some of the information about anyone online could have been created, copied or shared by others.

### Online Bullying:

I can recognise when someone is upset, hurt or angry online.

I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat).

I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation).

### **Managing Online Information:**

I can analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others.

I can describe how to search for information within a wide group of technologies and make a

from other things, in both a positive and negative way.

I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.

### **Privacy and security**

I can describe strategies for keeping personal information private, depending on context.

I can explain that internet use is never fully private and is monitored e.g. adult supervision.

I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure.

I know what the digital age of consent is and the impact this has on online services asking for consent.

### Copyright and ownership

When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to use it.



judgement about the probable accuracy (e.g. social media, image sites, video sites).

I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in app purchases; pop ups) and can recognise some of these when they appear online.

I can explain why lots of people sharing the same opinions or beliefs online do not make those beliefs or opinions true.

I can explain that technology can be designed to act like or impersonate living things (e.g. bots) and describe what the benefits and risks might be.

I can explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend that something is true when it isn't.

I can give some simple examples of content which I must not use without permission from the owner e.g. videos, music, images.



Year 5	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	We are programmers. How can selection help us when programming? We are digital Producers. What makes a good digital video? We are digital Programmers. What is HTML? We are digital designers. What is a Vector Drawing? What is physical programming?					
Key Skills (Sheffield elearning Service)	Type using fingers on both hands. Use common keyboard shortcuts, e.g. ctrl C (copy), ctrl V (paste). Explain what makes a strong password. Use folders to organise files. Know how to mute and unmute audio on a computer or tablet. Recognise that there is more than one search engine, and they may produce different results. Use a search engine effectively to find information and images. Know how to search for an application on a computer/tablet.					

### **ONLINE SAFETY**

Autumn term	Spring term	Summer term
Self-Image and Identity:	Online Reputation:	Health, Wellbeing and Lifestyle
I can explain how identity online can be copied/modified or altered.	I can search for information about an individual online and summarise the information found.	I can describe ways that technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively.



I can demonstrate how to make responsible choices about having an online identity, depending on context

### **Online Relationships:**

I can give examples of technology – specific forms of communication (e.g. emojis, memes, gifs).

I can explain that there are some people I can communicate with online who may want to do me or my friends harm/ I can recognise this is not my/our fault.

I can describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups)

I can explain how someone can get help if they are having problems and identify when to tell a trusted adult.

I can demonstrate how to support others (including those who are having difficulties) online.

I can describe ways that information about anyone online can be used by others to make judgements about an individual and why these may be incorrect.

#### Online Bullying:

I can recognise that online bullying can be different to bullying in the physical world and can describe some of those differences.

I can describe how what one person perceives as playful joking and teasing (including banter) might be experienced by others as bullying.

I can explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult.

I can identify a range of ways to report concerns and access support both in school and at home about online bullying.

I can explain how to block abusive users.

I can describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix)

### **Managing Online Information:**

I can describe some strategies, tips or advice to promote health and well-being with regards to technology.

I can recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals.

I can explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, loot boxes) and explain the importance of seeking permission from a trusted adult before purchasing.

### **Privacy and security**

I can explain what a strong password is and demonstrate how to create one.

I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice messages, geolocation) with others.

I can explain what app permissions are and can give some examples.

### Copyright and ownership

I can assess and justify when it is acceptable to use the work of others.



I can explain the benefits and limitations of using different types of search technologies e.g. voice-activated search engine. I can explain how some technology can limit the information I am presented with e.g. voice-activated only giving one search result.

I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be sceptical.

I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results.

I can explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability and evidence.

I can identify ways the internet can draw us to information for different agendas, e.g. website notifications, pop-ups, targeted ads.

I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, influencers). I can give examples of content that is permitted to be reused and know how this content can be found online.



I can explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others.

I can describe how fake news may affect someone's emotions and behaviour and explain why this may be harmful.



Year 6	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
	We are programmers. What is Python and how can I use it to program? We are digital technicians. How can I use code to program? We are programmers. How can I use code to create digital music? How do I create 3D designs using technology? We are digital designers. What are variables in programming? We are programmers. What are variables in programming? We are programmers. What are variables in programming? We are programmers. We are digital designers. What are variables in programming? We are programmers. What are variables in programming?						
Key Skills (Sheffield elearning Service)	Type efficiently using both hands. Use a range of keyboard shortcuts. Recognise that different devices may have different operating systems. Organise files effectively using folders and files names. Use the advanced search tools when using a search engine to find specific information and images. Explain the basic function of an operating system. Recognise common file types and extensions, e.g. jpeg, png, doc, wav.						

#### **ONLINE SAFETY**

Autumn term	Spring term	Summer term
Self-Image and Identity:	Online Reputation:	Health, Wellbeing and Lifestyle
I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain	I can explain the ways in which anyone can develop a positive online reputation.	I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose.



why it is important to challenge and reject inappropriate representations online.

I can explain the importance of asking until I get the help needed.

#### **Online Relationships:**

I can explain how sharing something online may have an impact positively or negatively.

I can describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not.

I can describe how things shared privately online can have unintended consequences for others. E.g. Screen-grabs.

I can explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.

I can explain strategies anyone can use to protect the 'digital personality' and online reputation, including degrees of anonymity.

#### **Online Bullying:**

I can describe how to capture bullying content as evidence (e.g. Screen-grab, URL, profile) to share with others who can help me.

I can explain how someone would report online bullying in different contexts.

### **Managing Online Information:**

I can explain what is meant by a 'hoax'. I can explain why someone would need to think carefully before they share.

I can explain how search engines work and how the results are selected and ranked.

I can explain how to use search technologies effectively.

I can describe how some online information can be opinions and can offer examples.

I can explain how and why some people may present opinions as facts; why the popularity of an opinion or the personalities of those I recognise and can discuss the pressures that technology can place on someone and how/when they could manage this.

I can recognise features of persuasive design and how they are used to keep users engaged (current and future use).

I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).

### **Privacy and security**

I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser.

I can explain what to do if a password is shared, lost or stolen.

I can describe how and why people should keep their software and apps up to date e.g. auto updates.

I can describe simple ways to increase privacy on apps and services that provide privacy settings.

I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).

I know that online services have terms and conditions that govern their use.

### Copyright and ownership



promoting it does not necessarily make it true, fair or perhaps even legal.

I can define the terms 'influence', 'manipulation', and 'persuasion' and explain how someone might encounter these online (e.g. advertising and 'ad targeting' and targeting for fake news.).

I can explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this.

I understand the concept of persuasive design and how it can be used to influence peoples' choices.

I can demonstrate how to analyse and evaluate the validity of facts and information and I can explain why using these strategies are important.

I can describe the difference between online misinformation and disinformation.

I can explain why information that is on a large number of sites may still be inaccurate or untrue. I can assess how this might happen (e.g. the sharing of misinformation or disinformation. I can demonstrate the use of a search tool to find and access online content which can be reused by others.

I can demonstrate how to make references to and acknowledge sources I have used from the internet



I can identify, flag and report inappropriate content.	