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| **Strand** | **Year 5** | **Year 6** |
| **Computer Science (Algorithms and Programming)**Link to National Curriculum: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
 | * To read a more complex program
* To explain (using logical reasoning) how a particular algorithm works
* To design and refine an algorithm for a program (including with pencil and paper)
* To create a program that achieves what I want to make
* To decompose a program into smaller steps
* To use a more complex sequence in a program and begin to explain it
* To use repetition (loops) in a program and explain what is happening
* To detect (using logical reasoning) a bug and debug that problem in a program
* To use selection, “if “, and, “then”
* To use a range of inputs and outputs that control or simulates control of a physical system
* To see similarities and differences between programming languages
* To use a variable
 | * To read a more complex program and predict what will happen
* To design a more complex algorithm (including with pencil and paper)
* To create a more complex program to accomplish a specific goal
* To refine my program after testing it
* To decompose a program into smaller steps and use that to help me work more efficiently on it
* To recognise similarities to solutions used before when creating programs and debugging
* To use sequences, repetition selections and variables in a program
* To continually test my programming
* To use a range of inputs (including sensors) and outputs that control or simulates control of a physical system
* To explain (using logical reasoning) how some algorithms work
* To detect (using logical reasoning) a bug and debug that problem in an algorithm.
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| **Understanding** **Technology****(Communication and Networks)**Link to National Curriculum:Pupils should be taught to: * understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
 | * To explain how computer networks work
* To know some of the other services besides the web provided by the Internet
* To begin to know how search results are ranked
* To describe different parts of the Internet.
* To use online communication tools e.g. blogging.
* To use a search engine to find relevant information
* To check the reliability of information found online
* To begin to know which resources on the Internet I can download and use
* To talk about how websites advertise their products to me
 | * To know how information is transported on the Internet
* To begin to know how data travels across networks in packets
* To know how data is broken up into packets and reconstructed when we receive it
* To understand the multiple services provided by the Internet
* To select appropriate tools for online communication and collaboration
* To check the reliability of a website
* To talk about copyright and begin to acknowledge the sources of information that I find online.
* To know that websites can use my data to make money and target their advertising
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| **Digital Literacy (Data & Data Representation, Hardware & Processing and Information Technology):** Over lower and upper key stage 2 pupils will have increasing knowledge and skills with each statementLink to National Curriculum:Pupils should be taught to: * 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
 | * To use and combine text, photo, sound and video editing tools to refine my work
* To use digital devices to take good photos
* To use effects on digital devices to produce effective art/photos/pictures/movies etc. (e.g. green screen)
* can make good choices about which digital content to use
* can make good choices when deciding which digital resources and digital devices to use
* To collect and analyse different types of digital data
* To use data collected to present the data as information for a variety of audiences
* To check the reliability and usefulness of digital content found when searching
* To use a spreadsheet and database to collect and record data
* To use data-logging digital devices to investigate changes around me
* To review, evaluate and improve my own and others’ work
* To talk about possible mistakes in data and suggest how it could be checked.
 | * To select the technology for text, photo, sound and video editing tools I want to use to create content, e.g. multimedia presentation
* To use and combine a range of media and recognise the contribution of each to achieve a particular outcome
* To use a variety of tools and digital devices to creative effective work
* To evaluate the effectiveness of my own work and the work of others and use that to improve the work.
* To plan an investigation of the world around me, including the data to collect
* To select appropriate and effective tools to collect data for my investigation,
* To check accuracy, plausibility and reliability of data collected
* To present the data collected in an informative way
* To examine and ask questions of a database to retrieve relevant information.
* To evaluate reliability and usefulness of digital content
* To use search technologies effectively to help my learning
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| **E-safety**Over lower and upper key stage 2 pupils will have increasing knowledge and skills with each statementLink to National Curriculum: Pupils should be taught to: * use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour;
* identify a range of ways to report concerns about content and contact.
 | * know the Be Smart e-safety rules
* know how to review and amend my online identity
* aware of my digital footprint and the impact it can have
* understand what it means to have a positive digital footprint, and why it is important.
* know things I can share and things I should not share and explain the reasons
* know the risks about who and who not to contact online
* know who to report to about content or contacts that worry me
* can recognise acceptable and unacceptable behaviour when online
* I am aware of issues about copyright
* can communicate responsibly and respectfully, recognising the impact on others when this does not happen
* know how to create and use a secure password and username when I am online
* beginning to know and use privacy settings when using social media
 | * know the Be Smart e-safety rules
* always communicate responsibly and respectfully, recognising the impact on others when this does not happen
* can work with others to help all enjoy use of technology both online and offline
* know how to help my friends to protect themselves and make good choices online, including reporting any concerns to a trusted adult
* describe ways to keep personal information private online by using safety tools and privacy settings
* explain what it means to have a positive digital footprint, and why it is important.
* make informed choices when selecting apps, games and websites and begin to know the risks of making different choices
* Identify different types of online scams people our age may experience, including ‘phishing’.
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