New Forest Academy
Find your remarkable

Computer Science: Year 7

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Focus	Networks: from semaphores to the Internet	Gaining support for a cause	Programming essentials in Scratch – part I	Programming essentials in Scratch – part II	Gaining support for a cause	Spreadsheet Modelling
Link to Prior Learning	Understand how networks can be used to retrieve and share information, and how they come with associated risks 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	Understand the activities involved in planning, creating, and evaluating computing artefacts use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Be able to comprehend, design, create, and evaluate algorithms Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	Be able to comprehend, design, create, and evaluate algorithms Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	Understand the activities involved in planning, creating, and evaluating computing artefacts use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Understand how data is stored, organised, and used to represent real-world artefacts and scenarios 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
Key Knowledge	1. Compare wired to wireless connections and list examples of specific technologies currently used to implement such connections 2. Define 'bandwidth', using the appropriate units for measuring the rate at which data is transmitted, and discuss familiar examples where bandwidth is important 3. Define what the internet is 4. Explain how data travels between	12. Choose search terms relating to a particular issue 13. Identify key features of a good poster 14. Use tools to copy an image into another application 15. Choose and download a suitable image 16. Create a poster using a desktop	1. Compare how humans and computers understand instructions (understand and carry out) 2. Define a sequence as instructions performed in order, with each executed in turn 3. Modify a sequence 4. Predict the outcome of a simple sequence 5. Define a variable as a name that refers to data being stored by the computer 6. Make a sequence that includes a variable	1. Define a subroutine as a group of instructions that will run when called by the main program or other subroutines 2. Define decomposition as breaking a problem down into smaller, more manageable subproblems 3. Identify how subroutines can be used for decomposition 4. Identify where condition-controlled iteration can be used in a program	1. Choose search terms relating to a particular issue 2. Identify key features of a good poster 3. Use tools to copy an image into another application 4. Choose and download a suitable	1. Identify columns, rows, cells, and cell references in spreadsheet software 2. Use formatting techniques in a spreadsheet 3. Use basic formulas with cell references to perform calculations in a spreadsheet (+, -, *, /) 4. Use the autofill tool to replicate cell data 5. Collect data 6. Explain the difference between

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
computers across the internet 5. Describe key words such as 'protocols', 'packets', and 'addressing' 6. Explain the difference between the internet, its services, and the World Wide Web 7. Describe how services are provided over the internet 8. List some of these services and the context in which they are used 9. Explain the term 'connectivity' as the capacity for connected devices ('Internet of Things') to collect and share information about me with or without my knowledge (including microphones, cameras, and geolocation) 10. Describe how internet-connected devices can affect me 11. Describe components (servers, browsers, pages, HTTP and HTTPS protocols, etc.) and how they work together	publishing application 17. Plan a poster to clearly convey a message 18. Choose how to combine text and graphics in a slide 19. Modify a logo using a graphic editing program 20. Use digital tools to provide feedback on design choices 21. Modify a logo so that it fits in with the planned slide styles 22. Plan a consistent layout for a set of slides 23. Create a styled set of slides based on a plan 24. Evaluate content against a rubric 25. Search for and add a suitable image 26. Search for suitable text for slides 27. Evaluate your work against a rubric 28. Explain your work to others	7. Predict the outcome of a simple sequence that includes variables 8. Recognise that computers follow the control flow of input/process/output 9. Trace the values of variables within a sequence 10. Define a condition as an expression that will be evaluated as either true or false 11. Identify that selection uses conditions to control the flow of a sequence 12. Identify where selection statements can be used in a program 13. Modify a program to include selection 14. Create conditions that use comparison operators (>,<,=) 15. Create conditions that use logic operators (and/or/not) 16. Identify where selection statements can be used in a program that include comparison and logical operators 17. Define iteration as a group of instructions that are repeatedly executed 18. Describe the need for iteration 19. Detect and correct errors in a program (debugging)	5. Implement condition-controlled iteration in a program 6. Evaluate which type of iteration is required in a program 7. Define a list as a collection of related elements that are referred to by a single name 8. Describe the need for lists 9. Identify when lists can be used in a program 10. Use a list 11. Apply appropriate constructs to solve a problem 12. Decompose a larger problem into smaller subproblems" 13. Apply appropriate constructs to solve a problem 14. Decompose a larger problem into smaller subproblems	image 5. Create a poster using a desktop publishing application 6. Plan a poster to clearly convey a message 7. Choose how to combine text and graphics in a slide 8. Modify a logo using a graphic editing program 9. Use digital tools to provide feedback on design choices 10. Modify a logo so that it fits in with the planned slide styles 11. Plan a consistent layout for a set of slides 12. Create a styled set of slides based on a plan 13. Evaluate content against a	data and information 7. Explain the difference between primary and secondary sources of data 8. Analyse data 9. Create appropriate charts in a spreadsheet 10. Use the functions SUM, COUNTA, MAX, and MIN in a spreadsheet 11. Analyse data 12. Use a spreadsheet to sort and filter data 13. Use the functions AVERAGE, COUNTIF, and IF in a spreadsheet 14. Apply all of the spreadsheet skills covered in this unit 15. Use conditional formatting in a spreadsheet

		through a presentation 29. Plan how to deliver a presentation	20. Identify where count-controlled iteration can be used in a program 21. Implement count-controlled iteration in a program 22. Independently design and apply programming constructs to solve a problem (subroutine, selection, count-controlled iteration, operators, and variables)		rubric 14. Search for and add a suitable image 15. Search for suitable text for slides 16. Evaluate your work against a rubric 17. Explain your work to others through a presentation 18. Plan how to deliver a presentation	
Link to Future Learning	Layers of computing systems Exploring the fundamental elements that make up a computer system.	Media - Vector graphics Creating vector graphics through objects, layering, and path manipulation.	Introduction to Python programming Applying the programming constructs of sequence, selection, and iteration in Python. Mobile app development Using event-driven programming to create an online gaming app.	Introduction to Python programming Applying the programming constructs of sequence, selection, and iteration in Python. Mobile app development Using event-driven programming to create an online gaming app.	Media - Vector graphics Creating vector graphics through objects, layering, and path manipulation.	Representations - from clay to silicon Representing numbers and text using binary digits.
Connection to Careers	• Pupils are shown aspirational characters in the development of the internet (Vint Cerf, Sir Tim Berners-Lee). In the case of Sir Tim Berbers-Lee		Pupils are told that in an increasing world the the need for programming skills in the future workforce is essential to the success of getting jobs in the future			Pupils are told that Data analysis is one of the most increasing work areas across the globe. With the advent of online data collection there is a great need for data analysts to make sense of the data that is collected.

	they are told that a Local man(lived in Bournemouth) has fundamentally changed the way mankind share information and that they could be someone like him					
Homework	Seneca tasks investigating online safety	News Story trustworthy task Audience category task	Seneca programming tasks	Seneca programming tasks	News Story trustworthy task Audience category task	Pixel Art flag Data Collection task