

**Computer Science**

**KS3 Tracking Booklet**

**2018/19**

**Year 7**

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| **Name**  |  |
| **Group** |  |
| **Teacher** |  |

**Tracking Data**

**My end of KS3 TARGET is:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Report Cycle** | **Working At (WA)** | **Working Towards (WT)** | **Learning Profile****(LP)** | **On Target?** |
| Autumn 1 |  |  |  |  |
| Autumn 2 |  |  |  |  |
| Spring 1 |  |  |  |  |
| Spring 2 |  |  |  |  |
| Summer 1 |  |  |  |  |
| Summer 2 |  |  |  |  |

**Leading learning questions**

What have you learnt?

What level are you working at?

How can you improve your level?

What is your learning profile?

How many house points do you have?

**Literacy marking codes**

sp Word *underlined* for spelling correction.

(Correct spelling is written in the margin or at the bottom of the page. Pupils to write the correct spelling 5 times on the spelling page at the back of their book / folder)

P Insert missing punctuation / correct punctuation

// New paragraph needed

?? This does not make sense / check for grammatical errors

^ Insert missing word

Pr Have you proof read this / need to proof read

**Unit 1 – Computer Systems**

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| --- | --- | --- | --- |
| **No.** | **Lesson** | **Software** | **Homework** |
| 1 | Logging In / Creating Folders, Computing Rules Poster | IE / PPT | Create a Computing Rules Poster |
| 2 | Online Safety: cyberbullying, virus, sexting | IE/Chrome | Design e-safety Screensaver aimed at 11 year olds warning of the dangers of the internet and how to stay safe. |
| 3 | Emails; Log on to email account, email etiquette, office 365 | Office 365 | Explore OneDrive |
| 4 | Understand the purpose and function of a Computer System: Input, Process, Output, Storage |  | Use any drawing software to design a new mobile phoneDesigns should be labelled to identify input, processing, storage and output devices |
| 5 | Identify some input and output devices |  | Research input and output device that helps overcome a disability |
| 6 | Name and Identify different Components of a Personal Computer |  | Building a Computer Project |
| 7 | Know the purpose and functions of a CPU  |  |  |
| 8 | Operating systems; software, the purpose and functions of an operating system |  | Write a magazine-style review for PC World on a mobile phone Operating System |
| 9 | Extended Writing skills |  |  |
| 10 | End of Unit 1 Assessment |  |  |

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| **National Curriculum Level Criteria**“Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems” |
| Grade 2 | * I know some facts about how a computer works
* I can answer some state, label and identify questions
* I can log on to my e-mail account and send an e-mail.
* I understand the risks of online and mobile technology threats
 |  |
| Grade 3 | * I can describe some parts of a computer
* I can give examples of hardware and software
* I know what is an operating system
* I know some facts about how computers communicate
* I can communicate digitally by formatting and sending e-mails using contact lists, and am able to reply to the e-mails I get.
* I can explain the harm virus cause and know what to do to prevent them.
 |  |
| Grade 4 | * I can explain how a computer system works; IPOS
* I can compare different memory and storage types
* I can label Von Neumann architecture diagram
* I can list some features of the operating system
* I can communicate digitally by formatting and sending e-mails using contact lists, and am able to reply to the e-mails I get.
* I can devise strategies to counteract online and mobile threats
 |  |

**Keywords**

Computer Systems Input Output Storages CPU Cores Clock Speed Operating System Software Hardware Peripherals

Cache RAM Fetch Decode Execute

Cyberbullying Virus Sexting e-safety

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| **Work assessed** | Extended Writing Mark scheme |  |
| **Vocab** | 1 Lacking vocab, use at least one keyword per sentence |  |
| 2 Could have more vocab or vocab use is not accurate. Check the updated vocab list |  |
| 3 Excellent |  |
| **Detail** | 1 A very basic understanding. Use the prompt sheet to structure your answer |  |
| 2 Good understanding, however some sentences and statements could be more detailed |  |
| 3 Excellent |  |
| **Presentation** | 1 Poor in places, showing little pride and care for your own work. |  |
| 2 Neatness could be improved in the final redraft |  |
| 3 Excellent |  |
| **Spelling, Punctuation and Grammar** | 1 Please do corrections using the keyword list and dictionary. Use the prompt sheet to structure your answer. Proof-read afterwards. |  |
| 2 A few errors need correcting |  |
| 3 Excellent |  |

**Unit 2 – Computational Thinking**

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| **No.** | **Lesson** | **Software** | **Homework** |
| 1 | Know and understand what computational thinking is and be able to define each strand. Use Decomposition to solve a problem. |  |  |
| 2 | Spot patterns in a given problem and write down vague rules which can be used to solve the problem |  | Complete the Pattern recognition worksheet |
| 3 | Algorithms- Create algorithms using flowchart.  |  | Draw a flow chart which will ask the user to enter two numbers. Subtract the smallest number from the larger one and display the answer. |
| 4 | Algorithms - Pseudocode |  |  |
| 5 | Introduction to Sorting Algorithms-Bubble Sort |  | Research task on Sorting Algorithms |
| 6 | Insertion Sort |  |  |
|  | End of Unit Assessment |  |  |

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| **National Curriculum Grade Criteria**“Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems ♣ understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching];” |
| Grade 3 | I know what is Computational thinking I can define the different strands of Computational thinkingI know what an algorithm isI can write algorithms using symbols to solve a problem.I know that computers need precise instructions.  |  |
| Grade 4 | I can apply Computational skills to solve a problemI can write simple algorithms to solve a problem I understand several key algorithms that reflect computational thinking |  |
| Grade 5 | I can write precise and accurate algorithms to solve a problem |  |

**Keywords**

Computational thinking Decomposition Abstraction Algorithms

Pattern match Bubble sort Insertion sort Flowchart Pseudocode

**Unit 3 – Visual Programming (Scratch)**

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| **No.** | **Lesson** | **Software** | **Homework** |
| 1 | Introduction to ScratchInput and Output |  |  |
| 2 | Controlling movement with the keyboard, costume change, reacting to the background. | Scratch | Add sound effects to the colour changes in the crab program. |
| 2 | Cat / Dog tutorialUsing the mouse to control movement, sprites reacting to each other. | Scratch | Write the route from your ICT classroom to the fire evacuation meeting point using scratch instructions. (Don’t forget to open the doors!) |
| 3 | Maze Game TutorialResizing/relocating sprites, timed costume changes, using timers. | Scratch | Design / storyboard a unique game to develop in scratch. |
| 4 | Free choice extended skill tutorials | Scratch | **Major HW project. (2wks – 5hrs)**Design and program a game in scratch with at least two levels using at least one variable (timer/ stopwatch/velocity/etc.) |
| 5 | Game designStudents to develop their own multi-level game combining skills developed from multiple tutorials, | Scratch | Self assessment / evaluation of the project – What have you learnt? What went well? What did you enjoy? What would you do differently next time? |
| 6 | Add timer / stop watch / highest score / resistance / gravity / etc. to your game. | Scratch | Add timer / stop watch / highest score / resistance / gravity / etc. to your game.Add sound effects to the colour changes in the crab program. |
| Ext 1 | Introduction to ScratchCrab – controlling movement with the keyboard, costume change, reacting to the background. | Scratch |
| Ext 2 | Cat / Dog tutorialUsing the mouse to control movement, sprites reacting to each other. | Scratch | Write the route from your ICT classroom to the fire evacuation meeting point using scratch instructions. (Don’t forget to open the doors!) |

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| **National Curriculum Grade Criteria**“Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; design and develop modular programs that use procedures or functions” |
| Grade 3 | I can plan the design of a gameI can write simple sequence of instructions to program a gameI know the 3 Programming constructsI can annotate my designed game |  |
| Grade 4 | I can plan a detailed design of a gameI can devise and refine sequences of instructionsI can use models to explore relationships between inputs and outputs and explain how the models workI can create variables that can change during a program |  |
| Grade 5 | I can create precise and accurate sequences of instructionsI can change variables within models and explain the impactI can create efficient sequences of instructions including the use of subroutines/functionsI can evaluate my game, identifying areas for development |  |

**Keywords**

Control Scratch Input Output Sensor Broadcast Instruction Flowchart

Program Sprite Background Stage Costume Model Script

Programming Constructs Sequence Selection Iteration

**Unit 4 – Python Turtle**

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| **No.** | **Lesson** | **Software** | **Homework** |
| 1 | Turtle basics- Learning how to make a Turtle draw on a GUI | Python 3.5 | Complete Lesson 1 sheet |
| 2 | Loops- Iteration-Repeating Instructions | Python 3.5 | Complete Lesson 2 sheet |
| 3 | Inputs to add User Interaction | Python 3.5 | Complete Lesson 3 sheet |
| 4 | Programming Conditions -Selection | Python 3.5 | Complete Lesson 4 sheet |
| 5 | Functions/Subroutines | Python 3.5 | Complete Lesson 5 sheet |
| 6 | Importing and Using Random function | Python 3.5 | Revise for Assessment |
|  | End of Unit Assessment |  |  |

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| **National Curriculum Level Criteria** |
| Grade 3 | * Create a simple program showing sequence to draw a shape
* Create and assign variables
* Understand python syntax: case sensitive
* Know the 3 programming constructs
* **Understand** what selection and iteration are
* Understand what a Subroutine/function is
 |  |
| Grade 4 | * Create programs with input statements to create user interaction
* Describe and give example code for the 3 programming constructs
* Draw shapes using Loops
* **Write** selection statements and comments on code
* **Explain** how to use a subroutine/function
* **Understand the Random function**
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| Grade 5 | * **Implement** the use of subroutines in program to draw a house
* **Use the Random function to create random input for a game**
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**Keywords**

Control Scratch Input Output Sensor Broadcast Instruction Flowchart

Program Sprite Background Stage Costume Model Script

**Unit 5 – Using technology safely, securely and responsibly**

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| **No.** | **Lesson** | **Software** | **Homework** |
| 1 | Ethics | PPT | Homework sheet 1: Technologies and how they affect people |
| 2 | Cyberbullying | PPT/Word/ Publisher | Homework sheet 2 : write an article to respond to the allegations that people are being bullied through social media |
| 3 | Technology and the Environment | PPT/IE | Homework sheet 3: Research on the impacts of technology on the environment |
| 4 | Legislation – Computer Misuse Act | PPT | Create a presentation on all the Acts |
| 5 | Data Protection | PPT/Word/ Publisher | Homework sheet 4:news report |
| 6 | Copyright Act | PPT/IE/ Word | Homework sheet 5: watch video and answer questions |
|  | End of Year Assessment |  |  |

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| **National Curriculum Level Criteria** |
| Grade 3 | •List some ethical, legal, cultural or environmental issues in relation to a given scenario•List some privacy issues in relation to a given scenario•Choose from a given list, which Act is relevant to a particular scenario |  |
| Grade 4 | • Describe some ethical, legal, cultural and/or environmental issues in relation to a given scenario• Describe some privacy issues in relation to a given scenario |  |
| Grade 5 | • List the clauses of the Data Protection Act and Computer Misuse Act and give examples of situations in which they are relevant• Evaluate the impact of and issues related to the use of computers in society |  |

**Keywords**

Ethical Legal Environmental Command Words Stakeholders Technology Copyright Design & Patterns Computer and Misuse Act

Command words Discuss Evaluate

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| --- | --- | --- | --- | --- |
| Work Assessed : Extended Writing | Grade: |  | Date: |  |
| What Went Well(WWW) |  | Even Better If(EBI) |  |
| You wrote some interesting points. Good effort.  |  | Make sure you give balanced arguments (Both positive and negative points) |  |
| You have given some interesting points but lack depth.  |  | Use the whole text block to explain your ideas, giving evidence to back up your points |  |
| You need to explain the real-world impact in a bit more detail. |  | Make sure you use relevant real-world examples when you can to show you understand the point fully. |  |
| Your target is to justify your work fully. |  | Use Point | Evidence | Justify to help you plan then write your answer. |  |
| Go Green |
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**Notes**

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**Computer Science Keywords**

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| **Keyword / Term** | **Definition** |
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