

**Computer Science**

**KS3 Tracking Booklet**

**2018/19**

**Year 7**

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

**Tracking Data**

**My end of KS3 TARGET is:**

|  |  |  |  |  |
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| **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 phone  Designs 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 thinking  I know what an algorithm is  I 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 problem  I 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 Scratch  Input 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 tutorial  Using 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 Tutorial  Resizing/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 design  Students 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 Scratch  Crab – controlling movement with the keyboard, costume change, reacting to the background. | Scratch |
| Ext 2 | Cat / Dog tutorial  Using 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 game  I can write simple sequence of instructions to program a game  I know the 3 Programming constructs  I can annotate my designed game |  |
| Grade 4 | I can plan a detailed design of a game  I can devise and refine sequences of instructions  I can use models to explore relationships between inputs and outputs and explain how the models work  I can create variables that can change during a program |  |
| Grade 5 | I can create precise and accurate sequences of instructions  I can change variables within models and explain the impact  I can create efficient sequences of instructions including the use of subroutines/functions  I 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** |  |
| Grade 5 | * **Implement** the use of subroutines in program to draw a house * **Use the Random function to create random input for a game** |  |

**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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