Our **intent** for Computing is to equip children for our ever-developing technological world and to ensure our children behave responsibly online. We are passionate about e safety and educating our children how to stay safe online.

Our **intent** is for children to:

* Achieve their absolute potential by having the highest expectations of their learning
* Be confident in the use of a range of technology and to understand its place in today’s world
* Be confident to ask questions and extend their knowledge.
* Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact.

We **implement** our Computing curriculum through:

* In EYFS, we implement technology through a wide range of technological toys. We use technology to support reading, phonics and maths as well as teach children about the importance of keeping themselves safe when using electronic equipment and the internet
* Our curriculum follows the scheme Purple Mash.
* Lesson plans reflect what is being taught, vocabulary, relevant diagrams, photos and knowledge organisers
* Computing journals that are high quality and show a range of evidence and evidence high expectations
* A creative and innovative approach using a range of high quality ICT resources
* Ensuring staff and volunteers are trained and confident in online safety, identifying and responding to concerns
* Teaching children and young people the skills to stay safe online using advised guidance and through nurture and relationships, mutual respect and trust
* Sharing helpful advice and resources with parents and carers
* Developing robust e-safety policies and procedures
* Regularly reviewing and improving our e-safety provision
* Logging and monitoring any concerns

The National Curriculum provides a structure and skill development for the Computing curriculum being taught. This is linked to our Computing scheme to provide a creative approach tailored to our children's needs, which reflects a balanced programme of study.

The**impact** of this is our children understand the importance of staying safe online and what to do if they have any concerns.

We also encourage our families to use the NSPCC guidance found at: <https://www.nspcc.org.uk/preventing-abuse/keeping-children-safe/online-safety>

Here’s what our children say:

“It’s fun because you get to search about things and you get to learn more about technology.” (Year 5 pupil)

“I know to tell an adult or teacher if something is worrying me online.” (Year 4 pupil)

“I feel safe using the laptops in school.” (Year 6 pupil)

“I like making games.” (Year 2 pupil)

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| KS1 | **Autumn Term**  Me and My World | | | **Spring Term**  Amazing Animals | | | **Summer Term**  Pirates | |
| **Y1** | **Online Safety & Exploring Purple Mash (Tools, Paint Projects)**  **Knowledge and Skills**  ~ Logging in safely.  ~ Find saved work in the Online Work area and find teacher comments.  ~ Familiarity with the icons.  ~ Add pictures and text to work.  ~ Open, save and print.  ~ Understand the importance of logging out | **Grouping & Sorting (2DIY)**  **Knowledge and Skills**  ~ Sort items using a range of criteria.  ~ Sort items on the computer using the ‘Grouping’ activities in Purple Mash. | **Pictograms (2Count)**  **Knowledge and Skills**  ~ Understand that data can be represented in picture format. ~ Contribute to a class pictogram.  ~ Use a pictogram to record the results of an experiment. | **Lego Builders (2DIY)**  **Knowledge and Skills**  ~ Compare the effects of adhering strictly to instructions to completing tasks without complete instructions.  ~ Follow and create simple instructions on the computer.  ~ Consider how the order of instructions affects the result. | **Maze Explorers (2Go)**  **Knowledge and Skills**  ~ Understand the functionality of the direction keys.  ~ Understand how to create and debug a set of instructions (algorithm).  ~ Use the additional direction keys as part of an algorithm.  ~ Understand how to change and extend the algorithm list.  ~ Create a longer algorithm for an activity.  ~ Set challenges for peers.  ~ Access peer challenges set by the teacher as 2dos. | **Animated Story Books (2Create a Story)**  **Knowledge and Skills**  ~ Introduce e-books and the 2Create a Story tool.  ~ Add animation to a story.  ~ Add sound to a story, including voice recording and music the children have composed.  ~ Work on a more complex story, including adding backgrounds and copying and pasting pages.  ~ Share e-books on a class display board. | **Coding (2Code)**  **Knowledge and Skills**  ~ Understand what coding means.  ~ Use design mode to set up a scene.  ~ Add characters.  ~ Use code blocks to make the character perform actions.  ~ Use collision detection.  ~ Save and share work.  ~ Know the save, print, open and new icon. | **Spreadsheets (2Calculate)**  **Knowledge and Skills**  ~ Know what a spreadsheet program looks like.  ~ Know to open 2Calculate in Purple Mash.  How to enter data into spreadsheet cells.  ~ Use 2Calculate image tools to add clipart to cells.  ~ Use 2Calculate control tools: lock, move cell, speak and count. |
| Vocabulary | log in username password avatar  my work  log out  save notification topics  tools | sort criteria | pictogram  data  collate | instruction algorithm computer program debug | direction  challenge  arrow  undo  rewind  forward  backwards  right turn  left turn  debug  instruction  algorithm | animation  e-book  font  file  sound effect  display board | action  background  button  character  code block  code design  coder  coding  collision detection  command  design mode  input  object  program  properties  scale  stop command  sound  when clicked  when key | technology |

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| KS1 | **Autumn Term**  Space | | | **Spring Term**  Great Fire of London | | | **Summer Term**  The Lonely Beast | |
| **Y2** | **Coding (2Code)**  **Knowledge and Skills**  ~ Understand what an algorithm is.  ~ Design algorithms and then code them.  ~ Compare different object types.  ~ Use the repeat command.  ~ Use the timer command.  ~ Know what debugging is and debug programs. | **Digital Literacy (Digital Footprint Quiz)**  **Knowledge and Skills**  ~ Know how to refine searches using the Search tool.  ~ Use digital technology to share work on Purple Mash to communicate and connect with others locally.  ~ Have some knowledge and understanding about sharing more globally on the Internet.  ~ Know Email as a communication tool using 2Respond simulations.  ~ Know how we should talk to others in an online situation.  ~ Open and send simple online communications in the form of email.  ~ Understand that information put online leaves a digital footprint or trail.  ~ Identify the steps that can be taken to keep personal data and hardware secure | **Spreadsheets (2Calculate)**  **Knowledge and Skills**  ~ Use 2Calculate image, lock, move cell, speak and count tools to make a counting machine.  ~ Copy and paste in 2Calculate.  To use the totalling tools.  ~ Use a spreadsheet for money calculations.  ~ Use the 2Calculate equals tool to check calculations.  ~ Use 2Calculate to collect data and produce a graph. | **Questioning(2Question, 2Investigate)**  **Knowledge Skills**  ~ Learn about data handling tools that can give more information than pictograms.  ~ Use yes/no questions to separate information.  ~ Construct a binary tree to identify items.  ~ Use 2Question (a binary tree database) to answer questions.  ~ Use a database to answer more complex search questions.  ~ Use the Search tool to find information. | **Effective Searching (Kiddle.co.uk, leaflet template)**  **Knowledge and Skills**  ~ Understand the terminology associated with searching.  ~ Gain a better understanding of searching on the Internet.  ~ Create a leaflet to help someone search for information on the Internet. | **Creating pictures (2Paint a Picture)**  **Knowledge and Skills**  ~ Learn the functions of the 2Paint a Picture tool.  ~ Learn about and recreate the Impressionist style of art (Monet, Degas, Renoir).  ~ Recreate Pointillist art and look at the work of pointillist artists such as Seurat.  ~ Learn about the work of Piet Mondrian and recreate the style using the lines template.  ~ Learn about the work of William Morris and recreate the style using the patterns template. | **Making Music (2Sequence)**  **Knowlwdge and Skills**  ~ Make music digitally using 2Sequence.  ~ Explore, edit and combine sounds using 2Sequence.  ~ Edit and refine composed music.  ~ Know how music can be used to express feelings and create tunes which depict feelings.  ~ Upload a sound from a bank of sounds into the Sounds section.  ~ Record and upload environmental sounds into Purple Mash.  ~ Use the sounds to create tunes in 2Sequence. | **Presenting ideas**  **(2Quiz, UK Factfile)**  **Knowledge and Skills**  ~ Explore how a story can be presented in different ways.  ~ Make a quiz about a story or class topic.  ~ Make a fact file on a non-fiction topic.  ~ Make a presentation to the class. |
| Vocabulary | action  algorithm  bug  character  code block  code design  command  debug/debugging  design mode  input  object  properties  repeat  scale  time  when clicked  when key | search  internet  sharing  email  digital footprint  attachment | backspace key  columns  cells  count tool  delete key  equals tool  image toolbox  lock tool  move cell tool  rows  speak tool  spreadsheet | pictogram  question  data  collate  binary tree  avatar  database | internet  search  search engine | impressionism  palette  pointillism  share  template | BPM  composition  digitally  instrument  music  sound effects  soundtrack  tempo  volume | concept map (mind map)  node  animated  quiz  non fiction  presentation  narrative  audience |

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| Lower KS2 | **Autumn Term** | | | **Spring Term** | | | **Summer Term** | |
| **Y3** | **Coding (2Code)**  **Knowledge and Skills**  ~Design algorithms using flowcharts.  ~ Design an algorithm that represents a physical system and code this representation.  ~ Use selection in coding with the ‘if’ command.  ~ Use variables in 2Code. ~ Deepen understanding of the different between timers and repeat commands. | **Online Safety (2Blog, 2Write)**  **Knowledge and Skills**  ~ Know what makes a safe password/methods for keeping passwords safe.  ~ Know the Internet can be used in effective communication.  ~Understand how a blog can be used to communicate with a wider audience.  ~ Consider the truth of the content of websites. ~ Know about the meaning of age restrictions symbols on digital media and devices. | **Spreadsheets (2Calculate)**  **Knowledge and Skills**  ~ Use the symbols more than, less than and equal to, to compare values.  ~ Use 2Calculate to collect data and produce a variety of graphs.  ~ Use the advanced mode of 2Calculate to learn about cell references. | **Touch typing (2Type)**  **Knowledge and Skills**  ~ Know typing terminology. ~ Sit the correct way at the keyboard. ~ Learn how to use the home, top and bottom row keys.  ~ Practice typing with the left and right hand. | **Email (2Email, 2Connect, 2DIY)**  **Knowledge and Skills**  ~ Know about different methods of communication.  ~ Open and respond to an email using an address book. ~ Learn how to use email safely.  ~ Add an attachment to an email.  ~ Explore a simulated email scenario. | **Branching Databases (2Question)**  **Knowledge and Skills**  ~ Sort objects using just ‘yes’ or ‘no’ questions.  ~ Work a branching database using 2Question. ~ Create a branching database of the children’s choice. | **Simulations (2Simulate)**  **Knowledge and Skills**  ~ Know what simulations are. ~ Explore a simulation.  ~ Analyse and evaluate a simulation. | **Graphing (2Graph)**  **Knowledge and Skills**  ~ Enter data into a graph and answer questions.  ~ Solve an investigation and present the results in graphic form. |
| Vocabulary | action algorithm bug code block code design command control bug/debugging design mode event if input output object properties repeat computer simulation selection timer variable | password internet  blog  concept map username website webpage spoof website PEGI rating | <>=  advance mode  copy and paste  columns cells  delete key  equals tool move cell tool rows  spin tool spreadsheet | posture  top row keys home row keys  bottom row keys  space bar | communication  email compose  send  report to teacher attachment address book save to draft password  cc formatting | branching database data database question  simulation | Simulation | graph  field  data bar  chart  block graph  line graph |

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| Lower KS2 | **Autumn Term** | | | **Spring Term**  Greeks | | | **Summer Term**  Yorkshire | |
| **Y4** | **Coding (2Code)**  **Knowledge and Skills**  ~  To use selection in coding with the ‘if/else’ command.  To understand and use variables in 2Code.  To use flowcharts for design of algorithms including selection.  To use the ‘repeat until’ with variables to determine the repeat.  To learn about and use computational thinking terms decomposition and abstraction. | **Online Safety (2Connect, 2Investigate)**  **Knowledge and Skills**  ~  To understand how children can protect themselves from online identity theft.  Understand that information put online leaves a digital footprint or trail and that this can aid identity theft.  To Identify the risks and benefits of installing software including apps.  To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism.  To identify appropriate behaviour when participating or contributing to collaborative online projects for learning.  To identify the positive and negative influences of technology on health and the environment.  To understand the importance of balancing game and screen time with other parts of their lives. | **Spreadsheets (2Calculate)**  **Knowledge and Skills**  ~  Formatting cells as currency, percentage, decimal to different decimal places or fraction.  Using the formula wizard to calculate averages.  Combining tools to make spreadsheet activities such as timed times tables tests.  Using a spreadsheet to model a real-life situation.  To add a formula to a cell to automatically make a calculation in that cell. | **Writing for Different Audiences (2Email, 2DIY, 2Connect)**  **Knowledge and Skills**  ~ Explore how font size and style can affect the impact of a text.  ~ Use a simulated scenario to produce a news report.  ~ Use a simulated scenario to write for a community campaign. | **Logo (Logo)**  **Knowledge and Skills**  ~ Learn the structure of the coding language of Logo.  ~ Input simple instructions in Logo.  ~ Using 2Logo to create letter shapes.  ~ Use the Repeat function in Logo to create shapes.  ~ Use and build procedures in Logo. | **Animation (2Animate)**  **Knowledge and Skills**  ~ Discuss what makes a good animated film or cartoon.  ~ Learn how animations are created by hand.  ~ Find out how 2Animate can be created in a similar way using the computer.  ~ Learn about onion skinning in animation.  ~ Add backgrounds and sounds to animations.  ~ Learn about ‘stop motion’ animation.  ~ Share animation on the class display board and by blogging. | **Effective searching (Browser)**  **Knowledge and Skills**  ~ Locate information on the search results page.  ~ Use search effectively to find out information.  ~ Assess whether an information source is true and reliable. | **Hardware Investigators (2Connect, 2Quiz)**  **Knowledge and Skills**  ~ Understand the different parts that make up a computer.  ~ Recall the different parts that make up a computer. |
| Vocabulary | Action  Alert Algorithm  Bug  Code  Design Command Control Debug/Debugging  Design Mode  Event  Get Input  If  If/Else  Input  Output  Object  Repeat Selection Simulation Timer  Variable | Computer virus  Cookies Copyright Digital footprint Email  Identity theft Malware. Phishing Plagiarism Spam | Average Advance mode  Copy and Paste  Columns  Cells  Charts  Equals tool Formula Formula Wizard  Move cell tool Random tool Rows  Spin Tool Spreadsheet Timer | Font  Bold  Italic Underline | LOGO  BK  FD  RT  LT  REPEAT  SETPC  SETPS  PU  PD | Animation Flipbook Frame  Onion -skinning Background Play Sound Stop motion Video clip | Easter egg Internet. Internet browser  Search  Search engine Spoof website Website | Motherboard CPU  RAM  Graphics card Network card Monitor Speakers Keyboard and mouse |

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| Upper KS2 | **Autumn Term**  Beside the Seaside | | | **Spring Term**  Egypt | | **Summer Term**  Local Area - York | |
| **Y5** | **Coding (2Code)**  **Knowledge and Skills**  ~ Represent a program design and algorithm.  ~ Create a program that simulates a physical system using decomposition.  ~ Explore string and text variable types so that the most appropriate can be used in programs.  ~ Use the Launch command in 2Code Gorilla  ~ Program a playable game with timers and scorepad. | **Online Safety**  **(2Connect, 2Paint a Picture)**  **Knowledge and Skills**  ~Gain a greater understanding of the impact that sharing digital content can have.  ~ Review sources of support when using technology and children’s responsibility to one another in their online behaviour.  ~ Know how to maintain secure passwords.  ~ Understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this.  ~ Be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online.  ~ Learn about how to reference sources in their work  ~ Search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information. | **Spreadsheets(2Calculate)**  **Knowledge and Skills**  ~ Using the formula wizard to add a formula to a cell to automatically make a calculation in that cell.  ~ Copy and paste within 2Calculate.  ~ Using 2Calculate tools to test a hypothesis.  ~ Add a formula to a cell to automatically make a calculation in that cell.  ~ Using a spreadsheet to model a real-life situation and answer questions. | **Databases (2Question, 2Investigate)**  **Knowledge and Skills**  ~ Learn how to search for information in a database.  ~ Contribute to a class database.  ~ Create a database around a chosen topic. | **Game Creator (2DIY 3D)**  **Knowledge and Skills**  ~ Set the scene for the game.  ~ Create the game environment.  ~ Create the game quest.  ~ Finish and share the game.  ~ Evaluate their and peers’ games. | **3D Modelling**  **(2Design and Make)**  **Knowledge and Skills**  ~ Know about 2Design and Make and the skills of computer aided design.  ~ Explore the effect of moving points when designing.  ~ Understand designing for a purpose.  ~ Understand printing and making. | **Concept (2Connect)**  **Knowledge and Skills**  ~ Understand the need for visual representation when generating and discussing complex ideas.  ~ Use the correct vocabulary when creating a concept map.  ~ Create a concept map.  ~ Understand how a concept map can be used to retell stories and present information.  ~ Create a collaborative concept map and present this to an audience. |
| Vocabulary | If/Else  Input  Output  Object  Repeat Sequence Selection Simulation Timer  Variable | Online safety Smart rules Password Reputable Encryption Identity theft Shared image Plagiarism Citations Reference Bibliography | Average  Advance mode  Copy and Paste  Columns  Cells  Charts  Equals tool  Formula  Formula Wizard  Move cell tool  Random tool  Rows  Spin Tool  Spreadsheet  Timer | Avatar  Binary tree (branching database)  Charts  Collaborative  Data  Database  Find  Record  Sort, Group and Arrange  Statistics and reports  Table | Animation  Computer game  Customise  Evaluation  Image  Instructions  Interactive  Screenshot  Texture  Perspective  Playability | CAD – Computer aided Design  Modelling  3D  Viewpoint  Polygon  2D  Net  3D Printing  Points  Template | Audience  Collaboratively  Concept  Concept Map  Connection  Idea  Node  Thought  Visual |

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| Upper KS2 | **Autumn Term**  World War 2 | | | **Spring Term**  Rainforests | | | **Summer Term**  London | |
| **Y6** | **Coding (2Code)**  **Knowledge and Skills**  ~ Use the program design process, including flowcharts, to develop algorithms for more complex programs using and understanding of abstraction and decomposition to define the important aspects of the program.  ~ Code, test and debug from these designs. ~ Use functions and tabs in 2Code to improve the quality of the code. ~ Code user interactivity using input functions | **Online Safety (2DIY, 2Investigate, 2DIY 3D)**  **Knowledge and Skills**  ~ Identify benefits and risks of mobile devices broadcasting the location of the user/device.  ~ Identify secure sites by looking for privacy seals of approval.  Identify the benefits and risks of giving personal information.  ~ Review the meaning of a digital footprint.  ~ Have a clear idea of appropriate online behaviour.  ~ Begin to understand how information online can persist.  ~ Understand the importance of balancing game and screen time with other parts of their lives.  ~ Identify the positive and negative influences of technology on health and the environment. | **Spreadsheet (2Calculate)**  **Knowledge and Skills**  ~ To use a spreadsheet to investigate the probability of the results of throwing many dice.  ~ Using the formula wizard to add a formula to a cell to automatically make a calculation in that cell.  ~ Create graphs showing the data collected.  ~ Type in a formula for a cell to automatically make a calculation in that cell.  ~ Using a spreadsheet to create computational models and answer questions. | **Blogging (2Blog)**  **Knowledge and Skills**  ~ Identify the purpose of writing a blog and its key features.  ~ Plan the theme and content for a blog and write the content.  ~ Consider the effect upon the audience of changing the visual properties of the blog.  ~ Understand the importance of regularly updating the content of a blog.  ~ Understand how to contribute to an existing blog.  ~ Understand how and why blog posts are approved by the teacher. | **Text Adventure (2Code, 2Connect)**  **Knowledge and Skills**  ~ Find out what a text adventure is.  ~ Plan a story adventure.  ~ Make a story-based adventure.  ~Introduce map-based text adventures.  ~ Code a map-based text adventure. | **Networks (Sir Tim Berners-Lee Profile, 2Connect)**  **Knowledge and Skills**  ~ Learn about what the Internet consists of.  ~ Find out what a LAN and a WAN are.  ~ Find out how the Internet is accessed in school.  ~ Research and find out about the age of the Internet.  ~ Think about what the future might hold. | **Quizzing (2Quiz, 2DIY, 2Investigate, 2Connect)**  **Knowledge and Skills**  ~ Create a picture-based quiz for young children.  ~ Learn how to use the question types within 2Quiz.  ~ Explore the grammar quizzes.  ~ Make a quiz that requires the player to search a database. | **Binary (2Connect, 2Question, Free Code)**  **Knowledge and Skills**  ~ Know what the terms binary and denary mean and how they relate to the number system, the digital system and the terms base-10 and base-2 ~ Relate binary to the on and off states of electrical switches. ~ Convert numbers from decimal to binary. ~ Convert numbers from binary to decimal. ~ Represent states of object in their own program using binary. |
| Vocabulary | Action  Alert  Algorithm  Bug  Code Design  Command  Control  Debug/Debugging  Event  Function  Get Input  If  If/Else  Input  Output  Object  Repeat  Sequence  Selection  Simulation  Tabs  Timer  Variable | Digital footprint  Password  PEGI rating  Phishing  Screen time  Spoof website | Average  Advance mode  Copy and Paste  Columns  Cells  Charts  Count (how many) tool  Dice  Equals tool  Formula  Formula Wizard  Move cell tool  Random tool  Rows  Spin Tool  Spreadsheet  Timer | Audience  Blog  Blog page  Blog post  Collaborative  Icon | Text-based adventure  Concept map  Debug  Sprite  Function | Internet  World Wide Web  Network  Local area network (LAN)  Wide area network (WAN)  Router  Network cables  Wireless | Audience  Collaboration  Concept map  Database  Quiz | Base 10  Base 2  Binary  Bit  Byte  Decimal  Denary  Digit  Gigabyte (GB).  Integer  Kilobyte (KB)  Machine code  Megabyte (MB)  Nibble – 4 bits.  Switch  Tetrabyte (TB)  Transistor  Variable |