

Computing – Concept Map

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|  | Early Years | Year 1&2 | Year 3&4 | Year 5&6 |
| **Computer Science** | Read a set of instructions and predict the outcome  Write/draw a simple set of instructions in order including programming moveable toys  Make changes to instructions and predict how the outcome will change  Correct mistakes in instructions  Describe patterns and relationships  Sort objects into sets based on one or more criteria | Produce a sequence of instructions that results in planned outcomes  Program and test simple programs  Create algorithms to solve simple problems | Write an algorithm to produce a given effect using repetition, sequencing and basic selection  Accurately predict the outcome of a range of algorithms and programs  Test, debug and refine programs and algorithms  Explain how a programmed effect has been achieved  Talk about improvements that can be made to programs | Create and use efficient methods of repetition and conditional statements (if, the blocks)  Systematically test and debug computer programs  Critically analyse algorithms and programs, suggesting better and more elegant solutions  Create procedures that call on other procedures (broadcast blocks) |
| **The Internet** | Access a website using shortcuts  Navigate a website using buttons and links  Obtain information online | Choose a website based on how useful it is for a purpose  Be discerning about information from websites  Navigate around website using links and the back button  Type web addresses into browser  Create internet favourites | Understand that a computer network means connected computers  Use internet for more than just web browsing (e.g. emails)  Use search engines by using specific search terms  Navigate to the class blog  Edit websites and blogs from a range of devices  Comment on blogs | * Find and use search results knowing how search engine results are ranked   Know that computers on networks have unique addresses (IP addresses)  Know that data s transferred in packets  Design and create webpages using HTML and CSS  Understand files may be saved off their device in ‘clouds’.  Upload/download a file to the cloud on different devices.  Understand about syncing files using cloud computing folders. |
| **Communication and Collaboration** |  |  | Send and reply to emails   * Send emails to more than one person and reply to all   Add attachments to emails  Be able to filter and search emails | CC and BCC people in emails  Encrypt emails  Use telecommunication and understand its benefits and drawbacks (Skype etc) |
| **IT** | * Use a mouse and touchpad * Use a keyboard to type words * *Create and save work* * *Print work* * Understand computers can simulate real life situation * *Put together a simple presentation* | Combine graphics with text  Navigate a document using arrow keys and a mouse  Develop a storyboard and then create a simple animation  Use backspace and delete buttons  Make choices about which applications to use (word or PowerPoint)  Locate, edit and save different version of their work  **WORD**  Enter text and images  Change the font and text size  Use underline, italics and bold functions  Align text left, right and centre.  Add word art  **POWERPOINT**  Create a title slide and choose a style.  Insert a picture/text/graph from the Internet or personal files. | Used advanced features of applications to match work to an audience  Recognise an email address  Use the print screen function to capture an image.  **WORD**  Select certain areas of an image and resize, rotate and invert the image.  Edit pictures using a range of tools in a graphics program.  Use a variety of font sizes, styles and colours.  Add a border  **POWERPOINT**  Change the layout of a slide.  Decide upon and use effective transitions.  Layer images (send to back, front etc) | * Create digital content that includes images, sound and text   Create content that is organised into pages that match the needs of the audience  Analyse and critique digital content  Design criteria for evaluating content  **POWERPOINT**  Work independently to create a multi slide presentation that includes speakers notes.  Use transitions and animations to improve the quality of the presentation.  Include sounds and moving graphics in the slides.  Present to a large group or class using the notes made.  Insert videos  **WORD**  Insert and format text boxes  Insert shapes  Use dictionary and thesaurus tools  Add bullet points and numbers  Insert a table  Add a header and footer  **EXCEL**  Use basic functions  Sort information based on values  Create graphs using inputted data  Begin to use conditional formatting |
| **E-safety** | * Always ask permission before going online * Get help when unsure about something * Talk about how they use computers | * Make decisions about whether or not statements found on the internet are true or not. * Identify devices that can be used to search the Internet. * Identify what things count as personal information. * Identify when inappropriate content is accessed and act appropriately. * Recognise that a variety of devices can be used to connect a number of people. * Consider other people’s feelings on the Internet | Question the ‘validity’ of what they see on the internet.  Use a browser address bar not just search box and shortcuts.  Think before sending and comment on consequences of sending/posting.  Recognise online behaviours that would be unfair.  Make and use secure passwords  Recognise social networking sites and social networking features built into other things (such as online games and handheld games consoles)  Make judgments in order to stay safe, whilst communicating with others online.  Tell an adult if anything worries them online. Identify dangers when presented with scenarios, social networking profiles etc.  Articulate examples of good and bad behaviour online | Judge what sort of privacy settings might be relevant to reducing different risks.  Judge when and when not to answer a question online. Be a good online citizen and friend.  Articulate what constitutes good behavior online.  Use different sources to double check information found online.  Find ‘report’ and ‘flag’ buttons in commonly used sites and name sources of help (child line, cyber mentors etc)  Discuss scenarios involving online risk. State the source of information found on the Internet.  Act as a role model for younger pupils.  Control how cookies track online usage and be able to delete them |
| **Vocabulary –**  **Algorithms/**  **Programming** | * Instructions | * Algorithm * Instructions * Sequence * Debug * Repeat * Input * Output * Negative * Cut * paste   Undo  Redo  Edit | Angle  Degrees  Value  Execute  Condition  Statement  Function  Procedure  Abstraction  Call  Decomposition  Elevate  Simulation | Network  Route  Simulation  Logical operators  Variables  Iteration  Java  Orientated  Declare  Argument  Class (sub/super)  Inheritance  Abstraction  Hardware/software  Interface  Pseudo  Handler  Syntax  Assets  Decomposition  Abstraction |
| **Data** |  | * Survey * Tally * Pictogram * Information * Graph * Software * Icon * Sort * Classify | Binary  Digital  Field  File  Database  Record |  |
| **Word Processing /Communicating** | * Type | * Return * Backspace * Spacebar * Scroll * Text * Shift * Connected * Save   Cut  Bold  Font  Blog  Online  Username  Password  Post  Login | Inbox  Server  Attachment  Forward | Cipher/decipher  Code  Encrypt/decrypt  Cryptography  Encode |
| **Connecting** | * Internet * Google | Memory  Storage  Email  Multimedia  Audio video  Internet  Website  Webpage  Hyperlink  Scroll  Navigate  Worldwide web | Rooter  Network  Surfing  Browser  Default  Refresh/reload  Spider  Crawl  Hits  Tab  Domain | Skype  Instant messaging  FTP  HTML code  Hacking  CSS  URL  Tag  Copyright  Syntax  Element |
| **Safety** | * Strangers * Name * School * Age * address | Personal information  Trustworthy/untrustworthy | Privacy settings  Block  Manipulation  Endorsement  Register (online)  Identity theft  Password protection  Security  Spam  Junk Mail  Virus  Cyber bullying  Bystander  Up stander | Two factor/step verification  Encryption  Hacker  Abuse |