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| St Mary’s Catholic Primary School – Computing Curriculum Progression | | |
| Computing Intent | The aims of our Computing curriculum are to develop pupils who:  Are responsible, competent, confident and creative users of information and communication technology.  Know how to keep themselves safe whilst using technology and on the internet and be able to minimise risk to themselves and others.  Become responsible, respectful and competent users of data, information and communication technology.  Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.  Can analyse problems in computational terms, and have repeated practical experience writing computer programs in order to solve such problems.  Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.  Become digitally literate and are active participants in a digital world.  Are equipped with the capability to use technology throughout their lives.  Understand the importance of governance and legislation regarding how information is used, stored, created, retrieved, shared and manipulated.  Have a ‘can do’ attitude when engaging with technology and its associated resources.  Utilise computational thinking beyond the Computing curriculum.  Understand and follow the SMART E-Safety rules.  Understand the E-Safety messages can keep them safe online.  Know who to contact if they have concerns.  Apply their learning in a range of contexts, e.g. at school and at home. | |
| EYFS – see Development Matters 2021 for detailed examples of how to support learning in EYFS  Computing and technology are still vitally important subjects to deliver to EYFS children. Not only will teaching a well-planned Computing curriculum ensure that children enter Year 1 with a strong foundation of knowledge, but Computing lessons in the EYFS also ensure that children develop listening skills, problem-solving abilities and thoughtful questioning — as well as improving subject skills across the seven areas of learning. We live in a technological world and there is no escape from the reality that technology is integrated into the lives of young children. Just as we ensure the children in our care are ready for the adult world by teaching them maths and literacy, we should also make sure that they are fluent in computer literacy and all-important e-safety.  Technology in the Early Years can mean: taking a photograph with a camera or tablet, searching for information on the internet, playing games on the interactive whiteboard, exploring an old typewriter or other mechanical toys, using a Beebot, watching a video clip, listening to music | | |
| Area of Study | Years 1/2/3 | Years 4/5/6 |
| Digital  Literacy:  E-Safety  and E- Sense | National Curriculum:  KS1  Pupils should be taught to use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or their online technologies.  KS2  Pupils should be taught to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour, identify a range of ways to report concerns about content and contact. Be discerning in evaluating digital content. | |
|  | I can keep my password private.  I can tell you what personal information is.  I can tell an adult when I see something unexpected or worrying online.  I can talk about why it’s important to be kind and polite.  I can recognise an age appropriate website.  I can agree and follow sensible e‐ safety rules.  I can explain why I need to keep my password and personal information private.  I can describe the things that happen online that I must tell an adult about.  I can talk about why I should go online for a short amount of time.  I can talk about why it is important to be kind and polite online and in real life.  I know that not everyone is who they say they are on the internet.  I can talk about what makes a secure password  and why they are important.  I can protect my personal information when I do  different things online.  I can use the safety features of websites as  well as reporting concerns to an adult.  I can recognise websites and games appropriate  for my age.  I can make good choices about how long I spend  online.  I ask an adult before downloading files and  games from the internet.  I can post positive comments online. | I can choose a secure password when I am using a website.  I can talk about the ways I can protect myself and my friends  from harm online.  I can use the safety features of websites as well as reporting  concerns to an adult.  I know that anything I post online can be seen by others.  I choose websites and games that are appropriate for my age.  I can help my friends make good choices about the time they spend online.  I can talk about why I need to ask a trusted adult before  downloading files and games from the internet.  I comment positively and respectfully online.  I protect my password and other personal information.  I can explain why I need to protect myself and my friends and the best ways to do this, including reporting concerns to an adult.  I know that anything I post online can be seen, used and may affect others.  I can talk about the dangers of spending too long online or playing a game.  I can explain the importance of communicating kindly and respectfully.  I can discuss the importance of choosing an age‐ appropriate website or game.  I can explain why I need to protect my computer or device from harm.  I know which resources on the internet I can download and use  I protect my password and other personal information.  I can explain the consequences of sharing too much information  about myself online.  I support my friends to protect themselves and make good  choices online, including reporting concerns to an adult.  I can explain the consequences of spending too much time  online or on a game.  I can explain the consequences to myself and others of not  communicating kindly and respectfully.  I protect my computer or device from harm on the internet. |
| Information  Technology  –  Handling Data | National Curriculum:  KS1  Pupils should be taught to use technology purposefully to organise and manipulate digital content  KS2  Pupils should be taught to 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 | |
| Years 1/2/3 | Years 4/5/6 |
| I can talk about the different ways in which information can be shown.  I can use technology to collect information, including photos, video and sound.  I can sort different kinds of information and present it to others.  I can add information to a pictograph and talk to you about what I have found out.  I can talk about the different ways I use technology to collect information, including a camera, microscope or sound recorder.  I can make and save a chart or graph using the data I  collect.  I can talk about the data that is shown in my chart or graph.  I am starting to understand a branching database.  I can tell you what kind of information - I could  use to help me investigate a question.  I can talk about the different ways data can be organised.  I can search a ready‐ made database to answer questions.  I can collect data to help me answer a question. I can add to a database.  I can make a branching database.  I can use a data logger to monitor changes and can talk about the information collected. | I can organise data in different ways.  I can collect data and identify where it could be inaccurate.  I can plan, create and search a database to answer questions.  I can choose the best way to present data to my friends.  I can use a data logger to record and share my readings with my  friends.  I can use a spreadsheet and database to collect and record data.  I can choose an appropriate tool to help me collect data.  I can present data in an appropriate way.  I can search a database using different operators to refine my search.  I can talk about mistakes in data and suggest how it could be checked  I can plan the process needed to carry out an investigation.  I can select the most effective tool to collect data for my investigation.  I can check the data I collect for accuracy and plausibility.  I can interpret the data I collect.  I can present the data I collect in an appropriate way.  I use the skills I have developed to interrogate a database. |
| Information  Technology  -  Multimedia | National Curriculum:  KS1  Pupils should be taught to use technology purposefully to create digital content  KS2  Pupils should be taught to 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. | |
| Years 1/2/3 | Years 4/5/6 |
| I can be creative with different technology tools.  I can use technology to create and present my ideas.  I can use the keyboard or a word bank on my device to enter text.  I can save information in a special place and retrieve it again  I can use technology to organise and present my ideas in different ways.  I can use the keyboard on my device to add, delete and space text for others to read.  I can tell you about an online tool that will help me to share my ideas with other people.  I can save and open files on the device I use.  I can create different effects with different technology tools.  I can combine a mixture of text, graphics and sound to  share my ideas and learning.  I can use appropriate keyboard commands to  amend text on my device, including making use of a  spellchecker.  I can evaluate my work and improve its effectiveness.  I can use an appropriate tool to share my work online. | I can use photos, video and sound to create an atmosphere when presenting to different audiences.  I am confident to explore new media to extend what I can achieve.  I can change the appearance of text to increase its effectiveness.  I can create, modify and present documents for a particular purpose.  I can use a keyboard confidently and make use of a spellchecker to write and review my work.  I can use an appropriate tool to share my work and collaborate online.  I can give constructive feedback to my friends to help them improve their work and refine my own work.  I can use text, photo, sound and video editing tools to refine my work.  I can use the skills I have already developed to create content using unfamiliar technology.  I can select, use and combine the appropriate technology tools to create effects that will have an impact on others.  I can select an appropriate online or offline tool to create and share ideas.  I can review and improve my work and support others to improve their work.  I can talk about audience, atmosphere and structure when  planning a particular outcome.  I can confidently identify the potential of unfamiliar  technology to increase my creativity.  I can combine a range of media, recognising the contribution of  each to achieve a particular outcome.  I can tell you why I select a particular online tool for a  specific purpose.  I can be digitally discerning when evaluating the effectiveness of my work and the work of others. |
| Computer  Science –  Technology in our lives | National Curriculum:  KS1  Pupils should be taught to use technology purposefully to store and retrieve digital content and to recognise common uses of information technology beyond school.  KS2  Pupils should be taught to 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. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. | |
| Years 1/2/3 | Years 4/5/6 |
| I can recognise the way we use technology in our classroom.  I can recognise ways that technology is used in my home and community.  I can use links to websites to find information.  I can begin to identify some of the benefits of using  Technology.  I can tell you why I use technology in the classroom.  I can tell you why I use technology in my home and  community.  I am starting to understand that other people have created the information I use.  I can identify benefits of using technology including finding information, creating and communicating.  I can talk about the differences between the internet and things in the physical world.  I can save and retrieve work on the internet, the school  network or my own device.  I can talk about the parts of a computer.  I can tell you ways to communicate with others  online.  I can describe the World Wide Web as the part of the  internet that contains websites.  I can use search tools to find and use an appropriate  website.  I can think about whether I can use images that I find  online in my own work. | I can tell you whether a resource I am using is on the internet, the school network or my own device.  I can identify key words to use when searching safely on the World Wide Web.  I think about the reliability of information I read on the  World Wide Web.  I can tell you how to check who owns photos, text and clipart.  I can create a hyperlink to a source on the World Wide Web.  I can describe different parts of the internet.  I can use different online communication for different purposes  I can use a search engine to find appropriate information and check its reliability.  I can recognise and evaluate different types of information I find on the World Wide Web.  I can describe the different parts of a webpage.  I can find out who the information on a webpage belongs to.  I can tell you the internet services I need to use for different purposes.  I describe how information is transported on the internet.  I can select an appropriate tool to communicate and collaborate online.  I can talk about the way search results are selected and ranked.  I can check the reliability of a website.  I can tell you about copyright and acknowledge the sources of information that I find online. |
| Computer  Science -  Programming | National Curriculum:  KS1  Pupils should be taught to understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.  Create and debug simple programs.  KS2  Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.  Use sequence, selection and repetition in programs; work with variables and various forms of input and output.  Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.  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. | |
| I can give instructions to my friend and follow their  instructions to move around.  I can describe what happens when I press buttons on a  robot.  I can press the buttons in the correct order to make my robot do what I want.  I can describe what actions I will need to do to make  something happen and begin to use the word ‘algorithm’.  I can begin to predict what will happen for a short sequence of instructions.  I can begin to use software/apps to create movement and patterns on a screen.  I can use the word ‘debug’ when I correct mistakes when I program.  I can give instructions to my friend (using forward, backward and turn) and physically follow their instructions.  I can tell you the order I need to do things to make  something happen and talk about this as an algorithm.  I can program a robot or software to do a particular task.  I can look at my friend’s program and tell you what will happen.  I can use programming software to make objects move.  I can watch a program execute and spot where it goes wrong so that I can debug it.  I can break an open‐ended problem up into smaller  parts.  I can put programming commands into a sequence to achieve a specific outcome.  I keep testing my program and can recognise when I  need to debug it.  I can use repeat commands.  I can describe the algorithm I will need for a simple task.  I can detect a problem in an algorithm and explain how to debug it. | I can use logical thinking to solve an open‐ended problem by breaking it up into smaller parts.  I can use an efficient procedure to simplify a program.  I can use a sensor to detect a change which can select an action within my program.  I know that I need to keep testing my program/animation while I am putting it together.  I can use a variety of tools to create a program/animation.  I can recognise an error in a program and debug it.  I can recognise that an algorithm will help me sequence more  complex programs.  I recognise that using algorithms will also help solve problems in other learning such as maths, science and design technology.  I can decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program.  I can refine a procedure using repeat commands to improve a program.  I can use a variable to increase programming possibilities.  I can change an input to a program to achieve a different output.  I can use ‘if’ and ‘then’ commands to select an action.  I can talk about how a computer model can provide information  about a physical system.  I can use logical reasoning to detect and debug mistakes in a program.  I use logical thinking, imagination and creativity to extend a program.  I can deconstruct a problem into smaller steps, recognising  similarities to solutions used before.  I can explain and program each of the steps in my algorithm.  I can evaluate the effectiveness and efficiency of my  algorithm while I continually test the programming of that  algorithm.  I can recognise when I need to use a variable to achieve a required output.  I can use a variable and operators to stop a program.  I can use different inputs (including sensors) to control a  device or onscreen action and predict what will happen.  I can use logical reasoning to detect and correct errors in  algorithms and programs. |

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| Years 1/2/3 | Autumn – Digital Literacy | Spring – Information Technology | Summer – Computer Science |
| Cycle 1 | Online Safety, Purple Mash, Unit 1.1 (4)  To log in safely.  To learn how to find saved work in the  Online Work area and find teacher  comments.  To learn how to search Purple Mash to  find resources.  To become familiar with the icons and  types of resources available in the  Topics section.  To start to add pictures and text to  work.  To explore the Tools and Games  section of Purple Mash.  To learn how to open, save and print.  To understand the importance of  logging out. | Pictograms, Purple Mash, Unit 1.3 (3)  To understand that data can be  represented in picture format.  To contribute to a class pictogram.  To use a pictogram to record the  results of an experiment. | Coding, Purple Mash, Unit 1.7 (3)  Children explore giving and following instructions to learn that computers work by following instructions.  Children start coding – programming objects to do actions using guided activity Fun with Fish, some may try using a click event.  Children are introduced to events using bubbles as an example. They  use 2Code to add click events to the program bubbles to move and  pop, some may add sound. |
| Cycle 2 | Online Safety, Purple Mash, Unit 2.2 (3)  To know how to refine searches using  the Search tool.  To use digital technology to share  work on Purple Mash to communicate  and connect with others locally.  To have some knowledge and  understanding about sharing more  globally on the Internet.  To introduce Email as a communication  tool using 2Respond simulations.  To understand how we should talk to  others in an online situation.  To open and send simple online  communications in the form of email.  To understand that information put  online leaves a digital footprint or trail.  To identify the steps that can be taken  to keep personal data and hardware  secure | Spreadsheets, Purple Mash, Units 2.3, 2.4 (4)  To use 2Calculate image, lock, move  cell, speak and count tools to make a  counting machine.  To learn how to copy and paste in  2Calculate.  To use the totalling tools.  To use a spreadsheet for money  calculations.  To use the 2Calculate equals tool to  check calculations.  To use 2Calculate to collect data and  produce a graph.  To learn about data handling tools  that can give more information than  pictograms.  To use yes/no questions to separate  information.  To construct a binary tree to identify  items.  To use 2Question (a binary tree  database) to answer questions.  To use a database to answer more  complex search questions.  To use the Search tool to find  information. | Coding, Purple Mash, Unit 2.1 (5)  Children can explain that an algorithm is  a set of instructions, can describe the algorithms they created can explain that for the computer to make something happen, it needs to follow clear instructions  Children can plan an algorithm that  includes collision detection and can create a program using collision detection.  Children read blocks of code and predict  what will happen when it is run can create a program that uses a timer-after command.  Children can explain what the timer-  after command does in their program and can predict what will happen in a program that includes a timer-after command.  Children can create a computer program  that includes different objects types and can modify the properties of an object.  Children can use different events in their  program to make objects move and can create a computer program that includes a button object.  Children can explain what a button does  in their program and can modify the properties of a button to fit their program design.  Children can create a computer program  that includes a button object and can explain what a button does in their program.  Children can modify the properties of a  button to fit their program design and can explain what debug (debugging) means.  Children can use a design document to  start debugging a program and can debug simple programs. |
| Cycle 3 | Online Safety, Purple Mash, Unit 3.2 (3)  To know what makes a safe password.  To learn methods for keeping  passwords safe.  To understand how the Internet can be  used in effective communication.  To understand how a blog can be used  to communicate with a wider audience.  To consider the truth of the content of  websites.  To learn about the meaning of age  restrictions symbols on digital media  and devices. | Branching Databases, Purple Mash, Unit 3.6  To sort objects using just ‘yes’ or ‘no’  questions.  To complete a branching database  using 2Question.  To create a branching database of the  children’s choice. | Maze Explorers, Purple Mash, Unit 1.5 (3)  Children know how to use the direction keys in 2Go to move forwards, backwards, left and right.  Children know how to add a unit of  measurement to the direction in 2Go  Challenge 2.  Children know how to undo their last move.  Children know how to move their character  back to the starting point.  Children can use diagonal direction keys to  move the characters in the right direction.  Children know how to create a simple  algorithm.  Children know how to debug their algorithm.  Children can use the additional direction  keys to create a new algorithm.  Children can challenge themselves by using  the longer algorithm to complete challenges.  Children can change the background images  in their chosen challenge and save their new challenge.  Children have tried each other’s challenges. |

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| Years 4/5/6 | Autumn – Digital Literacy | Spring – Information Technology | Summer – Computer Science |
| Cycle 1 | Online Safety, Purple Mash, Unit 4.2 (4)  To understand how children can  protect themselves from online identity  theft.  To 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. | Animation, Purple Mash, Unit 4.6 (3)  To discuss what makes a good  animated film or cartoon.  To learn how animations are created  by hand.  To find out how animation can be  created in a similar way using the  computer.  To learn about onion skinning in  animation.  To add backgrounds and sounds to  animations.  To be introduced to ‘stop motion’  animation.  To share animation on the class display  board and by blogging. | Animation, Purple Mash, Unit 4.6 (3)  Children have put together a simple  animation using paper to create a flick book. Children understand animation frames. Children have made a simple animation using 2Animate. Children know what the Onion Skin tool does in animation. Children can use the Onion Skin tool to create an animated image. Children can use backgrounds and sounds to make more complex and imaginative animations.  Children know what ‘stop motion’ animation  is and how it is created. Children have used ideas from existing ‘stop motion’ films to recreate their own animation. Children have shared their animations and  commented on each other’s work using  display boards and blogs in Purple Mash. |
| Cycle 2 | Online Safety, Purple Mash, Unit 5.2 (3)  To gain a greater understanding of the  impact that sharing digital content can  have.  To review sources of support when  using technology and children’s  responsibility to one another in their  online behaviour.  To know how to maintain secure  passwords.  To understand the advantages,  disadvantages, permissions and  purposes of altering an image digitally  and the reasons for this.  To be aware of appropriate and  inappropriate text, photographs and  videos and the impact of sharing these  online. To learn about how to reference  sources in their work.  To search the Internet with a  consideration for the reliability of the  results of sources to check validity and  understand the impact of incorrect  information. To ensure reliability through using different methods of communication. | Databases, Purple Mash, Unit 5.4 (4)  To learn how to search for information  in a database.  To contribute to a class database.  To create a database around a chosen  topic. | Game Creator, Purple Mash, Unit 5.5, (5)  Children can review and analyse a computer game.  Children can describe some of the elements that make a successful game.  Children can begin the process of designing their own game.  Children can design the setting for their game so that it fits with the selected theme.  Children can upload images or use the drawing tools to create the walls, floor, and roof.  Children can make their game more unique by selecting the appropriate options to maximise the playability.  Children can write informative instructions for their game so that other people can play it.  Children can evaluate my their own and peers’  games to help improve their design for the future. |
| Cycle 3 | Online Safety, Purple Mash, Unit 6.2 (2)  To identify benefits and risks of mobile  devices broadcasting the location of  the user/device.  To identify secure sites by looking for  privacy seals of approval.  To identify the benefits and risks of  giving personal information.  To review the meaning of a digital  footprint.  To have a clear idea of appropriate  online behaviour.  To begin to understand how  information online can persist.  To understand the importance of  balancing game and screen time with  other parts of their lives.  To identify the positive and negative  influences of technology on health and  the environment. | Blogging, Purple Mash, Unit 6.4 (4)  To identify the purpose of writing a  blog.  To identify the features of a successful  blog.  To plan the theme and content for a  blog.  To understand how to write a blog and  a blog post.  To consider the effect upon the  audience of changing the visual  properties of the blog.  To understand how to contribute to an  existing blog.  To understand how and why blog posts  are approved by the teacher.  To understand the importance of  commenting on blogs | Spreadsheets, Purple Mash, Unit 6.3, (5)  Children can create a spreadsheet to answer a mathematical question relating to probability.  Children can take copy and paste shortcuts.  Children can problem solve using the count tool. Children can create a machine to help work out the price of different items in a sale. Children can use the formula wizard to create formulae. Children can use a spreadsheet to solve a problem. Children can use a spreadsheet to model a real-life situation and come up with solutions. Children can make practical use of a spreadsheet to help plan actions. Children can use a spreadsheet to model a real-life situation and come up with solutions that can be applied to real life. |