Computing Curriculum Intent Model

Key Concepts Developed

Digital Literacy
Computer Science
Information Technology

Prior knowledge & vocabulary to be built on/retrieved in blue text

OUR LADY OF LOURDES
CATHOLIC MULTI-ACADEMY TRUST

Nursery Computing Curriculum Intent

Communication and Language

Listening, Attention and Understanding

ELG: Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions.

Speaking ELG

ELG: Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary; offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate.

Physical Development

ELG: Fine Motor Skills - Use a range of small tools, including scissors, paint brushes and cutlery.

3 & 4 year olds

Advent	Lent	Pentecost
•	• Push a button to make a programmable toy move. • Use directional language to describe how to move a programmable toy.	•

Personal, Social and Emotional Development

ELG: Self-Regulation – Show an understanding of their own feelings and those of others, and begin to regulate their behaviour accordingly.

ELG: Managing Self – Explain the reasons for rules, know right from wrong and try to behave accordingly.

3 & 4 year olds

Advent	Lent	Pentecost

• Report things that worry them to a trusted adult.	•	•

Physical Development

ELG: Fine Motor Skills – Use a range of small tools, including scissors, paint brushes and cutlery. Begin to show accuracy and care when drawing.

Understanding the World

ELG: The Natural World – Explore the natural world around them, making observations and drawing pictures of animals and plants.

Expressive Arts and Design

ELG: Creating With Materials – Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design and texture, form and function.

3 & 4 year olds		
Advent	**Lent**	**Pentecost**
•	•	• Mark make purposefully on a screen. • Control tools to experiment with. • Draw using a touch screen. • Use the undo function.

Reception Computing Curriculum Intent		
Understanding the World Understanding the world involves experiencing and valuing culture, community and environment. Developing positive interactions which show care and concern for all aspects of God's world. Exploring and observing the world through people, places and technology.		
Listening, Attention and Understanding ELG: Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions. **Speaking ELG** ELG: Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary; offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate. **Physical Development** ELG: Fine Motor Skills - Use a range of small tools, including scissors, paint brushes and cutlery.		
Children in Reception		
Advent	**Lent**	**Pentecost**
•	• Push a button to make a programmable toy move. • Use directional language to describe how to move a programmable toy. • Give a simple set of instructions (algorithm).	•

Personal, Social and Emotional Development ELG: Self-Regulation – Show an understanding of their own feelings and those of others, and begin to regulate their behaviour accordingly. ELG: Managing Self – Explain the reasons for rules, know right from wrong and try to behave accordingly.		
Children in Reception		
Advent	**Lent**	**Pentecost**
• Report things that worry them online to a trusted adult. • Log in to purple mash. • Log onto laptops.	•	•
Physical Development ELG: Fine Motor Skills – Use a range of small tools, including scissors, paint brushes and cutlery. Begin to show accuracy and care when drawing. **Understanding the World** ELG: The Natural World – Explore the natural world around them, making observations and drawing pictures of animals and plants. **Expressive Arts and Design** ELG: Creating With Materials – Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design and texture, form and function.		
Children in Reception		
Advent	**Lent**	**Pentecost**
•	•	• Mark make purposefully on a screen. • Control tools to experiment with. • Draw using a touch screen. • Use the undo function. • Find individual letters on a keyboard. • Use the spacebar. • Type both uppercase and lowercase letters. • Type numbers.

Y1 Computing Curriculum Intent

National Curriculum	National Curriculum	National Curriculum
• recognise common uses of information technology beyond school. • 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 other online technologies.	• 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. • Use logical reasoning to predict the behaviour of simple programs.	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
Advent **Children will know:**	**Lent** **Children will know:**	**Pentecost** **Children will know:**
Online Safety: • That personal information should not be shared online. • What to do if they find something inappropriate online. **Technology outside school:** • Common uses of technology in the home. • Common uses of technology at school. • Common uses of technology beyond home and school. • What is meant by 'technology'. **Disciplinary & Procedural Knowledge** **Know how to:** • Stay safe online. • Identify different types of technology, in the home, at school and beyond. • Explain what technology is and how it is used. • Report inappropriate online activity to a trusted adult.	**Lego Builders:** • That an algorithm is a precise, step-by-step instructions to solve a problem or achieve an objective. • That if an algorithm doesn't work, it needs debugging. **Coding:** • The order in which the steps are presented affect the outcome. • That symbols can be used to represent instructions. • That blocks of code need to be arranged to create a set of instructions. • Programs can be created using code blocks. **Disciplinary & Procedural Knowledge** **Know how to:** • Create an algorithm. • Create programs that follow precise and unambiguous instructions. • Create and debug simple programs. • How to fix their code if it isn't working properly.	**Pictograms:** • That data can be collected and represented in a pictogram. **Spreadsheets:** • That images and data can be stored to a spreadsheet. • That the 'lock' tool to prevent changes to cells. • That the count tool counts items within a spreadsheet. • That the speak tool can be used so that items are counted out loud. **Disciplinary & Procedural Knowledge** **Know how to:** • Collect data. • Purposefully store data in the form of a pictogram. • Retrieve digital content from a pictogram. • Navigate a spreadsheet. • Retrieve digital content from a spreadsheet. • Organise, store and manipulate data in a spreadsheet.

	• How to identify what is wrong when the steps are out of order in instructions.	
Vocabulary Computer, technology, alert, avatar, button, device, file name, icon, log in, log out, menu, notification, private, password.	**Vocabulary** Action, code, event, algorithm, command, debug, execute, input, background, **computer**, instructions, program.	**Vocabulary** Button, calculation, cell, clip-art, column, count tool, data, delete, image, lock cell, move cell, row, speak tool, spreadsheet, value, data, compare, pictogram, results, record, title.

Year 2 Computing Curriculum Intent

National Curriculum	National Curriculum	National Curriculum
• recognise common uses of information technology beyond school. • 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 other online technologies.	• 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. • Use logical reasoning to predict the behaviour of simple programs.	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
Advent **Children will know:**	**Lent** **Children will know:**	**Pentecost** **Children will know:**
Effective Searching • That information can be found online using search engines. • That filters help us to search for information safely. **Online Safety** • That email is a method of communication. • What a digital footprint is. • Examples of things that they would not want to be in their digital footprint. • What to do if something online upsets them. **Disciplinary & Procedural Knowledge** **Know how to:** • Search for information online. • Use safe search filters. • Use email as a communication tool using 2Respond simulations. • Open and send emails.	**Coding** • That algorithms are used to create a computer program. • If a program doesn't work, it needs debugging. • Predictions can be made from reading blocks of code. **Disciplinary & Procedural Knowledge** **Know how to:** • Design an algorithm that follows a timed sequence. • Debug simple programs. • Describe the algorithms they created. • Plan an algorithm that includes collision detection. • Read blocks of code and predict what will happen when it is run.	**Spreadsheets** • What spreadsheets are used for. • That data can be used to produce a graph. • That information in spreadsheets can be copied, cut and pasted. **Questioning** • That pictograms can only provide limited information and cannot be used to answer more complicated questions. • That yes/no questions can be used to separate information. • What is meant by the term 'binary tree'. • What is meant by 'database'. **Presenting Ideas** • That digital content can be represented in different forms. • That work can be structured in different ways to make it useful.

• Report unkind behaviour and things that upset them online to a trusted adult.		• That software can be used to manipulate and present digital content. **Disciplinary & Procedural Knowledge** **Know how to:** • Use a spreadsheet for money calculations. • Collect data and produce a graph. • Construct a binary tree to identify themes. • Use a database to answer simple and more complex questions. • How to make a quiz about a story or class topic. • Collect, organise and present data and information in digital content.
Vocabulary Digital footprint, domain, internet, network, search engine, web address, web page, world wide web, web site, attachment, email, filter, internet, personal information, **private information**, search, secure, sharing.	**Vocabulary** **Action**, **algorithm**, background, bug, button, click **events**, collision detection, **command**, **debug**, **event**, **execute**.	**Vocabulary** Binary tree, **data**, database, field, pictogram, question, record, search, sort, e-book, fact file, fiction, mind map, node, non-fiction, presentation, quiz, block graph, **cell**, **column**, copy, **count tool**, data, drag, equals, label, row, **speak tool**, table, total.

Y3 Computing Curriculum Intent

National Curriculum	National Curriculum	National Curriculum
• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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. • 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.	• 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.
Advent Term **Children will know:**	**Lent Term** **Children will know:**	**Pentecost Term** **Children will know**
Online Safety • What makes a password safe. • The main outcomes of not keeping passwords safe. • That online search results need to be thought about critically to determine reliability. • What cyberbullying is. • Strategies for dealing with cyberbullying, including screenshotting and reporting. • Why there are age restrictions on digital media and devices.	**Coding** • What a flowchart is. • That click events and timers can be added to programs. • That nesting is when coding commands are put inside other commands; they only run when the outer command runs. • That debugging is when errors in code are identified and fixed. **Disciplinary & Procedural Knowledge** **Know how to:**	**Spreadsheets** • That spreadsheets can be used to automatically create graphs and charts from data. **Branching Databases** • What a branching database is. • That 'yes/no' questions can be used to sort objects. **Disciplinary & Procedural Knowledge** **Know how to:**

Email • Different ways that the internet can help us to communicate. • The strengths and weaknesses of each form of communication. • That email is a form of communication. • What CC means and how to use it. • That files and images can be attached to an email. **Disciplinary & Procedural Knowledge** **Know how to:** • Keep their password safe. • Think critically about the results returned from searching the internet. • Relate cyberbullying in the real-world. • Communicate in different ways. • Open and respond to emails. • Add attachments to an email.	• Read and explain a flowchart. • Use a flowchart to create a computer program that uses click events and timers. • Use the repeat command. • Use nesting when writing code. • Run, test and debug a program. • Use the properties table to set the properties of objects.	• Create tables of data within a spreadsheet. • Use the symbols, more than, less than and equal to, to compare values. • Describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row. • Contribute to a class branching database. • Create their own branching database. • How to debug their own and others branching databases.
Vocabulary Address book, attachment, BBC, CC, communication, compose, email, inbox, **password**, save to draft, trusted contact, appropriate, blog, inappropriate, password, **personal information**, **internet**, spoof, reputable source, permission, reliable source, verify, website, vlog, verify	**Vocabulary** Action, alert, **algorithm**, **background**, **bug**, **button**, click event, **code**, **collision detection event**, **command**, **debug**.	**Vocabulary** **Binary tree**, branching database, **data**, **database**, **debugging**, advance mode, bar graph, **equals**, **data**, **cell**, **rows**, **columns**, less than, more than, pie chart, quiz tool, **spreadsheet**, table, spin tool, quiz tool.

Year 4 Computing Curriculum Intent

National Curriculum	National Curriculum	National Curriculum
• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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. • 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.	• 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.
Advent **Children will know:**	**Lent** **Children will know:**	**Pentecost** **Children will know:**
Online Safety • What a digital footprint is and how it relates to identity theft. • Examples of things that they would not want to be in their digital footprint. • What copyright is. • Positive and negative influences technology has on health and the environment. **Disciplinary & Procedural Knowledge** **Know how to:**	**Coding** • IF statements are used by the computer to decide which part of the code to run. • A Flow Chart is a diagram that represents an algorithm. **Logo** • What Logo is used for. • What the common instructions in Logo are and how to type them. **Disciplinary & Procedural Knowledge**	**Spreadsheets** • That numbers can be formatted using 2Calculate. • What a formula is and how it can be used in spreadsheets. • That a series of data can be used to create a line graph. **Effective Searching** • That they should analyse the contents of a webpage for clues about the credibility of the information.

• Identify possible risks and benefits of installing free and paid for software. • Determine whether activities that they undertake online infringe another's copyright. • Take informed ownership of the way that they choose to use their free time; finding a balance between being active and digital activities.	**Know how to:** • Plan an algorithm and use 2Code to program it. • Create a program that includes an IF statement. • Interpret a flowchart that depicts an IF statement. • Use the 'repeat until' command. • Use a number variable. • Input simple instructions in Logo. • Follow 2Logo code to predict the outcome. • Use the repeat function in Logo. • Use and build procedures in Logo.	• That they should use a selection of websites to ensure the information they have found is reliable. • The different parts that make up a computer. • The function of computer parts. **Disciplinary & Procedural Knowledge** **Know how to:** • Use number formatting tools within 2Calculate to appropriately format numbers. • Add a formula to a cell to automatically make a calculation in that cell. • Use data in a spreadsheet to automatically generate a line graph. • Use the currency formatting in 2Calculate. • Allocate values to images and use these to explore place value. • Use the formula wizard to calculate averages. • Structure search queries to locate specific information. • Use search to answer a series of questions.
Vocabulary AdFly, attachment, citation, copyright, cookies, collaborate, **digital footprint**, malware, phishing, plagiarism, ransomware, SMART rules, spam.	**Vocabulary** **Repeat**, run speed, SETPC, SETPS, **event**, flowchart, if statement, if/else statement, input, nest, object, prompt, implement, predict, run.	**Vocabulary** Average, **spreadsheet**, **formula**, **column**, budget, chart, **data**, decimal place, **equals tool**, **format cell**, formula wizard, line graph, place value, percentage, random number tool, **row**, timer, spin tool, balanced views, Easter eggs, **internet**, key words, **reliability**, results page, search engine

Y5 Computing Curriculum Intent

National Curriculum	National Curriculum	National Curriculum
• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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. • 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.	• 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.
Advent **Children will know:**	**Lent** **Children will know:**	**Pentecost** **Children will know:**
Online Safety • Why it is important to consider the reliability of results. • Different methods of communication. • Why it is important to keep some information private. **Disciplinary & Procedural Knowledge** **Know how to:** • Review sources of support when using technology. • Reference sources in their work.	**Coding** • That simplifying code will make it more efficient. • What a simulation is. • What abstraction is. • What a physical system is. • That in programming, 'repetition' is called a 'loop'. **Disciplinary & Procedural Knowledge** **Know how to:** • Simplify code to make their programming more efficient. • Use variables in their code. • Program a simulation.	**Spreadsheets** • That graphs can be created from data on a spreadsheet. • That brackets are used to organise formulae. **Concept Maps** • The need for visual representations when generating and discussing complex ideas. • The uses of a concept map. **Microsoft Word** • The uses of a word document.

• Search the internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information. • Ensure reliability through using different methods of communication. • Think critically about the information that they share online both about themselves and others.	• Start coding at a basic level of abstraction to remove superfluous details from their program that do not contribute to the aim of the task. • Create a program which represents a physical system. • Design, write and debug a program that uses sequence, selection and repeat to control a device.	• That layout can be altered to suit the type of document. **Disciplinary & Procedural Knowledge** **Know how to:** • Create a graph from data on a spreadsheet. • Use simple functions in spreadsheets (SUM, AVERAGE). • Change the format of cells. • Present a concept map to an audience. • Create a word processing document. • Alter the look of text and navigate around a document. • Alter page layout including heading and columns. • Add and edit images. • Add features to enhance look and usability within a document.
Vocabulary **Citation**, **collaborate**, **communication**, **copyright**, creative commons licence, encrypt, identity theft, **malware**, ownership, PEGI ratings, **phishing**, **password**, **personal information**, **spoof**, **SMART rules**, **reliable source**, validity.	**Vocabulary** Abstraction, **action**, **algorithm**, concatenation, **debug**, decomposition, efficient, **flowchart**	**Vocabulary** **Rows**, **spreadsheet**, **columns**, **data**, format, formula, advance mode, formula bar, **formula wizard**, variable, concept, concept map, connection, **collaboration**, node, bulleted list, caption, caps lock, copy and paste, copyright, creative commons, font, document, hyperlink, merge cells, page orientation, formatting, text wrapping, readability, word art.

Y6 Computing Curriculum Intent

National Curriculum	National Curriculum	National Curriculum
• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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. • 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.	• 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.
Advent **Children will know:**	**Lent** **Children will know:**	**Pentecost** **Children will know:**
Online Safety • Where to go for help. • What the SMART rules are. • How security software is used. • The benefits and risks of mobile devices broadcasting the location of the user/device. **Disciplinary & Procedural Knowledge** **Know how to:** • Identify secure sites by looking for privacy seals of approval. • Protect their digital footprint.	**Coding** • What to do if their program does not run as expected. • What tabs are used for in coding. **Text Adventure** • How if/else statements can be used in coding. **Networks** • What the internet consists of.	**Spreadsheets** • That different formulae have different purposes. • That data in formulae can be used to answer 'What if?' questions. **Blogging** • That the way in which information is presented in a blog has an impact on the audience. **Disciplinary & Procedural Knowledge**

• Put a stop to inappropriate online behaviour when they experience it or witness it as a bystander. • Balance screen time with other parts of their lives.	• The major changes in technology which have taken place in their lifetime and the lifetime of their teacher/another adult. **Disciplinary & Procedural Knowledge** **Know how to:** • Create a program which includes a timer and a score. • Debug a program. • Create a program that uses multiple functions. • Arrange their code in tabs. • Create code programs that take text input from the user. • Design their own text-based adventure game based on one they have played. • Use coding concepts of functions, two-way selection (if/else statements) and repetition in conjunction with one another to code their game. • Make logical attempts to debug their code when it does not work.	**Know how to:** • Check for and spot inaccurate or implausible data. • Test formulae by changing numbers in cells. • Identify which formula is needed for a specific purpose. • Check formulae by questioning results. • Design more complex spreadsheet models for a purpose. • Plan, write a post a blog.
Vocabulary Data analysis, **digital footprint**, inappropriate, location sharing, **password**, **PEGI rating**, **screen time**, print screen, **phishing**, secure websites, **spoof**.	**Vocabulary** **Function**, input, launch command, output, **object**, **predict**, **properties**, procedures, sequence, **repeat**, **simulation**, selection, **timer**, **tab**, **variable**, **debug**, sprite, selection, hub, **internet**, local area network (LAN), router, **network**, **world wide web**, wide area network (WAN), wi-fi.	**Vocabulary** Autofit, **cell**, cell reference, **column**, **chart**, conditional formatting, **data**, computational model, delimiter, **formula**, **formula bar**, **graph**, horizonal axis, **spreadsheet**, range, vertical axis, **row**, **text wrapping**, approval, archive, blog, **collaborate**, blog post, commenting, Vlog.