Our Lady and St Anne's Subject Map: Computing

Our Computing learning journey:

YEAR 6

Sensing
Focusing on: Designing and coding a project that captures inputs from physical devices.

3D modelling
Focusing on: Planning, developing, and evaluation 3D computer models of physical objects.

Introduction to spreadsheets
Focusing on: Answering questions by using spreadsheets to organise and calculate data.

Variables in games.
Focusing on: Exploring variables when designing and coding a game.

Webpage creation.
Focusing on: Designing and creating webpages, giving consideration to copyright, aesthetics and navigation

Internet communication
Focusing on: Exploring how data is transferred by working collaboratively online.

Sharing information.
Focusing on: Recognising IT systems in the world and how some enable searching on the internet.

Video production.
Focusing on: Planning, capturing, and editing video to produce a short film.

Selection in physical computing.
Focusing on: Exploring conditions and selection using programmable microcontrollers.

Flat-file databases.
Focusing on: Using a database to order data and create charts to answer questions.

Vector drawing.
Focusing on: Creating images in a drawing program by using layers and groups of objects.

Selection in quizzes.
Focusing on: Exploring selection in programming to design and code an interactive quiz.

YEAR 5

Repetition in games.
Focusing on: Using a block-based programming language to explore loops when making a game.

Photo editing,
Focusing on: Manipulating digital images, and reflecting on the impact of the changes.

Data logging.
Focusing on: Recognising how and why data is collected before using data loggers to collect data.

Repetition in shapes.
Focusing on: Using a text-based programming language to explore loops when drawing shapes.

Audio production.
Focusing on: Capturing and editing audio to produce a podcast.

The internet
Focusing on: Recognising the internet is a network and why we should evaluate online content.

YEAR 4

Connecting computers.
Focusing on: Identifying that digital devices have inputs, processes, and outputs, and can be connected.

Stop frame animation.
Focusing on: Capturing and editing digital still images to produce a stop frame animation.

Sequencing sounds.
Focusing on: Creating sequences in a block-based programming language to make music

Branching databases.
Focusing on: Building and using branching databases to group objects using yes/no questions.

Desktop publishing
Focusing on: Creating documents, modifying text, images and page layouts for a specific purpose

Events and actions in programs.
Focusing on: Writing algorithms that use events to trigger sequences of actions.

YEAR 3

Programming quizzes.
Focusing on: Designing algorithms that use events to trigger sequences

Making music.
Focusing on: Using ICT to explore rhythms and melodies, then creating their own music

Pictograms
Focusing on: Collecting data in tally charts and using attributes to organise and present data

Robot algorithms
Focusing on: Creating and debugging programs, and using logic to predict.

Digital photography
Focusing on: Capturing and changing photographs for different purposes.

Information technology around us
Focusing on: Identifying IT and how its responsible use improves our world

YEAR 2

Technology around us.
Focusing on: Recognising technology in school and using it responsibly.

Digital painting
Focusing on: Choosing appropriate tools in a program to create art

Moving a robot.
Focusing on: Writing short algorithms and programs for floor robots.

Grouping data.
Focusing on: Exploring object labels, then using them to sort and group objects by properties.

Digital writing.
Focusing on: Create and format text, before comparing to writing non-digitally

Programming animations.
Focusing on: Designing / programming the moves of a character on screen to tell stories.

YEAR 1

Summer Fun
Focusing on: Tinkering, Persevering, Patterns, Logic, Decomposition, Debugging, Collaborating, Algorithms

Springtime
Focusing on: Abstraction, Tinkering, Creating, Collaborating, Algorithms, Persevering, Decomposition

Awesome Autumn
Focusing on: Creating, Pattern, Logic, Algorithms, Decomposition, Collaborating

EYFS

Our key learning questions:

EYFS	Collaboration ■ What shall I do? ■ Who did you work with? ■ Whose turn is it? ■ Do you have the same as...? ■ Who can you work with to change this?	Creating ■ How did you make that? ■ Show me what it does. ■ Did you test it? ■ What do you like about yours? ■ Does it work as you wanted it to? ■ I wonder how it could be better? ■ What could you do to change it?	Tinkering ■ Why don't you try... ■ What do you think will happen? ■ I wonder what might happen if...	Persevering ■ Self-talk / model how you (the adult) is persevering with something tricky or challenging ■ Which part is tricky? ■ How can we fix the tricky part? ■ Let's try and finish what we have started	Pattern ■ What is the same / different about them? ■ Can you explain the pattern? ■ How can we continue the pattern? ■ Is there a mistake in this pattern? ■ I wonder how we could fix it... ■ What is the rule for your pattern?	Logical Reasoning ■ I wonder what will happen... ■ I wonder how it works... ■ Will it...float / sink / break / fall etc? Why? Why not? ■ What happened? ■ Did that surprise you? Why? ■ What have you found out? ■ How do you know that?	Abstraction ■ What do you need to include? ■ Which parts are important? ■ Why do / don't you need that? ■ Why did you choose to include..? ■ Do you have the same as...? ■ How is yours different? Is that important?	Algorithms ■ Which one might come first? ■ What comes next? ■ Which one is before / after this one? ■ Which one is the last one? ■ Can you put these steps into the right order?	Decomposition ■ What do we need to do? ■ What are the main parts we need to do / make? ■ What do we need to do first? ■ Which part shall we think about next?
YEAR 1	Can I identify a computer and its main parts?	Can I describe what different freehand tools do?	Can I explain what a given command will do?	Can I organise digital content?	Can I add and edit text in a word processor?	Do I understand what algorithms are?			
	Can I identify rules to keep us safe and healthy when using technology?	Can I use the tools to create and manipulate digital content?	Can I combine four direction commands to make a sequence?		Can I change the look of the text that has been written?	Can I choose a command for a given purpose?			
YEAR 2	Can I recognise common uses of Information Technology beyond school?	Can I create digital content?	Can I use the same instructions to create different algorithms?	Can I enter data into a computer?	Can I create digital music content?	Can I build sequences to match my design?			
	Can I say how rules keep me safe using IT?	Can I explain the process of taking a good photograph?	Can I predict the outcome of a simple sequence?	Can I use a computer program to present data in different ways?	Can I manipulate music content?				
YEAR 3	Can I explain that digital devices accept inputs and produce outputs?	Can I create an effective stop-frame animation?	Can I build a sequence of commands?	Can I create a branching database using yes/no question?	Can I add text and images to a page layout?	Can I build more sequences of commands to make my design work?			
	Can I recognise that a computer network is made up of a number of devices?	Can I combine other media with my animation? Can I edit my animation?	Can I create a program to make a musical instrument digitally?	Can I test a branching database?	Can I make changes to content after I have added it?	Can I test a program against a given design?			
YEAR 4	Can I explain that the internet is used to provide multiple services?	Can I record content following a plan?	Can I create a count controlled loop to produce a given outcome?	Can I use a data logger to collect information at intervals?	Can I edit images by using editing software?	Can I create a design with infinite loops?			
	Can I explain why some information on the internet is honest, accurate or legal?	Can I arrange multiple sounds to create the effect I want?	Can I design a program that includes count controlled loops?	Can I collect and analyse data that has been collected?	Can I create a project using a combination of images?	Can I create a program which uses 2 or more loops?			
YEAR 5	Can I make and refine a web search to find specific information?	Can I create a video using a range of techniques?	Can I explain that a condition being met can start / stop an action?	Can I use tools such as AND/OR to select specific data?	Can I group objects to make them easier to work with?	Can I explain how selection directs the flow of a program (using if, then, else)?			
	Can I explain how search engines select results and rank them?	Can I identify that video can be improved through reshooting and editing?	Can I use selection to produce an intended outcome? Can I test and debug my project?	Can I select an appropriate chart to visually compare data?	Can I create a vector drawing by combining shapes?	Can I create a program that uses selection?			
YEAR 6	Can I identify how data is transferred across the internet?	Can I explain the ownership and use of images (copyright)?	Can I design a program using variables?	Can I enter data into a spreadsheet?	Can I create a 3D model for a given purpose?	Can I use an operand (eg. <>=) in an if/then statement?			
	Can I explain the opportunities that networks offer to communication and collaboration?	Can I make multiple web pages and link them using hyperlinks?	Can I test the code that I have written and correct?	Can I apply a formula to calculate the data I need to answer questions?	Can I modify my 3D Model to improve it?	Can I create a program using inputs and outputs on a controllable device?			

Unit overviews

EYFS	Three Autumn themed activities which see the children explore patterns in Garlands Galore, create a leaf labyrinth and make Pumpkin Soup using computational thinking skills.		Three Spring themed activities see the children make a Rabbit run, create Junk scarecrows and explore sequencing whilst planting seeds.		Children explore their surroundings and get creative, take a journey and make a map, and discover seaside tangrams, in these three fun activities.	
YEAR 1	Technology around us Recognising technology in school and using it responsibly.	Digital painting Choosing appropriate tools in a program to create art, and making comparisons with working nondigitally.	Moving a robot Writing short algorithms and programs for floor robots, and predicting program outcomes.	Grouping data Exploring object labels, then using them to sort and group objects by properties.	Digital writing Using a computer to create and format text, before comparing to writing non-digitally.	Programming animations Designing and programming the movement of a character on screen to tell stories.
YEAR 2	Information technology around us Identifying IT and how its responsible use improves our world in school and beyond.	Digital photography Capturing and changing digital photographs for different purposes.	Robot algorithms Creating and debugging programs, and using logical reasoning to make predictions.	Pictograms Collecting data in tally charts and using attributes to organise and present data on a computer.	Digital music Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.	Programming quizzes Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.
YEAR 3	Connecting computers Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks	Stop-frame animation Capturing and editing digital still images to produce a stop frame animation that tells a story	Sequencing sounds Creating sequences in a block-based programming language to make music.	Branching databases Building and using branching databases to group objects using yes/no questions.	Desktop publishing Creating documents and modifying text, images and page layouts for a specific purpose	Events and actions in programs Writing algorithms and programs that use a range of events to trigger sequences of actions.
YEAR 4	The internet Recognising that the internet is a network of networks including the WWW, and why we should evaluate online content	Audio production Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	Repetition in shapes Using a text-based programming language to explore count-controlled loops when drawing shapes.	Data logging Recognising how and why data is collected over time, before using data loggers to carry out an investigation,	Photo editing Manipulating digital images, and reflecting on the impact of the changes and whether the required purpose is fulfilled,	Repetition in games Using a block-based programming language to explore count-controlled and infinite loops when creating a game.
YEAR 5	Systems and searching Recognising IT systems in the world and how some can enable searching on the internet.	Video production Planning, capturing, and editing video to produce a short film.	Selection in physical computing Exploring conditions and selection using a programmable microcontroller.	Flat-file databases Using a database to order data and create charts to answer questions.	Introduction to vector graphics Creating images in a drawing program by using layers and groups of objects.	Selection in quizzes Exploring selection in programming to design and code an interactive quiz.
YEAR 6	Communication and collaboration Exploring how data is transferred by working collaboratively online.	Webpage creation Designing and creating webpages, giving consideration to copyright, aesthetics and navigation.	Variables in games Exploring variables when designing and coding a game.	Introduction to spreadsheets Answering questions by using spreadsheets to organise and calculate data	3D modelling Planning, developing, and evaluation 3D computer models of physical objects.	Sensing movement Designing and coding a project that captures inputs from physical devices.