Tywardreath School

Computing Overview
Key Knowledge, Skills and Vocabulary
Year A

What makes Tywardreath Curriculum unique? A clear focus on local, national and global communities, developing skills for life, celebrating responsible citizens and providing opportunities to debate and reflect.

	Year 1 and 2	Year 3 and 4	Year 5 and 6
Autumn 1	Amazing Discoveries, Amazing People	Romans – Helpful Invaders?	How Mysterious were the Maya?
	Unit 1.1 –Online Safety Unit 1.2 –Grouping and Sorting	Unit 3.2 – Online Safety Unit 2.1 – Coding Recap	Unit 5.2 – Online Safety
National Curriculum Objectives	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 other online technologies. Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Pupils should be taught to: -Use technology safely, respectfully and responsibly -Recognise acceptable/ unacceptable behaviour -Identify a range of ways to report concern about content and contact. 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. -Use logical reasoning to predict the behaviour of simple programs.	Pupils should be taught to: -Use technology safely, respectfully and responsibly -Recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.
Key Knowledge	-Know the importance of keeping information, such as their usernames and passwords, private and children actively demonstrate this in lessons. -Take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash. -Know who to contact if they have seen something upsetting or have concerns -Keep their login information safe. -Able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve	-Demonstrate the importance of having a secure password and not sharing this with anyone else. -Explain the negative implications of failure to keep passwords safe and secure. -Understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as 2Email in Purple Mash. -Know more than one way to report unacceptable content and contact.	-secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. -implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.

	their work and follow simple instructions to access online resources	-Explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code. -Create a simple program that achieves a specific purpose. They can also identify and correct some errors, e.g. Debug Challenges: Chimp. Children's program designs display a growing awareness of the need for logical, programmable steps. -Identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.	
Key Skills Sequence of learning	-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 explore the Tools and Games section of Purple Mash. -To learn how to open, save and print. -To understand the importance of logging out. -To sort various items offline using a variety of criteria	-To know what makes a safe password. -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. -To understand what an algorithm is. -To design algorithms and then code them. -To compare different object types. -To use the repeat command. -To use the timer command. -To know what debugging is and debug programs.	-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 search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information.
Key Vocabulary	Log in, , Avatar , Log out , Save , Username , My work , Notification , Password , Topic , Tools , Sort , Criteria	Password, Internet, Blog , Concept map , Username , Website , Password , Spoof Website , EGI rating , Action, Character , Command , Algorithm , Debug , Code block , Code design , Bug , Design mode	Online safety, Reputable,, Password , Smart rules , Plagiarism , Encryption , Identity theft , Shared reference, Bibliography , Citations , Shared image,

	Year 1 and 2	Year 3 and 4	Year 5 and 6
Autumn 2	**Where Are We?**	**How Can I Find My Way?**	**How Amazing are the Americas?**
	Unit 2.2 – Online Safety Unit 1.3 - Pictograms	Unit 3.1 – Coding	Unit 3.1 and 4.1 Recap Coding
National Curriculum Objectives	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 other online technologies. -Use technology purposefully to create, organise, store, manipulate and retrieve digital content	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.	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.
Key Knowledge	-Know the implications of inappropriate online searches. -Begin to understand how things are shared electronically such as posting work to the Purple Mash display board. -Develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content -Able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources.	-Turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts, showing that they are thinking of the desired task and how this translates into code. -Identify an error within their program that prevents it following the desired algorithm and then fix it. -Demonstrate the ability to design and code a program that follows a simple sequence. Experiment with timers to achieve repetition effects in their programs. -Begin to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. – Understand how variables can be used to store information while a program is executing. -Designs for programs show that they are thinking of the structure of a program in logical, achievable	-Turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts, showing that they are thinking of the desired task and how this translates into code. -Identify an error within their program that prevents it following the desired algorithm and then fix it. -Demonstrate the ability to design and code a program that follows a simple sequence. Experiment with timers to achieve repetition effects in their programs. -Begin to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. – Understand how variables can be used to store information while a program is executing. -Designs for programs show that they are thinking of the structure of a program in logical, achievable

		steps and absorbing some new knowledge of coding structures. –Know how to 'step through' more complex code in order to identify errors in algorithms and can correct this. •	steps and absorbing some new knowledge of coding structures. -Know how to 'step through' more complex code in order to identify errors in algorithms and can correct this.
Key Skills and sequence of learning	-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. -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	-To design algorithms using flowcharts. -To design an algorithm that represents a physical system and code this representation. -To use selection in coding with the 'if' command. -To understand and use variables in 2Code. -To deepen understanding of the different between timers and repeat commands.	-To design and use algorithms using flowcharts. -To design an algorithm that represents a physical system and code this representation. -To understand and use variables in 2Code. -To deepen understanding of the different between timers and repeat commands. -To use selection in coding with the 'if/ else' command. -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.
Key Vocabulary	Search, Display board , Sharing , Internet, email, digital footprint, trail, personal data, pictogram	Event , If , Object , Input , Output , Properties , Repeat , Selection, Timer , Variable	Event , Object , Input , Output , Properties , Repeat , Selection, Timer , Variable

	Year 1 and 2	Year 3 and 4	Year 5 and 6
Spring 1	The Lights of London	What did the Anglo-Saxons do for us?	Were the Vikings Victorious?
	Unit 1.6 – Animated Stories	Unit 4.1 - Coding	Unit 5.1 - Coding
National Curriculum Objectives	Pupils should be taught to: -Recognise common uses of information technology beyond school	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.	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.
Key Knowledge	Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair	-Turn a real-life situation into an algorithm, showing that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. -Make more intuitive attempts to debug their own programs. -Use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. -Understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. -Understand how variables can be used to store information while a program is executing -Able to use and manipulate the value of variables. -Make use of user inputs and outputs such as 'print to screen'. e.g. 2Code. -Designs for their programs show that they are thinking of the structure of a program in logical,	-Turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. -Test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code. -Translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design. -Begin to think about code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables

		achievable steps and absorbing some new knowledge of coding structures. -Trace code and use stepthrough methods to identify errors in code and make logical attempts to correct this. e.g. traffic light algorithm in 2Code.	
Key Skills and Sequence of Learning	To introduce e-books and the 2Create a Story tool. To add animation to a story. To add sound to a story, including voice recording and music the children have composed. To work on a more complex story, including adding backgrounds and copying and pasting pages. To share e-books on a class display board. Natter Hub (Online Safety Week) Year 1 Term 1 (4 Lessons Teacher led) • I know that time spent on devices can be fun, helpful and educational. • I know that there should be a limit on the amount of screen time I have. • I can create rules to limit my screen time. • I can describe ways that some people can be unkind online • I can talk about how to use the internet as a way of finding information online. • I can identify devices I could use to access information on the internet. • I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching).	-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. Natter Hub (Online Safety Week) Year 3 Term 1 (4 Lessons Teacher led) • I can think about how much time I spend on screens and devices. • I can identify how spending too much time on devices can impact my wellbeing in negative ways. • I know that it's possible to speak to friends/people I know and strangers/people I don't know online. • I know I can seek help or guidance from a trusted adult if I feel threatened in any way • I can identify how bullying can occur in online gaming. • I can describe how bullying and online behaviour can affect people.	-To represent a program design and algorithm. -To create a program that simulates a physical system using decomposition. -To explore string and text variable types so that the most appropriate can be used in programs. -To use the Launch command -To program a playable game with timers and scorepad. Natter Hub (Online Safety Week) Year 5 Term 1 (4 Lessons Teacher led) • I can identify things I could do if something makes me feel uncomfortable online. • I can recognise that saying something hurtful online can have negative consequences. • I can demonstrate how to support others having problems online. • I can recognise online bullying can be different to bullying in the physical world and can describe some of those differences. • I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying.
Key Vocabulary	Animation, Font , Sound effect, E-book , Display board , Sound effect	If, If else, Input , Output , Object, Repeat , Timer , Selection , Simulation, Variable	Action, Bug , Control , Alert , Debug , Code , Design , Design mode, Command, Algorithm

	Year 1 and 2	Year 3 and 4	Year 5 and 6
Spring 2	Does It Rain In Kenya?	Why do People Live Near Volcanoes?	Does Alaska Need Saving?
	Unit 1.7 - Coding	Unit 3.5 - Email	Unit 6.1 – Coding
National Curriculum Objectives	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. Use logical reasoning to predict the behaviour of simple programs.	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.	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.
Key Knowledge	-Know that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that an algorithm written for a computer is called a program. -Know how to work out what is wrong with a simple algorithm when the steps are out of order and can write their own simple algorithm -Know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.	-List a range of ways that the internet can be used to provide different methods of communication. -Use some of these methods of communication, e.g. being able to open, respond to and attach files to emails using 2Email. They can describe appropriate email conventions when communicating in this way	-Turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. -Test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem. -Translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. -Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions. -Interpret a program in parts and can make logical attempts to put the separate parts of a complex

			algorithm together to explain the program as a who
Key Skills and sequence of learning	-To understand what coding means. -To use design mode to set up a scene. -To add characters. -To use code blocks to make the character perform actions. -To use collision detection. -To save and share work. -To know the save, print, open and new icon.	-To think about different methods of communication. -To open and respond to an email using an address book. -To learn how to use email safely. -To add an attachment to an email. -To explore a simulated email scenario.	-To 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. -To code, test and debug from these designs. -To use functions and tabs in 2Code to improve the quality of the code. -To code user interactivity using input functions.
Key Vocabulary	Action, Character , Command , Algorithm , Debug , Code block , Code design , Bug , Design mode, Object, Scale , When Clicked, Program , Stop , Command, When key	Communication, Email , Send , Compose , Report , Attachment , Address book , Save to , raft, Password, CC , Formatting	Action, Alert , Algorithm , Bug , Code , Command , Control , Debug

	Year 1 and 2	Year 3 and 4	Year 5 and 6
Summer 1	Do I Know the History on My Doorstep?	Who Had the Power?	Crime and Punishment- Who Done It?
	Unit 2.1 - Coding	Unit 3.6 – Branching Databases	Unit 6.4 - Blogging
National Curriculum Objectives	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. -Use logical reasoning to predict the behaviour of simple programs.	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.	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
Key Knowledge	-Know that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code. -Create a simple program that achieves a specific purpose. Able to identify and correct some errors. Designs display a growing awareness of the need for logical, programmable steps. -Identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.	-Collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database (2Question), using software such as 2Graph. -Consider what software is most appropriate for a given task	-Make clear connections to the audience when designing and creating digital content. -Design and create their own blogs to become a content creator on the internet, e.g. 2Blog. -Use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.
Key Skills and sequence of learning	-To understand what an algorithm is. -To design algorithms and then code them. -To compare different object types. -To use the repeat command. -To use the timer command. -To know what debugging is and debug programs. **Natter Hub (Online Safety Week)** **Year 1 Term 2 (4 Lessons Teacher led)** • I know that work I create belongs to me.	-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. **Natter Hub (Online Safety Week)** **Year 3 Term 2 (4 Lessons Teacher led)** • I can describe why other people's work belongs to them.	-To identify the purpose of writing a blog and its key features. -To plan the theme and content for a blog -To consider the effect upon the audience of changing the visual properties of the blog. -To understand the importance of regularly updating the content of a blog. -To understand how to contribute to an existing blog. -To understand how and why blog posts are approved by the teacher.

	- I know that I can name my work both offline and online to show ownership. - I know I should give credit when I use the work of others. - I can identify ways that I can put information on the internet. - I can explain why I should always ask a trusted adult before I share any information about myself online.	- I can recognise that content on the internet may belong to other people. - I can explain how to search for information about others online. - I can give examples of what anyone may or may not be willing to share about themselves online. - I can explain the need to be careful before sharing anything personal. - I can explain who someone can ask if they are unsure about putting something online. - I can explain what is meant by the term 'identity'. - I can explain how people can represent themselves in different ways online.	-To understand the importance of commenting on blogs. **Natter Hub (Online Safety Week)** **Year 5 Term 2 (4 Lessons Teacher led)** - I can explain how someone can get help if they are having problems and identify when to tell a trusted adult. - I can demonstrate how to support others (including those who are having difficulties) online - I can recognise online bullying can be different to bullying in the physical world and can describe some of those differences. - I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying.
Key Vocabulary	Action, Character , Command , Algorithm , Debug , Code block , Code design , Bug , Design mode	Branching database, Database , Question , Data	Audience, Blog , Blog page , Blog post , Collaborative, Icon

	Year 1 and 2	Year 3 and 4	Year 5 and 6
Summer 2	Fire and Ice	Is Iceland a Frozen Land?	What Journey Does a River Take?
	Unit 1.9 -	Unit 4.7 - Effective Searching	Unit 6.6 – Networks
National Curriculum Objectives	Pupils should be taught to: -Recognise common uses of information technology beyond school	Pupils should be taught to: -Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	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.
Key Knowledge	-Understand what is meant by technology and can identify a variety of examples both in and out of school. -Make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair	Children understand the function, features and layout of a search engine. Children can appraise selected webpages for credibility and information at a basic level.	-Children understand and can explain in some depth the difference between the internet and the World Wide Web. -Children know what a WAN and LAN are and can describe how they access the internet in school.
Key Skills and sequence of learning	-To walk around the local community and find examples of where technology is used. -To record examples of technology outside school.	To locate information on the search results page. To use search effectively to find out information. To assess whether an information source is true and reliable.	-To learn about what the Internet consists of. -To find out what a LAN and a WAN are. -To find out how the Internet is accessed in school. -To research and find out about the age of the Internet. To think about what the future might hold.
Key Vocabulary	Technology, modern technology, community,	Easter Egg , Internet , Spoof Website , Search , Engine , Internet browser , Search	Internet, network , Local Area Network (LAN), World Wide Web , Wide Area , Network (WAN), Router, Network Cables