



Townfield Primary School
Computing Milestones

Year Group	Digital Literacy	Computer Science	Information Technology
<p>F2</p> <p>* additional outcomes to be assessed against current ELGS just for 2021</p>	<p>1. Recognise common uses of information technology beyond school</p> <p>2. 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</p> <p>*To use age appropriate skills for the use of core devices and applications within their setting.</p> <ul style="list-style-type: none"> • Children learn about types of technology both in and outside of school. • Children learn how to use classroom technology safely and responsibly, including the basic use of a camera and going online. • Children learn to type key words into a search engines. • Children learn to recognise and discuss common uses of information technology in school and outside of school. • Children learn the Internet can be used to communicate with others. • Children learn simple online safety rules. • Children learn that people create online content such as video and websites. 	<p>1. Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</p> <p>2. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.</p> <ul style="list-style-type: none"> • Children learn that an algorithm is a list of instructions that solves a problem. • Children learn to sequence a series of events and explain the importance of sequencing. • Children learn to experiment controlling a range of ‘toys’ using remote controls and do this with purpose and direction. • Children learn through play about action/reaction and will be asked “what do you think will happen?” when using technology or attempting to solve a problem. • Children learn how to access the web on a classroom device and to type keywords in a search engine (Google). 	<p>1. Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <ul style="list-style-type: none"> • how various devices and apps can be used in the classroom. • to independently choose an application for a particular purpose. E.g drawing a picture. • to type keywords in a search engine (Google). <p>ELG: Understanding the World - Technology</p> <p>Recognises that a range of technology is used in places such as homes and schools.</p> <p>Selects and uses technology for particular purposes.</p>
<p>1</p>	<p>1. Recognise common uses of information technology beyond school</p> <p>2. 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</p> <p>*To use age appropriate skills for the use of core devices and applications within their setting.</p> <ul style="list-style-type: none"> • Children learn to explore and experiment with technology in order to build familiarity with classroom apps and devices. • Children learn to use basic photographic and video techniques to document their own learning. • Children learn how they can use a search engine to find answers and different types of media e.g. videos. 	<p>1. Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</p> <p>2. Create and debug simple programs</p> <p>3. Use logical reasoning to predict the behaviour of simple programs</p> <ul style="list-style-type: none"> • Children learn to explore algorithms and sequencing of instructions. • Children learn to read, follow and create a simple sequence algorithm. • Children learn to give these instructions so that they can be executed by a robot with the aim of successfully reaching a destination. • Children learn to create a simple program and correct mistakes (debug). 	<p>1. Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <ul style="list-style-type: none"> • Children learn to create different types of digital content (short video, ebook or presentation). • Children learn to combine text and images in a document that showcases learning or tells a story. • Children learn to use technology to collect, sort and display information that could include data, photos, video or sound. • Children learn about saving work in a special place and retrieve it again.

	<ul style="list-style-type: none"> • Children learn to about the uses and purpose of technology in the classroom, at home, work and the world around them. • Children learn to about some of the common ways in which technology at home can be used. • Children learn to how to access and search the web and to identify people they can trust and who they can ask for help when using the internet. • Children learn to send a digital message and how they should behave and interact with others in the online world. • Children learn to why it is very important not to over share, share things that are personal or may hurt other people. • Children learn the ways that some people can be unkind online and about following sensible online rules. • Children learn about safe behaviours in their day to day world such as not talking to or meeting strangers and how this applies in the online world. • Children learn to what a username and password is and that they must keep them private. • Children learn to that online content such as video, images, websites and games are created and shared by people. • Children learn to that to use other people’s work without asking or giving credit is wrong. 	<ul style="list-style-type: none"> • Children learn about making predictions when using technology. E.g. They will be asked to predict what will happen for a short sequence of instructions in a program. • Children learn about signing into a device or online platform. • Children learn how they can use a search engine to find answers and different types of media e.g. videos. 	<ul style="list-style-type: none"> • Children learn how they can use a search engine to find answers and different types of media category e.g. images, book, videos.
<p>2</p>	<p>1. Recognise common uses of information technology beyond school</p> <p>2. 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</p> <p><i>*To use age appropriate skills for the use of core devices and applications within their setting.</i></p> <ul style="list-style-type: none"> • Children learn to create a range of simple digital documents that represents their learning during a topic and then save/share their digital work. • Children learn the basic skills of searching and navigating the results in a search engine. • Children learn about the numerous methods of online communication and how it is used in the world around them. • Children learn to explore their own use of the internet and why it is important to stick to the rules. • Children learn where different types of media content can be found online. Including; sound, images, books, podcasts/ audiobooks and video via the web. 	<p>1. Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</p> <p>2. Create and debug simple programs</p> <p>3. Use logical reasoning to predict the behaviour of simple programs</p> <ul style="list-style-type: none"> • Children learn about writing algorithms that can be turned into programs. • Children learn to implement their algorithm as a program on a digital device or programmable toy/ robot. • Children learn to independently identify and fix a ‘bug’ in multiple programs. • Children learn to create a simple program that includes a repeat x times loop. • Children learn the difference between inputs and outputs. • Children learn to offer accurate predictions of programs and then create their own simple program to check if they were correct. • Children learn multiple services use the internet e.g. email, web and streaming. • Children learn the basic skills of searching and navigating the results in a search engine. 	<p>1. Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <ul style="list-style-type: none"> • Children learn to create a presentation or basic digital book that is well designed, contains formatted text, images and presents information. • Children learn to read a simple database to find information. • Children learn about organising the data they collect. • Children learn they can create digital content using more than one app or piece of software. • Children learn to independently save and open files on the device they use. • Children learn the basic skills of searching and navigating the results in a search engine to answer questions.

	<ul style="list-style-type: none"> • Children learn about safe and unsuitable sites/apps. e.g. PEGI rating. • Children learn to talk to a trusted adult before sharing personal information online and using strong passwords. • Children learn that the characters and people they interact with may be computer generated / including games and about the differences between the Internet and the physical world. • Children learn sending a message and why it is important to communicate in a polite manner. • Children learn that login details and passwords should only be shared with trusted adults. • Children learn that copyright is something that prevents people stealing other people's work (content). • Children learn what personal information is and that they need to talk to a trusted adult before sharing online. • Children learn how some information may be inaccurate or untrue. • Children learn to independently use a search engine, navigate a website, use favourites, bookmarks or typing the URL. • Children learn that you can be connected to many people in your life (real life and online) and too ensure a trusted adult is aware of who they are interacting with online. • Children learn to explain some of the potential risks when posting something to the internet and that once something is posted others can read the post and share it. 		
<p>3</p>	<p>3. Understand the opportunities [networks] offer for communication and collaboration</p> <p>4. Be discerning in evaluating digital content</p> <p>5. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</p> <ul style="list-style-type: none"> • Children develop awareness of online protocols, in order to stay safe on the web. • Children learn how to use the internet safely and responsibly (risks of using the internet) <p>Children learn about what a social network is, age restrictions and creating a safe online profile (How old should you be to have a Facebook account?)</p>	<p>4. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</p> <p>5. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p> <p>6. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p> <p>7. Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web</p> <p>8. Appreciate how [search] results are selected and ranked</p> <ul style="list-style-type: none"> • (CS4, CS5 & IT3) Children will use gaming apps to develop computational thinking skills and develop a simple program as a final project. Children will identify the 	<p>2. Use search technologies effectively</p> <p>3. 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</p> <ul style="list-style-type: none"> • (IT3 & DL5) Children will create an eBook retelling the story of a famous book including illustrations that they will create themselves using Brushes. • (IT2, IT3 & DL5) Children will be introduced to the concept of democracy. As the project progresses, children will be asked to create a bill for proposed legislation and create an animation

	<p>When creating an online profile we choose a setting – the 2P’s can you tell me what they are? (Private and Public Why would you use an avatar rather than an actual picture of yourself? Is there a difference between the online world and the real world?)</p> <ul style="list-style-type: none"> • Children identify cyberbullying and its consequences. • Children learn how to report any concerns they have. • Children learn ways young people can behave positively in cyberspace (What would you do if you received a nasty message? Who would you tell if....? How can you protect yourself online?) • Children are aware of the risks associated with online gaming (Who do you play online games against? Would you share your personal information with the people you play online games with?) • Teach children who they can trust and share their personal information with online (How do you know if somebody is lying to you online? Who do you speak to online? How do you know whether they are telling you the truth? Who should you trust online? How can you protect yourself when you are online?) 	<p>algorithms used to program a gaming app e.g. when the screen is touched the bird flies upwards. Another important computational thinking skill is decomposition, which is when we break down a problem into smaller problems to make it easier to solve. In the final project, children will learn about a range of inputs “When and Then” and introduces the concept of selection within algorithms.</p> <ul style="list-style-type: none"> • (CS4, CS5, CS6 & DL5) The project will reinforce children’s understanding of directional language and programming. Children are able to understand and explain the meaning of algorithms and the importance of order and accuracy. Children will write their own algorithm. Children will understand how to be able to break down tasks into a sequence of steps and understand the order of sequence. • (CS4, CS5 & IT3) Children to create their very first computer game in Scratch. This will involve creating their own sprites/graphics and background images • (CS4, CS5 & IT3) Children will experiment with a range of computer science activities: Children will create a basic algorithm by sequencing events in order (computational thinking). Children will understand how to give a computer a set of instructions to follow. Children will understand the basics of visual code. Children will build on existing knowledge of visual coding and challenge themselves to advance their skills. Children will create and share games. 	<p>and an endorsement to support their bill. The project will culminate in children evaluating each other’s work and completing a survey to express their views.</p> <ul style="list-style-type: none"> • (IT3 & DL5) Children will create a “My body, My fitness” e-book, which will document each week a personalised “Going for Gold” record. By using the ideas behind growth mind-set, this activity will help the children understand body and mind fitness by setting personal goals and building up children’s resilience.
<p>4</p>	<p>3. Understand the opportunities [networks] offer for communication and collaboration 4. Be discerning in evaluating digital content 5. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</p> <ul style="list-style-type: none"> • Children develop awareness of online protocols in order to stay safe on the web. • Children learn how to use the internet safely and responsibly (What do you use the internet for? Who do you talk to online? What setting do you have your online profiles set to? (Personal or Private) • Children develop awareness of online protocols, in order to stay safe on the internet • Children begin to use a range of online communication tools, such as forums, email and polls 	<p>4. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts 5. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output 6. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 7. Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web 8. Appreciate how [search] results are selected and ranked</p> <ul style="list-style-type: none"> • (CS4, CS5, CS6 & DL5) Children to create their own 3D world and challenge them to consider everything this entails. • (CS8, IT2 & IT3) Children will create their own blog detailing what they learn from research that they will 	<p>2. Use search technologies effectively 3. 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</p> <ul style="list-style-type: none"> • (IT2, DL4 & DL5) children will analyse and discuss sport reports using examples from the internet. Working in groups, the children will create their own sports news report which they will share and work on together online using Dropbox. Finally, each group will present their report to the class followed by an evaluation. • (IT3 & DL5) Children will explore the power of social media as a force for good. We will ask

	<p>in order to formulate, develop and exchange ideas (What is a social network?).</p> <ul style="list-style-type: none"> • Children are able to demonstrate they are able to report unacceptable content and contact when online (What is cyberbullying? Why is it wrong? What would you do if you received a nasty message?). • Children understand that good online research involves processing the information (rather than copying) and interpreting it for others. • Children recognise issues of copyright and the importance of acknowledging sources (What do we mean by copyright? How can you search for something that is copyright free?) • Children are able to explain the importance of passwords. <p>(DL3, DL4 & DL5) children will learn about the key factors in producing good footage. The children will devise their own characters, plot and storyboard before filming their short movie. The children will then import their film clips into iMovie where they will edit and enhance their footage before sharing their movie with the rest of the class.</p>	<p>complete throughout the six sessions. Children will learn about different technologies both old and new, about inventors and the different components of a computer.</p> <ul style="list-style-type: none"> • (CS4, CS5 & IT3) create your very first computer game in Scratch. This game involves firstly creating your own sprites/graphics and background images. Children will understand artificial intelligence and build AI onto their game. Children will understand why player interaction is important to a computer game. Children will build scores and timers into their game. • (CS4, CS5 & IT3) Children will understand what HTML is create a HTML file. Children will build a basic web page using tags and elements to change the design and the colour of the web page. The theme of the web page will be to review a film or a book that the children have read or watched. • (CS4, CS5 & IT3) Children will blend creative writing and coding to produce their own interactive animations. 	<p>children to start a campaign to correct one of the many wrongs in our world and use social media to gain support and gather momentum for their cause.</p> <ul style="list-style-type: none"> •
<p>5</p>	<p>3. Understand the opportunities [networks] offer for communication and collaboration</p> <p>4. Be discerning in evaluating digital content</p> <p>5. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</p> <ul style="list-style-type: none"> • Children are able to discuss the risks of using the internet and identify ways of protecting themselves (What is meant by a private profile? Who do you speak to line? How do you protect yourself online? What do you do online, which sites do you use?) • Children are aware of social networking sites and are able to protect themselves if they choose to use them (What is a social network? Do you use a social networking site? Who do you speak to? How would you protect yourself when using social networking sites?) • Children understand what cyberbullying is. Children know how to report any concerns they may have 	<p>4. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</p> <p>5. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p> <p>6. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p> <p>7. Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web</p> <p>8. Appreciate how [search] results are selected and ranked</p> <ul style="list-style-type: none"> • (CS4, CS5 & IT3) Children will create a detailed 2 player game that includes racing cars around a track. • (CS7 & IT3) Children create their own website using free templates from WordPress. The project culminates in the children presenting their website to the rest of the class and providing rationale behind choosing the content they have used. 	<p>2. Use search technologies effectively</p> <p>3. 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</p> <ul style="list-style-type: none"> • (IT2, IT3, DL3 & DL5) Children to create their own news report. The project culminates in the children recording their own news report. • (IT2, IT3 & DL5) Children will be introduced to Augmented Reality. Children will understand the basic use of QR codes and then use more complex AR apps. The children will also learn to find images using the web and refine their research skills as they explore various works of art. Children will be introduced to filming and editing as they make short videos based on their research findings, these video will then be

	<p>(What is cyberbullying? What effect on a child's life can cyberbullying have?)</p> <ul style="list-style-type: none"> • Children are able to identify who they should talk to online (Who do you speak to online? If you don't know them in real life how do you know they are telling the truth? How can you protect yourself online?) • Children learn that not everything on the internet is true and that they should check several sources to verify information (What do we mean by copyright? Why do we have copyright? Do you believe everything you read online? How do you know if someone is telling the truth online?) • Children can recognise risks to playing online games and are able to protect themselves (Who do you play online games against? How can you protect yourself when you are playing online games?) 	<ul style="list-style-type: none"> • (CS4, IT3 and DL5) Children will explore Earth and Space using technology. 	<p>linked via AR to printed copies of their artwork to bring them to life and tell a story.</p> <ul style="list-style-type: none"> • (IT2, IT3 & DL5) Children to be introduced to binary codes and understand how codes can be deciphered. • (IT3) Children create their own animation. The children will firstly be introduced to the concept of creating basic animations by using still images to create a moving scene. Next, the children will film their own animated sequence using props and sets that they have created and will also learn how to edit their final piece in iMovie. • (IT2, IT3 & DL5) Children will be exploring drawings/illustrations representing both 2D and 3D worlds. The children will need to think about who they are designing their building for and other elements such as what materials they might use.
<p>6</p>	<p>3. Understand the opportunities [networks] offer for communication and collaboration</p> <p>4. Be discerning in evaluating digital content</p> <p>5. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</p> <ul style="list-style-type: none"> • Children recognise what is acceptable and unacceptable behaviour when using technologies and online services (What did you learn from the video? Which setting should you have your online profiles set to? (Private not Public) Who do you play online games against? What would you do if you received a nasty message? How can you protect yourself online?) • Children learn about social networking sites and appropriate use of such sites. Introduce children to terminology such as 'sexting' and 'grooming' • Children understand what is meant by a 'Digital Footprint' Evaluate their use of technology including the use of email, social networking, online gaming and mobile phones and consider how they present themselves online. 	<p>4. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</p> <p>5. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p> <p>6. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p> <p>7. Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web</p> <p>8. Appreciate how [search] results are selected and ranked</p> <ul style="list-style-type: none"> • (CS4) Introduce children to the world of programming languages, of which there are many. They will experiment with learning some basic Python code using either iPads, PC or Macs. • (CS4, CS5, IT3 & DL4) Children experiment with the basics of programming and app development using a variety of development platforms and styles of code. • (CS4, CS5 & IT3) Children to create their own Heroes and Villains style game using the program Scratch. • (CS4, IT3 & DL5) The children will use Physics engines and prototyping software to build and test a virtual robot using a 2D simulation software. 	<p>2. Use search technologies effectively</p> <p>3. 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</p> <ul style="list-style-type: none"> • (IT2, IT3 & DL5) Children will develop a story idea in small groups to create a storyboard. The children use Book Creator and Brushes to create their own eBook including text, illustrations and audio. • (IT3) Children learn about 'wearable technology' and design a piece of wearable technology that links in with a smart phone app.

	<ul style="list-style-type: none">• Children can demonstrate responsible use of technologies and online services, and know a range of ways to report concerns. Children understand what cyberbullying is. Children know how to report any concerns they may have (What is cyberbullying? What effect on a child's life can cyberbullying have?)• Children can explain what is meant by copyright (What do we mean by copyright? Why do we have copyright? Do you believe everything you read online? How do you know if someone is telling the truth online?)• Children can identify the risks to playing online games and know how to protect themselves (What advice would you give other children when playing online games? Do you know who you are playing against?) <p>(DL5) Stocks and shares: children learn to understand the stock market but more importantly engage them in a task that makes them analyse data, make informed choices, present and critique their decisions.</p>	<ul style="list-style-type: none">• (CS4, IT2, IT3, DL4 & DL5) Children will be using Python programming to develop a game.	
--	---	---	--