Amberley Parochial School

Providing the rich soil that enables
our children to develop deep roots and flourish.

Immersion Curriculum: Year 3/4
Cycle A

At Amberley, each unit of Computing aims to give our pupils the life-skills that will enable them to embrace and utilise new technology in a socially responsible and safe way in order to flourish.

Intent:

For our pupils to gain the skills to:

- be able to operate in the 21st century workplace and to know the career opportunities that will be open to them if they study computing
- to become autonomous, independent and safe users of computing technologies, gaining confidence and enjoyment from their activities
- to support learning across the entire curriculum and ensure that our curriculum is accessible to every child
- to develop creativity, resilience and problem-solving and critical thinking skills

Focus	Milestone for end of Lower Key Stage 2 (Year 4)	National Curriculum Objectives: By the end of the Key Stage 2
Computing Systems and Networks The internet	• Explain how digital devices function. • Identify input and output devices. • Recognise how digital devices can change the way we work. • Explain how a computer network can be used to share information. • Recognise the physical components of a network. • Explore and describe how networks physically connect to other networks. • Recognise how networked devices make up the internet. • Understand how content can be added and accessed on the world wide web. • Recognise that www content is created by people and evaluate the consequences of unreliable 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.

Duration	**Cycle**		
Term 1	**A**	**Ongoing:** <u>Managing Online Information</u> • Use key phrases in search engines. • Explain what autocomplete is and how to choose the best suggestion. • Explain how the internet can be used to sell and buy things • Explain the difference between a 'belief', an 'opinion' and a 'fact'. • Analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'. • Describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites).	**Education for a Connected World**: (non-statutory guidance) <u>Self-Image and Identity</u> • Explain what is meant by the term 'identity'. • Explain how I can represent myself in different ways online.

| **Making it real** | • Describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online.
• Explain that some people I 'meet online' (e.g. through social media) may be computer programmes pretending to be real people.
• Explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true
<u>Privacy and Security</u>
• Give reasons why I should only share information with people I choose to and can trust. I can explain that if I am not sure or I feel pressured, I should ask a trusted adult.
• Understand and can give reasons why passwords are important.
• Describe simple strategies for creating and keeping passwords private.
• Describe how connected devices can collect and share my information with others.
• Explain what a strong password is.
• Describe strategies for keeping my personal information private, depending on context.
• Explain that others online can pretend to be me or other people, including my friends; suggest reasons why they might do this.
• Explain how internet use can be monitored.
<u>Copyright and Ownership</u>
• Explain why copying someone else's work from the internet without permission can cause problems.
• Give examples of what those problems might be. | • Explain ways in which and why I might change my identity depending on what I am doing online (e.g. gaming; using an avatar; social media).
• Explain how my online identity can be different to the identity I present in 'real life'
• Describe the right decisions about how I interact with others and how others perceive me. |

Study of Grace Hopper (inventor of the first computer language; coined the term 'bug')

Key Vocabulary:
Network, digital device, internet, router, world wide web, website, webpage, networked device, connect, media, content, online, copyright, ownership, legal, re-share

Appropriate vocabulary will be selected from this list based on content.

	• Explain why I need to consider who owns content on the internet and whether I have the right to reuse it; give some simple examples.	

Focus	Milestone for end of Lower Key Stage 2 (Year 4)	National Curriculum Objectives: By the end of the Key Stage 2
Creating Media Audio Editing	• Identify that sound can be digitally recorded. • Use a digital device to record sound. • Explain that a digital recording is stored as a file. • Explain that audio can be changed through editing. • Show that different types of audio can be combined and played together. • Evaluate editing choices made. **Ongoing:** <u>Managing Online Information</u> • Use key phrases in search engines. • Explain what autocomplete is and how to choose the best suggestion. • Explain how the internet can be used to sell and buy things • Explain the difference between a 'belief', an 'opinion' and a 'fact'. • Analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'. • Describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites). • Describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online. • Explain that some people I 'meet online' (e.g. through social media) may be computer programmes pretending to be real people. • Explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true <u>Privacy and Security</u> • Give reasons why I should only share information with people I choose to and can trust. I can explain that if I am not sure or I feel pressured, I should ask a trusted adult. • Understand and can give reasons why passwords are important. • Describe simple strategies for creating and keeping passwords private. • Describe how connected devices can collect and share my information with others. • Explain what a strong password is. • Describe strategies for keeping my personal information private, depending on context. • Explain that others online can pretend to be me or other people, including my friends; suggest reasons why they might do this. • Explain how internet use can be monitored. <u>Copyright and Ownership</u>	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. • Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Education for a Connected World**: (non-statutory guidance) <u>Online Relationships</u> • Describe ways people who have similar likes and interests can get together online. • Give examples of technology-specific forms of communication (e.g. emojis, acronyms, text speak). • Explain some risks of communicating online with others I don't know well. • Explain how my and other people's feelings can be hurt by what is said or written online. • Explain why I should be careful who I trust online and what information I can trust them with. I can explain why I can take back my trust in someone or something if I feel nervous, uncomfortable or worried. • Explain what it means to 'know someone' online and why this might be different from knowing someone in real life. • Explain what is meant by 'trusting someone online'; explain why this is different from 'liking someone online'. • Describe strategies for safe and fun experiences in a range of online social environments • Give examples of how to be respectful to others online
Duration / **Cycle**		
Term 2 / **A**		
Making it real		
 Study of Grace Hopper (inventor of the first computer language; coined the term 'bug')		**Key Vocabulary:** digital device, audio, digital recording, playback, input (microphone), output (headphones, speakers), ownership,

	• Explain why copying someone else's work from the internet without permission can cause problems. • Give examples of what those problems might be. • Explain why I need to consider who owns content on the internet and whether I have the right to reuse it; give some simple examples.	copyright, podcast, file, edit, tools, layers, export Appropriate vocabulary will be selected from this list based on content.

Focus	Milestone for end of Lower Key Stage 2 (Year 4)	National Curriculum Objectives: By the end of the Key Stage 2
Creating Media Photo Editing	• Explain that digital images can be changed. • Change the composition of an image. • Describe how images can be changed for different uses. • Make good choices when selecting different tools. • Recognise that not all images are real. • Evaluate how changes can improve an image. **Ongoing:** <u>Managing Online Information</u> • Use key phrases in search engines. • Explain what autocomplete is and how to choose the best suggestion. • Explain how the internet can be used to sell and buy things • Explain the difference between a 'belief', an 'opinion' and a 'fact'. • Analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'. • Describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites). • Describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online. • Explain that some people I 'meet online' (e.g. through social media) may be computer programmes pretending to be real people. • Explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true <u>Privacy and Security</u> • Give reasons why I should only share information with people I choose to and can trust. I can explain that if I am not sure or I feel pressured, I should ask a trusted adult. • Understand and can give reasons why passwords are important. • Describe simple strategies for creating and keeping passwords private. • Describe how connected devices can collect and share my information with others. • Explain what a strong password is. • Describe strategies for keeping my personal information private, depending on context. • Explain that others online can pretend to be me or other people, including my friends; suggest reasons why they might do this. • Explain how internet use can be monitored. <u>Copyright and Ownership</u> • Explain why copying someone else's work from the internet without permission can cause problems.	Pupils should be taught to: • Use search technologies effectively. • 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. **Education for a Connected World**: (non-statutory guidance) <u>Online Bullying</u> • Explain what bullying is and can describe how people may bully others. • Describe rules about how to behave online and how I follow them. • Identify some online technologies where bullying might take place. • Describe ways people can be bullied through a range of media (e.g. image, video, text, chat). • Explain why I need to think carefully about how content I post might affect others, their feelings and how it may affect how others feel about them (their reputation) **Key Vocabulary:** digital image, pixel, edit, tool, crop, filter, retouch, effect, online editor, copyright-free, composition, fake/ digitally altered/enhanced/ doctored, original, publication,

Duration	Cycle
Term 3	**A**

Making it real

Study of Grace Hopper (inventor of the first computer language; coined the term 'bug')

		• Give examples of what those problems might be. • Explain why I need to consider who owns content on the internet and whether I have the right to reuse it; give some simple examples.	Appropriate vocabulary will be selected from this list based on content.

Focus	Milestone for end of Lower Key Stage 2 (Year 4)	National Curriculum Objectives: By the end of the Key Stage 2
Programming A Repetition in shapes **Duration** / **Cycle** **Term 4** / **A** **Making it real** Study of Grace Hopper (inventor of the first computer language; coined the term 'bug')	• Recognise that commands in Scratch are represented as blocks and are used to control sprites. • Recognise that a sequence of commands can have an order. • Explain that a program has a start and outcome. • Create a program to move a sprite. • Change the appearance of a project, adapting a program to a new context. • Identify and fix bugs in a program. • Design and create a maze based challenge. • Identify that accuracy in programming is important. **Ongoing:** Managing Online Information • Use key phrases in search engines. • Explain what autocomplete is and how to choose the best suggestion. • Explain how the internet can be used to sell and buy things • Explain the difference between a 'belief', an 'opinion' and a 'fact'. • Analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'. • Describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites). • Describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online. • Explain that some people I 'meet online' (e.g. through social media) may be computer programmes pretending to be real people. • Explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true Privacy and Security • Give reasons why I should only share information with people I choose to and can trust. I can explain that if I am not sure or I feel pressured, I should ask a trusted adult. • Understand and can give reasons why passwords are important. • Describe simple strategies for creating and keeping passwords private. • Describe how connected devices can collect and share my information with others. • Explain what a strong password is. • Describe strategies for keeping my personal information private, depending on context. • Explain that others online can pretend to be me or other people, including my friends; suggest reasons why they might do this. • Explain how internet use can be monitored. Copyright and Ownership • Explain why copying someone else's work from the internet without permission can cause problems.	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. **Education for a Connected World**: (non-statutory guidance) Health, Well-Being and Lifestyle • Explain why spending too much time using technology can sometimes have a negative impact on me; I can give some examples of activities where it is easy to spend a lot of time engaged (e.g. games, films, videos). • Explain how using technology can distract me from other things I might do or should be doing. • Identify times or situations when I might need to limit the amount of time I use technology; suggest strategies to help me limit this time. **Key Vocabulary:** Program, turtle (an arrow or turtle), command, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, algorithm, value, trace, decompose, procedure (+specific Logo commands)

		• Give examples of what those problems might be. • Explain why I need to consider who owns content on the internet and whether I have the right to reuse it; give some simple examples.	Appropriate vocabulary will be selected from this list based on content.

Focus		Milestone for end of Lower Key Stage 2 (Year 4)	National Curriculum Objectives: By the end of the Key Stage 2
Data and Information Data Logging		• Explain that data gathered over time can be used to answer questions. • Use a digital device to collect data automatically. • Explain that a data logger collects 'data points' from sensors over time. • Use data collected over a long duration to find information. • Identify, use and collect the data needed to answer questions. **Ongoing** Managing Online Information • Use key phrases in search engines. • Explain what autocomplete is and how to choose the best suggestion. • Explain how the internet can be used to sell and buy things • Explain the difference between a 'belief', an 'opinion' and a 'fact'. • Analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'. • Describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites). • Describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online. • Explain that some people I 'meet online' (e.g. through social media) may be computer programmes pretending to be real people. • Explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true Privacy and Security • Give reasons why I should only share information with people I choose to and can trust. I can explain that if I am not sure or I feel pressured, I should ask a trusted adult. • Understand and can give reasons why passwords are important. • Describe simple strategies for creating and keeping passwords private. • Describe how connected devices can collect and share my information with others. • Explain what a strong password is. • Describe strategies for keeping my personal information private, depending on context. • Explain that others online can pretend to be me or other people, including my friends; suggest reasons why they might do this. • Explain how internet use can be monitored. Copyright and Ownership • Explain why copying someone else's work from the internet without permission can cause problems. • Give examples of what those problems might be.	Pupils should be taught to: • ...work with various forms of input. • 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. **Education for a Connected World:** (non-statutory guidance) Online Reputation • Search for information about myself online. • Recognise I need to be careful before I share anything about myself or others online. • Know who I should ask if I am not sure if I should put something online. • Describe how others can find out information about me by looking online. • Explain ways that some of the information about me online could have been created, copied or shared by others.
Duration	Cycle		
Term 5	A		
Making it real			
Study of Grace Hopper (inventor of the first computer language; coined the term 'bug')			**Key Vocabulary:** data, table, layout, input device, sensor, data logger, data point, interval, analyse, data set, import, export, logged, collection, analyse, review, conclude Appropriate vocabulary will be selected from this list based on content.

	• Explain why I need to consider who owns content on the internet and whether I have the right to reuse it; give some simple examples.	

Focus	Milestone for end of Lower Key Stage 2 (Year 4)	National Curriculum Objectives: By the end of the Key Stage 2
Programming B Repetition in Games	• Recognise that commands in Scratch are represented as blocks and are used to control sprites. • Recognise that a sequence of commands can have an order. • Explain that a program has a start and outcome. • Create a program to move a sprite. • Change the appearance of a project, adapting a program to a new context. • Identify and fix bugs in a program. • Design and create a maze based challenge. • Identify that accuracy in programming is important. **Ongoing:** Managing Online Information • Use key phrases in search engines. • Explain what autocomplete is and how to choose the best suggestion. • Explain how the internet can be used to sell and buy things • Explain the difference between a 'belief', an 'opinion' and a 'fact'. • Analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'. • Describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites). • Describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online.	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. Consolidation of Digital Literacy content from **Education for a Connected World:** (non-statutory guidance)

Duration	Cycle
Term 6	A

Making it real

		Key Vocabulary:
Study of Grace Hopper (inventor of the first computer language; coined the term 'bug')	• Explain that some people I 'meet online' (e.g. social media) may be computer programmes pretending to be real people. • Explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true Privacy and Security • Give reasons why I should only share information with people I choose to and can trust. I can explain that if I am not sure or I feel pressured, I should ask a trusted adult. • Understand and can give reasons why passwords are important. • Describe simple strategies for creating and keeping passwords private. • Describe how connected devices can collect and share my information with others. • Explain what a strong password is. • Describe strategies for keeping my personal information private, depending on context. • Explain that others online can pretend to be me or other people, including my friends; suggest reasons why they might do this. • Explain how internet use can be monitored. Copyright and Ownership • Explain why copying someone else's work from the internet without permission can cause problems. • Give examples of what those problems might be • Explain why I need to consider who owns content on the internet and whether I have the right to reuse it; give some simple examples.	Scratch, programming, algorithm, sprite, blocks, code, loop, value, repeat, repetition, forever, infinite loop, count-controlled loop, animate, costume, event block, duplicate, modify, design, debug, refine, evaluate Appropriate vocabulary will be selected from this list based on content.