

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

Immersion Curriculum: Computing Year 5/6 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

Foo	cus	Milestone for end of Key Stage 2	NC Objectives: By the end of the Key Stage 2
Computing systems and networks Communication		 Explain that computers can be connected together to form systems and recognise their roles in our lives. Recognise how information is transferred over the internet and how we communicate using technology. Explain how sharing information online lets people in different places work together. Contribute to a shared project online. Evaluate different ways of working together online and different methods of online communication. 	Pupils should be taught: 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	 Identify how to use a search engine. Describe how search engines select results. 	Select, use and combine a variety of software (including internet services) on a range of digital devices to design
Term 1	A	 Explain how search results are ranked. Recognise why the order of results is important, and to whom. Ongoing: Managing Online Information Use different search technologies effectively. Explain key concepts including: data, information, fact, opinion, belief, true, false, valid, reliable and evidence. Understand the difference between online misinformation and; explain what is meant by 'being sceptical'. Give examples of when and why it is important to be 'sceptical'. I can explain what is meant by a 'hoax'. Explain why I need to think carefully before I forward anything online. 	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)
Study of A (English mar) famous fo breaking t	lan Turing thematician or work on the Enigma	 Explain why some information I find online may not be honest, accurate or legal. Explain why information that is on a large number of sites may still be inaccurate or untrue; assess how this might happen Explain how search engines work and how results are selected and ranked. Demonstrate the strategies I would apply to be discerning in evaluating digital content. Describe how some online information can be opinion and can offer examples. Explain how and why some people may present 'opinions' as 'facts'. Define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online. Demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are important. Identify, flag and report inappropriate content. Privacy and Security Create and use strong and secure passwords, using different passwords for a range of online services; describe effective strategies for managing those passwords 9including knowing what to do if my password is lost or stolen.) Explain how many free apps or services may read and share my private information with others. Explain how and why some apps may request or take payment for additional content and explain why I should seek permission from a trusted adult before purchasing. Explain what app permissions are and give some examples from the technology or services I use. Describe simple ways to increase privacy on apps and services that provide privacy settings. Describe simple ways to increase privacy on apps and services that provide privacy settings. Describe to supplie identify such content. 	 Self-Image and Identity Explain how identity online can be copied, modified or altered. Demonstrate responsible choices about my online identity, depending on context. Describe ways in which media can shape ideas about gender. Identify messages about gender roles and make judgements based on them. Challenge and explain why it is important to reject inappropriate messages about gender online. Describe issues online that might make me or others feel sad, worried, uncomfortable or frightened. Know and can give examples of how I might get help, both on and offline. Explain why I should keep asking until I get the help I need. Key Vocabulary: communication, search engine, world wide web, refine, search, address bar, online, web crawlers, index, ranking, keyword, influence, sponsored,
		 Copyright and Ownership Assess and justify when it is acceptable to use the work of others and give examples of content that is permitted to be reused. Demonstrate the use of search tools to find and access online content which can be reused by others. Demonstrate how to make references to and acknowledge sources I have used from the internet. 	privacy, information security, bot, search engine optimisation, selection, on/two way, one-to-one, one-to-many, SMS, blog Appropriate vocabulary will be selected from this list based on content.

Foci	us	Milestone for end of Key Stage 2	National Curriculum Objectives: By the end of the Key Stage 2
Creating	Media	Review an existing website and consider its structure.	Pupils should be taught:
Web page	creation	 Plan the features of a web page. Consider the ownership and use of images (copyright). Recognise the need to preview pages. Outline the need for a navigation path. Recognise the implications of linking to content owned by other people. 	 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,
Duration	Cycle	Ongoing:	analysing, evaluating, and presenting data and information.
Term 2	А	 Managing Online Information Use different search technologies effectively. Explain key concepts including: data, information, fact, opinion, belief, true, false, valid, reliable and evidence. 	Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour.
		 Understand the difference between online misinformation and; explain what is meant by 'being sceptical'. Give examples of when and why it is important to be 'sceptical'. I can explain what is meant by a 'hoax'. Explain why I need to think carefully before I forward anything online. Explain why some information I find online may not be honest, accurate or legal. 	Education for a Connected World: (non-statutory guidance) Online Relationships
		 Explain why information that is on a large number of sites may still be inaccurate or untrue; assess how this might happen Explain how search engines work and how results are selected and ranked. 	Explain that there are some people I communicate wit online who may want to do me or my friends harm; Recognise that this is not my/our fault.
Making	it real	 Demonstrate the strategies I would apply to be discerning in evaluating digital content. Describe how some online information can be opinion and can offer examples. Explain how and why some people may present 'opinions' as 'facts'. Define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online. 	 Make positive contributions and be part of online communities. Describe some of the communities in which I am involved and describe how I collaborate with others positively.
		 Demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are important. Identify, flag and report inappropriate content. <u>Privacy and Security</u> Create and use strong and secure passwords, using different passwords for a range of online services; describe effective strategies for managing those passwords 9including knowing what to do if my password is lost or stolen.) Explain how many free apps or services may read and share my private information with others. 	 Show I understand my responsibilities for the well-be of others in my online social group. Explain how impulsive and rash communications onling may cause problems (e.g. flaming, content produced live streaming). Demonstrate how I would support others (including those who are having difficulties) online.
Study of Ala	an Turing	• Explain how and why some apps may request or take payment for additional content and explain why I should seek permission from a trusted adult before purchasing.	Demonstrate ways of reporting problems online for bomyself and my friends.
(English matl	_	• Explain what app permissions are and give some examples from the technology or services I use.	Key Vocabulary:
amous for wor		Describe simple ways to increase privacy on apps and services that provide privacy settings. Describe ways in which same action content togget a populate gain manay or information illegally describe.	Website, content, Hypertext Markup Languag
the Enigm	•	 Describe ways in which some online content targets people to gain money or information illegally; describe strategies to help me identify such content. Copyright and Ownership Assess and justify when it is acceptable to use the work of others and give examples of content that is permitted 	(HTML code), media, layout, webpage, home page, internet access, copyright –free, source fair use, preview, digital platform, navigation

• Demonstrate the use of search tools to find and access online content which can be reused by others.

• Demonstrate how to make references to and acknowledge sources I have used from the internet.

to be reused.

path, hyperlink, breadcrumb trail subpage,

Appropriate vocabulary will be selected from this list

header, implication, external link, embed

based on content.

Focus	Milestone for end of Key Stage 2	National Curriculum Objectives: By the end of the Key Stage 2
Creating Media	Use a computer to create and manipulate three-dimensional (3D) digital objects.	Pupils should be taught:
3D Modelling	 Compare working digitally with 2D and 3D graphics. Construct a digital 3D model of a physical object. Identify that physical objects can be broken down into a collection of 3D shapes. Design a digital model by combining 3D objects. Develop and improve a digital 3D model. 	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
uration Cycle		presenting data and information.
erm 3 A	 Ongoing: Managing Online Information Use different search technologies effectively. Explain key concepts including: data, information, fact, opinion, belief, true, false, valid, reliable and evidence. Understand the difference between online misinformation and; explain what is meant by 'being sceptical'. 	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
	• Give examples of when and why it is important to be 'sceptical'. I can explain what is meant by a 'hoax'.	Education for a Connected World:
	Explain why I need to think carefully before I forward anything online.	(non-statutory guidance)
	Explain why some information I find online may not be honest, accurate or legal.	Online Bullying
	• Explain why information that is on a large number of sites may still be inaccurate or untrue; assess how this might happen	Recognise when someone is upset, hurt or angry online.
Making it real	 Explain how search engines work and how results are selected and ranked. Demonstrate the strategies I would apply to be discerning in evaluating digital content. Describe how some online information can be opinion and can offer examples. Explain how and why some people may present 'opinions' as 'facts'. Define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online. 	 Describe how to get help for someone that is bein bullied online and assess when I need to do or sa something or tell someone. Explain how to block abusive users. Explain how I would report online bullying on the
30	 Demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are important. Identify, flag and report inappropriate content. Privacy and Security Create and use strong and secure passwords, using different passwords for a range of online services; describe 	 apps and platforms that I use. Describe the helpline services who can support r and what I would say and do if I needed their hele. (e.g. Childline).
Study of Alan Turing	 effective strategies for managing those passwords 9including knowing what to do if my password is lost or stolen.) Explain how many free apps or services may read and share my private information with others. Explain how and why some apps may request or take payment for additional content and explain why I should seek permission from a trusted adult before purchasing. 	 Describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. Identify a range of ways to report concerns both
English mathematician	Evaluin what any permissions are and give some examples from the technology or services Luse	school and at home about online bullying.
nous for work on breaki the Enigma Code)	 Describe simple ways to increase privacy on apps and services that provide privacy settings. Describe ways in which some online content targets people to gain money or information illegally; describe strategies to help me identify such content. Copyright and Ownership 	Key Vocabulary: graphics, 2D, 3D, 3D object, 3D space, vie object, resize, colour, lift, rotate, position

• Assess and justify when it is acceptable to use the work of others and give examples of content that is permitted to be

• Demonstrate the use of search tools to find and access online content which can be reused by others.

• Demonstrate how to make references to and acknowledge sources I have used from the internet.

graphics, 2D, 3D, 3D object, 3D space, view, object, resize, colour, lift, rotate, position, select, duplicate, dimensions, placeholder, hole, group, ungroup, resize, design, modify, evaluate, improve, computer aided design (CAD)

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

Fo	cus	Milestone for end of Key Stage 2	National Curriculum Objectives: By the end of the Key Stage 2
Progran	nming A	Define a 'variable' as something that is changeable.	Pupils should be taught:
	in games	 Explain why a variable is used in a program. Choose how to improve a game by using variables. Design a project that builds on a given example. Use my design to create a project. 	 Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
Duration	Cycle	Evaluate my project. Ongoing:	Use sequence, selection, and repetition in programs;
Term 4	A g it real	 Ongoing: Managing Online Information Use different search technologies effectively. Explain key concepts including: data, information, fact, opinion, belief, true, false, valid, reliable and evidence. Understand the difference between online misinformation and; explain what is meant by 'being sceptical'. Give examples of when and why it is important to be 'sceptical'. I can explain what is meant by a 'hoax'. Explain why I need to think carefully before I forward anything online. Explain why some information I find online may not be honest, accurate or legal. Explain why information that is on a large number of sites may still be inaccurate or untrue; assess how this might happen Explain how search engines work and how results are selected and ranked. Demonstrate the strategies I would apply to be discerning in evaluating digital content. Describe how some online information can be opinion and can offer examples. Explain how and why some people may present 'opinions' as 'facts'. Define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online. Demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are important. 	 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 Describe ways technology can affect healthy sleep and can describe some of the issues. Describe some strategies, tips or advice to promote healthy sleep with regards to technology Describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose.
(English ma famous fo	Alan Turing thematician or work on Enigma Code)	 Identify, flag and report inappropriate content. <u>Privacy and Security</u> Create and use strong and secure passwords, using different passwords for a range of online services; describe effective strategies for managing those passwords 9including knowing what to do if my password is lost or stolen.) Explain how many free apps or services may read and share my private information with others. Explain how and why some apps may request or take payment for additional content and explain why I should seek permission from a trusted adult before purchasing. Explain what app permissions are and give some examples from the technology or services I use. Describe simple ways to increase privacy on apps and services that provide privacy settings. Describe ways in which some online content targets people to gain money or information illegally; describe strategies to help me identify such content. Copyright and Ownership Assess and justify when it is acceptable to use the work of others and give examples of content that is permitted	 Assess and action different strategies to limit the impact of technology on my health (e.g. nightshift mode, regular breaks, correct posture, sleep, diet and exercise). Explain the importance of self-regulating my use of technology: demonstrate the strategies I use to do this (e.g. monitoring my time online, avoiding accidents) Key Vocabulary: Variable, change, name, set, design, event, value, set, design, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share

Demonstrate the use of search tools to find and access online content which can be reused by others.
Demonstrate how to make references to and acknowledge sources I have used from the internet.

Appropriate vocabulary will be selected from this list

based on content.

to be reused.

Focus	Milestone for end of Key Stage 2	National Curriculum Objectives:
		By the end of the Key Stage 2

Data and Information Spreadsheets

Duration	Cycle
Term 5	А

Making it real



Study of Alan Turing (English mathematician famous for work on breaking the Enigma Code)

- Identify questions which can be answered using data.
- Explain that objects can be described using data.
- Explain that formula can be used to produce calculated data.
- Apply formulas to data, including duplicating.
- Create a spreadsheet to plan an event.
- Choose suitable ways to present data.

Ongoing:

Managing Online Information

- Use different search technologies effectively.
- Explain key concepts including: data, information, fact, opinion, belief, true, false, valid, reliable and evidence.
- Understand the difference between online misinformation and; explain what is meant by 'being sceptical'.
- Give examples of when and why it is important to be 'sceptical'. I can explain what is meant by a 'hoax'.
- Explain why I need to think carefully before I forward anything online.
- Explain why some information I find online may not be honest, accurate or legal.
- Explain why information that is on a large number of sites may still be inaccurate or untrue; assess how this might happen
- Explain how search engines work and how results are selected and ranked.
- Demonstrate the strategies I would apply to be discerning in evaluating digital content.
- Describe how some online information can be opinion and can offer examples.
- Explain how and why some people may present 'opinions' as 'facts'.
- Define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online.
- Demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are important.
- Identify, flag and report inappropriate content.

Privacy and Security

- Create and use strong and secure passwords, using different passwords for a range of online services; describe effective strategies for managing those passwords 9including knowing what to do if my password is lost or stolen.)
- Explain how many free apps or services may read and share my private information with others.
- Explain how and why some apps may request or take payment for additional content and explain why I should seek permission from a trusted adult before purchasing.
- Explain what app permissions are and give some examples from the technology or services I use.
- Describe simple ways to increase privacy on apps and services that provide privacy settings.
- Describe ways in which some online content targets people to gain money or information illegally; describe strategies to help me identify such content.

Copyright and Ownership

- Assess and justify when it is acceptable to use the work of others and give examples of content that is permitted to be reused.
- Demonstrate the use of search tools to find and access online content which can be reused by others.
- Demonstrate how to make references to and acknowledge sources I have used from the internet.

Pupils should be taught:

 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 an individual online and create a summary report of the information I find.
- Describe ways that information about people online can be used by others to make judgments about an individual.
- Explain how I am developing an online reputation which will allow other people to form an opinion of me.
- Describe some simple ways that help build a positive online reputation

Key Vocabulary:

Spreadsheet, data, data heading, data set, cells, columns, rows, data item, object, application, format, common attribute, formula, calculation, input, output, cell reference, calculate, operation, range, duplicate, sigma, propose, question, organised, graph, chart, evaluate, results, comparison, questions, software, tools

Appropriate vocabulary will be selected from the selected from t

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Fo	cus	Milestone for end of Key Stage 2	National Curriculum Objectives: By the end of the Key Stage 2
Programming B Sensing		 Create a program to run on a controllable device. Explain that selection can control the flow of a program. Update a variable with a user input. Use a conditional statement to compare a variable to a value. Design a project that uses inputs and outputs on a controllable device. 	Pupils should be taught: Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
Duration Term 6 Making	Cycle A	 Develop a program to use inputs and outputs on a controllable device. Ongoing: Managing Online Information Use different search technologies effectively. Explain key concepts including: data, information, fact, opinion, belief, true, false, valid, reliable and evidence. Understand the difference between online misinformation and; explain what is meant by 'being sceptical'. Give examples of when and why it is important to be 'sceptical'. I can explain what is meant by a 'hoax'. Explain why I need to think carefully before I forward anything online. Explain why some information I find online may not be honest, accurate or legal. Explain why information that is on a large number of sites may still be inaccurate or untrue; assess how this might happen Explain how search engines work and how results are selected and ranked. Demonstrate the strategies I would apply to be discerning in evaluating digital content. Describe how some online information can be opinion and can offer examples. Explain how and why some people may present 'opinions' as 'facts'. Define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online. Demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these 	 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)
(English ma	Alan Turing othematician or work on Enigma Code)	 strategies are important. Identify, flag and report inappropriate content. Privacy and Security Create and use strong and secure passwords, using different passwords for a range of online services; describe effective strategies for managing those passwords 9including knowing what to do if my password is lost or stolen.) Explain how many free apps or services may read and share my private information with others. Explain how and why some apps may request or take payment for additional content and explain why I should seek permission from a trusted adult before purchasing. Explain what app permissions are and give some examples from the technology or services I use. Describe simple ways to increase privacy on apps and services that provide privacy settings. Describe ways in which some online content targets people to gain money or information illegally; describe strategies to 	Key Vocabulary: Micro:bit, MakeCode, input, process, output, flashing, USB, selection, condition, if then else, random, variable, sensing, accelerometer, compass, direction, navigation, design, task, algorithm, variable, step counter, plan, create, code, test, debug Appropriate vocabulary will be selected from this list based on content.