Ellington Primary School –

Computing Curriculum

Intent

At Ellington Primary School, our vision is to cultivate a deep-rooted enjoyment for Computing among all our pupils, fostering confidence, passion, and responsibility in their use of technology both within and beyond the school environment. Through interesting, relevant and inclusive lessons, they will be able to leave Year 6 with a good understanding of how computers and the Internet work, along with being able to complete tasks on them creatively, independently and reflectively for a range of purposes and audiences.

The Computing curriculum at Ellington is designed to empower students in embracing and harnessing the potential of emerging technologies. By imparting essential knowledge, principles, and concepts, our curriculum cultivates a deep understanding of Computing. As the renowned theoretical physicist and cosmologist **Stephen Hawking** aptly stated, *"Whether you want to uncover the secrets of the universe, or you want to pursue a career in the 21st century, basic computer programming is an essential skill to learn."* In today's dynamic landscape, pupils must not only adapt but thrive amidst rapid technological advancements. Our curriculum ensures that pupils are not only proficient in current tools but also equipped with the adaptability and creativity required to navigate future career opportunities with confidence.

In an era where technology permeates every facet of our lives, its role in shaping pupils' experiences is undeniable. Therefore, it becomes imperative for us to instil in our pupils the skills and mindset necessary to harness technology positively, responsibly, and safely. Our aim is to cultivate a generation of creators rather than mere consumers of digital content. This ethos is reflected in our comprehensive curriculum, which encompasses *'Coding & Computational Thinking,'* *'Information Technology,'* *'Computing Systems & Networks,'* and *'Online Safety.'* We endeavour to empower our pupils with the understanding that they always have a choice in how they utilise technology. As a school, we lead by example, demonstrating positive use of technology in our practices. Moreover, we recognise that education is the most effective means of addressing the myriad of challenges posed by technology and social media. Thus, we prioritise education as the cornerstone of our approach to mitigating these issues.

Technology provides opportunities for accessibility for our pupils and also enables them to share their learning in creative ways. Our curriculum, rich in knowledge, is balanced with opportunities for pupils to apply their skills creatively. This, in turn, helps our pupils become proficient computer scientists. We aim for our pupils to fluently utilise a range of tools to express their understanding.

By Upper Key Stage 2, we envision children having the independence and confidence to select the most suitable tool to meet the tasks and challenges set by their teachers.

Implementation

Computing skills are taught explicitly at Ellington with every pupil receiving dedicated Computing lessons throughout each half-term. Each half-term has a focus on either **Information Technology**, **Coding & Computational Thinking** or **Computing Systems & Networks** with **Online Safety** lessons also included throughout each half-term. The skills acquired are then embedded throughout the curriculum.

Learning is sequenced to build knowledge, skills and vocabulary. Throughout the units of work teachers encourage children to make links between past learning and new content. We recognise prior learning and build upon it with memorable learning experiences and provide targeted support where necessary. The units address the requirements of the National Curriculum and are broken down to cover all elements of the different strands of Computing.

Alongside our Computing advisor, we have created a comprehensive curriculum to best embed and cover all elements of the Primary Computing curriculum. The progression of knowledge and skills statements build year on year to deepen and challenge our learners. We use **Purple Mash** as the core of our curriculum tied with **Teach Computing** and activities from both **Project Evolve** and **Barefoot Computing** to create a comprehensive curriculum providing full curriculum coverage and a variety of skills for our children.

Purple Mash is a child friendly computing system that mirrors a lot of programmes seen in the 'real' word *(e.g. font buttons are the same, email formats are the same).* By using Purple Mash we are exposing the children to real-word systems but giving them freedom to explore using a child-friendly interface. It is also safe in terms of who and what they can access. Purple Mash is used for most *'Information Technology'* lessons and also provides a clear progression in *'Coding & Computational Thinking'* for our KS1 and KS2 pupils through the use of 2Code.

We believe that the **Teach Computing** curriculum is the best resource for delivering the *'theory'* element of the curriculum and helping children to understand *'how things work'* and so we use this for the *'Computing Systems & Networks'* strand of the curriculum. Some of the Teach Computing Units are also used with KS1 and KS2 pupils to introduce them to coding robots and to give a physical output for their programs *(e.g. use of Micro:Bits with Y6).*

Barefoot Computing provides some great *'unplugged'* lessons for EYFS pupils, and we have utilised this resource by including half-termly activities which introduce our youngest children to the concepts of coding.

'Online Safety' lessons are mapped to the *'Education for a Connected World'* framework and some of these activities are reinforced via PSHE lessons and during assemblies. We have identified **Project Evolve** as the best resource to deliver our Online Safety lessons and to cover the requirements of the Education for a Connected World framework. Each half-term has a focus on a specific strand of the Education for a Connected World framework, with *'Online Bullying'* then covered additionally during the week of *'Anti-Bullying Week'* week in Autumn [2] each year and *'Online Relationships'* covered additionally during the week of 'Safer Internet Day' in Spring [1]. The *'Knowledge Maps'* from Project Evolve are used at the start and end of the units to identify which objectives to focus upon and then to assess impact. Additional 'optional' Online Safety lessons and activities are included within our curriculum, which can be utilised where appropriate and when incidents occur which need addressing.

We carefully considered and then picked these different resources as we believe they best cover and deliver each of the individual strands of Primary Computing. This has helped create a cohesive structure with clear activities that match our progression of skills documents.

Whole class floor books are used to evidence computing work and allow children to reflect on their learning throughout the year. Summative end of unit questions are used to assess children's retention of key skills taught through the units and these are combined with teacher assessment.

Impact

The impact of our Computing curriculum is that we provide pupils with a set of skills to embed a lifelong love of learning and that they build on the knowledge and skills from previous learning. We ensure that every child can become a confident user of technology, while being able to use it to accomplish a wide variety of goals, both at home and in school. Children will have a secure and comprehensive knowledge of how technology works in the world around them and will develop their understanding of how to deal with online situations safely. Children will become confident global citizens.

Through the explicit teaching of Computing skills, both the teachers and the pupils assess their learning continuously throughout the units. To help children get to a deep level of understanding we use quizzes and knowledge organisers that we return to again and again. This is known as interleaving. The knowledge organisers outline what we want the children to know within each unit.

By nature Computing is going to be practical and hands on. We use *'floor books'* to record the learning the children have provided in Computing, as well as giving the children the opportunity to record individually their responses to key questions. Teachers ensure that children understand and apply the correct vocabulary linked to different elements of the curriculum and this is also recorded within the floor books. Prior and future learning links are also included, so that there is a clear sequence in relation to the progression of skills and activities.

Special Educational Needs and Computing

How do we ensure all children can access Computing lessons?

Although a child may have been identified as having a special educational need, they may not have a special educational need in Computing. Effective quality first teaching is the key to enabling all children to participate and develop their historical knowledge and skills. Differentiation within lessons is a vital component to ensure that a balance of support and challenge are achieved for all abilities. This is the same in every subject and differentiation is adjusted as expectations of individual pupils rise through progress.

Challenge and support specific to Computing may include:

- Open ended tasks allowing for children to explore as far as comfortable.
- First-hand and hands-on experiences.
- Teaching advance and specific vocabulary, which can be pre-taught as required.

- Using videos, small group or 1:1 recapping of programmes.
- Pupil knowledge organisers.
- Crash Courses to allow for catch-up of skills.

Pupils not secure within a lesson sequence are noted and adjustments made to the differentiation or level of support given. Similarly, added challenge is given if pupils are identified as requiring it. This may be noted by the teacher through questioning, by work produced by the pupils or via the end of unit summative assessment quizzes. Using an interleaving approach means that pupils continually revisit their learning, gradually building a deeper understanding. The way Computing also appears in other subjects allows those skills to be consistently revisited in different contexts.

Safeguarding

Lessons that delve into the social and emotional aspects of children and young people's online lives can often lead to them opening up about personal matters. Occasionally, you may hear information that raises concerns about a child's safety or well-being; in these instances, you have a professional duty of care to intervene in a manner that prioritises the child's welfare.

Disclosures can serve as indicators of underlying risks and, as with any safeguarding issue, they require careful handling to ensure the child's safety and to fulfil the school's safeguarding obligations. The following guidelines can offer valuable assistance when managing disclosures from children or young people:

- Always prioritise the child's welfare and interests above all else.
- Listen attentively and empathetically to the child. At this stage, avoid asking questions and let the child dictate the pace of the conversation.
- Refrain from displaying shock at the information you're receiving, as this could deter the child from further disclosure.
- Avoid conducting investigations. If clarification is needed regarding the information and whether the child is at risk, ask open-ended questions but refrain from implying guilt or responsibility on the child's part.
- Maintain a calm demeanour and reassure the child that they have done the right thing by confiding in you.
- Never promise confidentiality or to keep secrets. You have a duty to pass on relevant information to the appropriate authorities to ensure the child's safety.
- Ensure the child understands the next steps following their disclosure.
- Document the details of what the child has disclosed or what you have observed as soon as possible.
- If you've noticed bruising or injuries, use a body map to record the specifics.
- Notify your School Leader or designated Child Protection Lead promptly.
- Maintain confidentiality, sharing information only with those who have a genuine need to know.
- Stay in contact with the child. They've entrusted you with their disclosure and may require ongoing support.
- Ensure you have personal support in managing the information you've received.

British Values in Computing

Democracy

In Computing we learn to understand and be considerate to the views of other online users. We understand that we are each part of the democracy of the Internet and that we can each, in our own small way, affect the way the Internet exists.

The Rule of Law

In Computing we understand the need for rules in relation to the use of different websites and apps, such as age limits for different social media platforms and games and what we are allowed to post and share. We understand that there are rules are to keep others and ourselves safe and to help make the online world an enjoyable and engaging place.
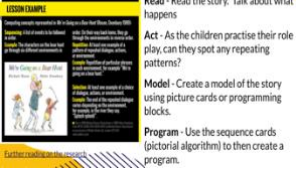
Individual Liberty

In Computing we understand how to use our right to freedom of speech in a respectable and thoughtful way, being considerate of how this speech will affect others. We understand the freedom the Internet and digital devices offer us in discovering information and connecting us with the world.

Mutual Respect

In Computing we appreciate and understand the views of others, our right to challenge, question and discuss opinions and views, and to do this in a respectable and thoughtful way. We understand that as we are connected with the world while accessing the Internet, we are exposed to the widest range of views, and we are learning to respect them.

Tolerance of Those of Different Faiths and Beliefs

In Computing we understand that we are connected to people across the whole world. We understand that these are people from different communities, cultures, faiths and beliefs. We use the opportunities offered in Computing to question, challenge and understand people with these different characteristics to support and develop our tolerance of them.

	Autumn [1]	Autumn [2]	Spring [1]	Spring [2]	Summer [1]	Summer [2]
EYFS	Within the revised 2021 EYFS statutory framework, the **'Technology'** strand within *Understanding the World* has been removed. However, there are opportunities within each area of the framework to enable practitioners to effectively prepare children for studying the Computing curriculum. As with all curriculum areas in Early Years, the focus within Computing is about making children **'School Ready'** and there are lots of opportunities within EYFS for young children to use technology to solve problems and produce creative outcomes.					

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As young children take part in a variety of tasks with digital devices *(such as moving a digital device around a classroom),* they will already be familiar with the device before being asked to undertake tasks related to the KS1 Computing Curriculum, such as writing and testing a simple program. Not only will children be keen to again use a device they had previously enjoyed using, but their cognitive load will also be reduced, meaning they are more likely to succeed when undertaking activities linked to the next stage in their learning.

The September 2020 release of Development Matters (pg. 9) outlines how effective teaching and learning gives children *the opportunity to play and explore, participate in active learning and create and think critically*. Many areas of the framework provide opportunities for pupils to develop their ability to use **computational thinking** effectively, such as through using the RAMP **(Read, Act, Model, Program)** linked to different texts being studied in class (e.g. looking at where 'sequence', 'selection' and 'repetition' appears in the story of *'Going on a Bear Hunt'*).

Coding & Computational Thinking	Coding & Computational Thinking	Coding & Computational Thinking	Coding & Computational Thinking	Coding & Computational Thinking	Coding & Computational Thinking
Barefoot Computing - *Awesome Autumn*	**Barefoot Computing -** *Winter Warmers*	**Barefoot Computing -** *Busy Bodies*	**Barefoot Computing –** *Springtime*	**Barefoot Computing -** *Boats Ahoy*	**Barefoot Computing -** *Summer Fun*
https://drive.google.com/drive/folders/17G-BDjIrUnN7ppEL8j_jcILofLtx4IqX?usp=sharing	https://drive.google.com/drive/folders/17r3O2VBNQjY8_jiEVn2n13eSl31-aN_w?usp=drive_link	https://drive.google.com/drive/folders/15xeyCX4vPd9POriCiAAiEu0rFLvm8b8r?usp=drive_link	https://drive.google.com/drive/folders/184jlLlZu-u_AE3tHX-Q69B-P7XmXQsuF?usp=drive_link	https://drive.google.com/drive/folders/15VMCYVUknZjoOiVqCVcZYV8wsNlCG_qk?usp=drive_link	https://drive.google.com/drive/folders/16wxh97zEkiXXaoPdlk5FCuz5ydKI7B6N?usp=drive_link
RAMP Model	**RAMP Model**	**RAMP Model**	**RAMP Model**	**RAMP Model**	**RAMP Model**

Use of 'RAMP Model' ongoing throughout the academic year, linked to various texts. **Ramp Model:** *https://drive.google.com/file/d/106j5eL4VbxtjiTl1I1xOj5TreECgPV1S/view?usp=drive_link* ** Consider purchase of 'Sequencing Cards' from Yellow Door as a way of introducing pictorial algorithms.* ***Nursery Rhymes:*** *https://www.yellow-door.net/products/nursery-rhyme-sequencing-cards/* ***Traditional Tales:*** *https://www.yellow-door.net/products/tell-me-a-story-sequencing-cards/* Children to use physical coding robots to program a physical device. Ongoing throughout the academic year. ** Consider purchase of **'Glow & Go Robot'** from TTS as best coding robot for use in EYFS:* *https://www.tts-group.co.uk/early-technology-light-up-glow-and-go-bot/1015634.html*	*Use of 'RAMP Model' ongoing throughout the academic year, linked to various texts.* **Ramp Model:** *https://drive.google.com/file/d/106j5eL4VbxtjiTl1I1xOj5TreECgPV1S/view?usp=drive_link* ** Consider purchase of 'Sequencing Cards' from Yellow Door as a way of introducing pictorial algorithms.* ***Nursery Rhymes:*** *https://www.yellow-door.net/products/nursery-rhyme-sequencing-cards/* ***Traditional Tales:*** *https://www.yellow-door.net/products/tell-me-a-story-sequencing-cards/* Children to use physical coding robots to program a physical device. Ongoing throughout the academic year. ** Consider purchase of **'Glow & Go Robot'** from TTS as best coding robot for use in EYFS:* *https://www.tts-group.co.uk/early-technology-light-up-glow-and-go-bot/1015634.html* **Block-a-Doodle-Do App** *(£0.99 / £0.49 VPP)*	*Use of 'RAMP Model' ongoing throughout the academic year, linked to various texts.* **Ramp Model:** *https://drive.google.com/file/d/106j5eL4VbxtjiTl1I1xOj5TreECgPV1S/view?usp=drive_link* ** Consider purchase of 'Sequencing Cards' from Yellow Door as a way of introducing pictorial algorithms.* ***Nursery Rhymes:*** *https://www.yellow-door.net/products/nursery-rhyme-sequencing-cards/* ***Traditional Tales:*** *https://www.yellow-door.net/products/tell-me-a-story-sequencing-cards/* Children to use physical coding robots to program a physical device. Ongoing throughout the academic year. ** Consider purchase of **'Glow & Go Robot'** from TTS as best coding robot for use in EYFS:* *https://www.tts-group.co.uk/early-technology-light-up-glow-and-go-bot/1015634.html* **Computing Systems & Networks**	*Use of 'RAMP Model' ongoing throughout the academic year, linked to various texts.* **Ramp Model:** *https://drive.google.com/file/d/106j5eL4VbxtjiTl1I1xOj5TreECgPV1S/view?usp=drive_link* ** Consider purchase of 'Sequencing Cards' from Yellow Door as a way of introducing pictorial algorithms.* ***Nursery Rhymes:*** *https://www.yellow-door.net/products/nursery-rhyme-sequencing-cards/* ***Traditional Tales:*** *https://www.yellow-door.net/products/tell-me-a-story-sequencing-cards/* Children to use physical coding robots to program a physical device. Ongoing throughout the academic year. ** Consider purchase of **'Glow & Go Robot'** from TTS as best coding robot for use in EYFS:* *https://www.tts-group.co.uk/early-technology-light-up-glow-and-go-bot/1015634.html* **Computing Systems & Networks**	*Use of 'RAMP Model' ongoing throughout the academic year, linked to various texts.* **Ramp Model:** *https://drive.google.com/file/d/106j5eL4VbxtjiTl1I1xOj5TreECgPV1S/view?usp=drive_link* ** Consider purchase of 'Sequencing Cards' from Yellow Door as a way of introducing pictorial algorithms.* ***Nursery Rhymes:*** *https://www.yellow-door.net/products/nursery-rhyme-sequencing-cards/* ***Traditional Tales:*** *https://www.yellow-door.net/products/tell-me-a-story-sequencing-cards/* Children to use physical coding robots to program a physical device. Ongoing throughout the academic year. ** Consider purchase of **'Glow & Go Robot'** from TTS as best coding robot for use in EYFS:* *https://www.tts-group.co.uk/early-technology-light-up-glow-and-go-bot/1015634.html* **Computing Systems & Networks**	*Use of 'RAMP Model' ongoing throughout the academic year, linked to various texts.* **Ramp Model:** *https://drive.google.com/file/d/106j5eL4VbxtjiTl1I1xOj5TreECgPV1S/view?usp=drive_link* ** Consider purchase of 'Sequencing Cards' from Yellow Door as a way of introducing pictorial algorithms.* ***Nursery Rhymes:*** *https://www.yellow-door.net/products/nursery-rhyme-sequencing-cards/* ***Traditional Tales:*** *https://www.yellow-door.net/products/tell-me-a-story-sequencing-cards/* Children to use physical coding robots *(e.g. Bee-Bots, Blue-Bots etc)* to program a physical device. Ongoing throughout the academic year. ** Consider purchase of **'Glow & Go Robot'** from TTS as best coding robot for use in EYFS:* *https://www.tts-group.co.uk/early-technology-light-up-glow-and-go-bot/1015634.html*

Busy Bundle – FREE Version App *(Helicopter Rescue Activity)*

https://apps.apple.com/gb/app/busy-bundle/id660198295

Computing Systems & Networks
Where opportunities allow, pupils discuss the range of technology used in places such as homes and schools.

Information Technology
 Integrate appropriate *Purple Mash* activities where appropriate linked to the EYFS 2021 Framework:
https://drive.google.com/file/d/1pmmowo0ZHlFq2XzbTRRKMpjAiDE78h_g/view?usp=sharing

Online Safety
Education for a Connected World

1.Self-Image & Identity

(1 Objective)

PROJECT EVOLVE

Use the 'Guided Knowledge Map' at the start of the half-term to assess understanding of

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https://apps.apple.com/gb/app/block-a-doodle-doo/id495941469

Computing Systems & Networks
Where opportunities allow, pupils discuss the range of technology used in places such as homes and schools.

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Online Safety
Education for a Connected World

3. Online Reputation

(1 Objective)

Use the 'Guided Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end

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Pupils share their experiences of *'using'* technology both in and out of school.

Information Technology
 Integrate appropriate *Purple Mash* activities where appropriate linked to the EYFS 2021 Framework:
https://drive.google.com/file/d/1pmmowo0ZHlFq2XzbTRRKMpjAiDE78h_g/view?usp=sharing

Online Safety
Education for a Connected World

8. Copyright & Ownership

(2 Objectives)

PROJECT EVOLVE

Use the 'Guided Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I know that work I create belongs to me.

Pupils share their experiences of *'using'* technology both in and out of school.

Information Technology
 Integrate appropriate *Purple Mash* activities where appropriate linked to the EYFS 2021 Framework:
https://drive.google.com/file/d/1pmmowo0ZHlFq2XzbTRRKMpjAiDE78h_g/view?usp=sharing

Online Safety
Education for a Connected World

6. Health, Wellbeing & Lifestyle

(2 Objectives)

PROJECT EVOLVE

Use the 'Guided Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

Pupils identify the main parts of a computer system *(monitor, mouse, keyboard, printer etc).*

Information Technology
 Integrate appropriate *Purple Mash* activities where appropriate linked to the EYFS 2021 Framework:
https://drive.google.com/file/d/1pmmowo0ZHlFq2XzbTRRKMpjAiDE78h_g/view?usp=sharing

Online Safety
Education for a Connected World

7. Privacy & Security

(2 Objectives)

PROJECT EVOLVE

Use the 'Guided Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can identify some simple examples of my personal

Computing Systems & Networks
Pupils identify the main parts of a computer system *(monitor, mouse, keyboard, printer etc).*

Information Technology
 Integrate appropriate *Purple Mash* activities where appropriate linked to the EYFS 2021 Framework:
https://drive.google.com/file/d/1pmmowo0ZHlFq2XzbTRRKMpjAiDE78h_g/view?usp=sharing

Online Safety
Education for a Connected World

5. Managing Online Information

(2 Objectives)

PROJECT EVOLVE

Use the 'Guided Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact. *I can recognise, online or offline, that anyone can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset.*	*of the half-term to assess impact.* **PROJECT EVOLVE** *I can identify ways that I can put information on the internet.* **4. Online Bullying** *(2 Objectives)* **** Deliver during Anti-Bullying Week in November*** **PROJECT EVOLVE** *Use the **'Guided Knowledge Map'** at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact.* *I can describe ways that some people can be unkind online.* *I can offer examples of how this can make others feel.*	*I can name my work so that others know it belongs to me.* **2.Online Relationships** *(2 Objectives)* Safer Internet Day **** Deliver during the week of Safer Internet Day in February.*** **PROJECT EVOLVE** *Use the **'Guided Knowledge Map'** at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact.* *I can recognise some ways in which the internet can be used to communicate.* *I can give examples of how I (might) use technology to communicate with people I know.*	*I can identify rules that help keep us safe and healthy in and beyond the home when using technology.* *I can give some simple examples of these rules.*	*information (e.g. name, address, birthday, age, location).* *I can describe who would be trustworthy to share this information with; I can explain why they are trusted.*	*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.*

Year 1

National Curricuulum Objectives and Outcomes:

Coding & Computational Thinking

Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.
Y1 - Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that a computer program turns an algorithm into code that the computer can understand.

Create and debug simple programs.

Y1 - Children can work out what is wrong with a simple algorithm when the steps are out of order and can write their own simple algorithm. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code.

Use logical reasoning to predict the behaviour of simple programs.

Y1 - 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. Children can, for example, interpret where a Bee-Bot will end up at the end of the program.

Computing Systems & Networks

Recognise common uses of information technology beyond school.

Y1 - 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.

Information Technology

Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

Y1 - Children are 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.

Online Safety

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

Y1- Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash.

Computing Systems & Networks	Information Technology	Coding & Computational Thinking	Coding & Computational Thinking	Coding & Computational Thinking	Information Technology
1.1: Exploring Purple Mash	1.3: Pictograms	Unplugged Activities	1.5: Maze Explorers	1.3: Programming [A] - Moving a Robot *(6 Lessons)*	1.6: Animated Stories
(4 Lessons)	*(3 Lessons)*	*(4 Lessons)*	*(4 Lessons)*		*(5 Lessons)*
Resources:	**Resources:**	**Lesson 1**	**Resources:**	https://drive.google.com/drive/folders/1DLiUIT14WasTkUgZHS1sk5X2shnW4oyq?usp=sharing	**Resources:**
Paint Projects, 2 Connect, 2 Count, 2 Explore (Purple Mash).	2 Connect & 2 Count *(Purple Mash)*	'***Monster Hop'*** *(could also be linked to Dinosaurs, Aliens etc).* Make a physical track for pupils to follow an algorithm *(different footprints in different directions).*	2 Go *(Purple Mash)*	**Resources:**	2 Create a Story *(Purple Mash)*
	Key Learning/End Points:		**Key Learning/End Points:**		**Key Learning/End Points:**

Key Learning/End Points:

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 start to add pictures and text to work.

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.

Success Criteria:

Children can log in to Purple Mash using their own login. •
Children have created their own avatar and understand why they are used.

Children can add their name to a picture they created on the computer.

Children are beginning to develop an understanding of ownership of work online.

Children can save work into the My Work folder in Purple Mash and understand that this is a private saving space just for their work.

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.

Success Criteria:

Children can discuss and illustrate the transport used to travel to school.

Children can contribute to the collection of class data.

Children have used these illustrations to create a simple pictogram.

Children can contribute to a class pictogram.

Children can discuss what the pictogram shows.

Children can collect data from rolling a die 20 times and recording the results.

Children can represent the results as a pictogram.

Vocabulary:

Collect Data, Compare, Data, Pictogram, Record Results, Title, Totals, Visual.

ASSESSMENT

Allocate *Unit 1.3 Quiz (Purple Mash)* to all pupils in order to assess

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These can either be made of paper/card or could be drawn onto the playground in chalk etc. Focus on appropriate vocabulary (e.g. language linked to direction and turning).

Link to example video:
https://drive.google.com/drive/folders/17soBjUAiq17uBrLWpdlEo9EoTB12_kTR?usp=sharing

Lesson 2

Unplugged Activity – Physical programming. Guide your partner *(as if a robot)* around a course in the hall, playground or classroom. How can you give precise instructions to your partner *(algorithm)?* What ways can you debug *(find and fix errors)* in your algorithm? *(e.g. turn around, take 3 steps backwards etc).*

Use **'Folens Cards'** *as ideas for this activity:*
https://drive.google.com/file/d/1AhmLtYK4agCTUYPlFfP8Pdr5xFGXWlUN/view?usp=sharing

Lesson 3

Unplugged Activity – Play **Hokey Cokey** and get children to follow the steps (algorithm). Second time pause and predict what comes next (e.g. after left arm in – do children say left leg, right leg etc . . .both of these would be 'logical' answers). Use pictorial algorithm of steps of the Hokey Cokey – character with right arm, left arm etc coloured in. Drop cards and then stick onto hall wall. Are these correct? Get children to sort into the correct order (debugging). Extend to use of 'instrumental version' of

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To understand the functionality of the direction keys.

To understand how to create and debug a set of instructions (algorithm).

To use the additional direction keys as part of an algorithm.

To understand how to change and extend the algorithm list.

To create a longer algorithm for an activity.

To set challenges for peers.

To access peer challenges set by the teacher as 2Dos.

Success Criteria:

Children know how to use the direction keys in 2Go to move forwards, backwards, left and right.

Children know how to add a unit of measurement to the direction in 2Go Challenge 2.

Children know how to undo their last move.

Children know how to move their character back to the starting point.

Children can use diagonal direction keys to move the characters in the right direction.

Children know how to create a simple algorithm.

Children know how to debug their algorithm.

Children can use the additional direction keys to create a new algorithm.

Coding robots such as Bee-Bots or Blue Bots

Key Learning/End Points:

To explain what a given command will do.

To act out a given word.

To combine 'forwards' and 'backwards' commands to make a sequence.

To combine four direction commands to make sequences.

To plan a simple program.

To find more than one solution to a problem.

Vocabulary:

Bee-Bot/Blue-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.

Prior and Future Learning Links:

This unit progresses learners' knowledge and understanding of giving and following instructions. It moves from giving instructions to each other to giving instructions to a robot by programming it.

Online Safety

Education for a Connected World

7. Privacy & Security

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.

Success Criteria:

Children know the difference between a traditional book and an e-book.

Children can use the different drawing tools to create a picture on the page.

Children can add text to a page.

Children can open previously saved work.

Children can add an animation to a page.

Children can play the pages created.

Children can save changes and overwrite the file.

Children can add a sound to the page.

Children can add voice recording to the page.

Children can create music for a page.

Children can add a background to the page.

Children can find their saved work in the Online Work area of Purple Mash.

Children can find messages that their teacher has left for them on Purple Mash.

Children can search Purple Mash to find resources.

Children will be able to use the different types of topic templates in the Topics section confidently.

Children will be confident with the functionality of the icons in the topic templates.

Children will know how to use the different icons and writing cues to add pictures and text to their work.

Children have explored the Tools section on Purple Mash and become familiar with some of the key icons: Save, Print, Open and New.

Children have explored the Games section and looked at Table Toons (2x tables).

Children can log out of Purple Mash when they have finished using it and know why that is important.

Vocabulary:

Alert, Avatar, Button, Device, File Name, Filter, Home Screen, Icon, Login, Logout, Menu, My Work Area, Notification, Password, Private, Purple Mash Tools, Saving, Search, Shared Folder, Textbox, Think About Box, Topic Area, Tool Bar, Typing, Writing Template.

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knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 2.3 (Spreadsheets) - Use of 2Calculate to collect data and produce a graph.

Online Safety

Education for a Connected World

3. Online Reputation

(2 Objectives)

PROJECT EVOLVE

Use the 'Guided Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can recognise that information can stay online and could be copied.

I can describe what information I should not put online without asking a trusted adult first.

4. Online Bullying

Hokey Cokey. Get children to choose their own actions (hands on heads etc). They are now creating their own algorithms. How could this be represented in pictures? (pictorial algorithm). At Christmas parties etc look at other 'guided dances' (e.g. Cha Cha Slide) where children are following an algorithm.

Hokey Cokey song:

https://www.youtube.com/watch?v=TMCthi3pFEQ

Instrumental version:
https://www.youtube.com/watch?v=DFl0xnIdHOc

Lesson 4

Discuss where we see algorithms in everyday life. We don't often call them algorithms, but we use them all of the time when cooking (recipe) and we are regularly following 'route algorithms' on our phones and sat-navs. Discuss the ways in which you would 'debug' when both driving or cooking.

Path Puzzler App

(£0.99 / £0.49 VPP)

Investigate route algorithms through use of the Path Puzzler app. Discuss the notion of the 'most precise' route and how this has the shortest

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Children can challenge themselves by using the longer algorithm to complete challenges.

Children can change the background images in their chosen challenge and save their new challenge.

Children have tried each other's challenges.

Key Question(s):

What is 2Go?

2Go is a program that allows you to move an object around the screen using either the arrows or by creating a simple sequence of instructions.

Vocabulary:

Algorithm, Challenge, Command, Direction, Instruction, Left & Right, Route, Undo, Unit.

ASSESSMENT

Allocate **Unit 1.5 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 2.1 (Coding): Children can change the background images in their chosen challenge and save their new challenge.

(3 Objectives)

PROJECT EVOLVE

Use the 'Guided Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can explain that passwords are used to protect information, accounts and devices.

I can recognise more detailed examples of information that is personal to someone (e.g where someone lives and goes to school, family names).

I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.

Children can use the additional drawing tools on My Story mode.

Children can change the font style and size.

Children can use the copy and paste function to add more pages to their animated e-book.

Children can share their e-books on a class story book display board.

Vocabulary:

Animation, Background, Category, Clip-Art Gallery, Copy, Drop-Down Menu, E-Book, Edit, Eraser, Features, Font, Sound, Overwrite, Paint Tools, Paste, Play Mode, Redo, Save, Sound Effect, Text, Undo, Voice Recording.

Key Question(s):

What is an animated story?

An animated story is a story where images in the foreground can move in a variety of ways.

ASSESSMENT

Allocate **Unit 1.6 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Key Question(s):

What is a password and why should we keep them safe?

A password is a secret word or phrase that allows a user to access a website. Passwords are like toothbrushes in that they should not be shared with anyone else.

What is a digital avatar?

In Purple Mash, an avatar is a picture you create in the software to represent you. It is safer to use an avatar on the Internet than have a picture of yourself.

Allocate *Unit 1.1 Quiz (Purple Mash)* to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

All units: Use of 2Dos, Saving, opening and editing work, Sharing work, Copying and pasting, Mouse, keyboard and device skills.

Online Safety

Education for a Connected World

1: Self-Image & Identity

(1 Objective)

* Deliver during Anti-Bullying Week in November

PROJECT EVOLVE

Use the 'Guided Knowledge Map' at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact.

I can describe how to behave online in ways that do not upset others and can give examples.

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number of steps. Pupils to draw arrows on a whiteboard to show the different ways of getting for example the brown dog to the brown bone and then indicate the number of steps involved.

https://apps.apple.com/gb/app/path-puzzler/id600530552

Cupcake Doodle App (£0.99 / £0.49 VPP) – Discuss 'recipes' as being a form of algorithms *(what ways do you 'debug' when cooking?)*. Use Cupcake Doodle app to simulate the process of following an algorithm when cooking.

https://apps.apple.com/us/app/cupcake-doodle/id681277169

Key Learning/End Points:

To compare the effects of adhering strictly to instructions to completing tasks without complete instructions.

To follow and create simple instructions on the computer.

To consider how the order of instructions affects the result.

Vocabulary:

Algorithm, Code, Computer, Debugging, Instructions, Program.

Key Question(s):

Children have tried each other's challenges.

Online Safety

Education for a Connected World

6. Health, Wellbeing & Lifestyle

(1 Objective)

PROJECT EVOLVE

Use the 'Guided Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can explain rules to keep myself safe when using technology both in and beyond the home.

Unit 2.6 (Creating Pictures): *2Paint a Picture – art effects and collage effects.*

Unit 2.7 (Making Music): *Digitally creating music and sound effects.*

Unit 2.8 (Presenting Ideas): *Exploring how stories can be presented in different ways.*

Online Safety

Education for a Connected World

5. Managing Online Information

(3 Objectives)

PROJECT EVOLVE

Use the 'Guided Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can give simple examples of how to find information using digital technologies,
e.g. search engines, voice activated searching.

I know / understand that we can encounter a range of things

(2 Objectives)

PROJECT EVOLVE

*Use the **'Guided Knowledge Map'** at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.*

I can recognise that there may be people online who could make someone feel sad, embarrassed or upset.

If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help.

What is an instruction?

An instruction takes you through something step by step so that you can successfully complete a task.

Why do we need to debug code?

When you write code, it won't always work correctly first time. When you search for the errors and correct them, this is known as debugging.

Online Safety

Education for a Connected World

8. Copyright & Ownership

(4 Objectives)

PROJECT EVOLVE

*Use the **'Guided Knowledge Map'** at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.*

I can explain why work I create using technology belongs to me.

I can say why it belongs to me (e.g. 'I designed it' or 'I filmed it'').

I can save my work under a suitable title / name so that

online including things we like and don't like as well as things which are real or make believe / a joke.

*I know how to get help from a **trusted adult** if we see content that makes us feel sad, uncomfortable worried or frightened.*

			others know it belongs to me (e.g. filename, name on content). *I understand that work created by others does not belong to me even if I save a copy.* **2. Online Relationships** *(4 Activities)* ** Deliver during the week of Safer Internet Day in February* *of Safer Internet Day in February* *Use the 'Guided Knowledge Map' at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact.* *I can give examples of when I should ask permission to do something online and explain why this is important.* *I can use the internet with adult support to communicate with people I know (e.g. video call apps or services).* *I can explain why it is important to be considerate and kind to*			

		people online and to respect their choices. *I can explain why things one person finds funny or sad online may not always be seen in the same way by others.*			

Optional Online Safety Activities

Chicken Clicking - *'Chicken Clicking'* *(physical book by Jeanne Willis priced at £6.38 or YouTube Read Aloud).*

https://www.amazon.co.uk/Chicken-Clicking-Online-Safety-Picture/dp/1783441615/ref=sr_1_1?keywords=chicken+clicking&qid=1646757795&sprefix=chicken+click%2Caps%2C297&sr=8-1

Book Read Aloud (YouTube): https://www.youtube.com/watch?v=FSasSWwi5Tk

The Adventures of Smartie the Penguin https://www.childnet.com/resources/smartie-the-penguin

Year 2	**National Curricuulum Objectives and Outcomes:** **Coding & Computational Thinking** **Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.** *Y2 - Children can 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 and debug simple programs.** *Y2 - Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors. Children's program designs display a growing awareness of the need for logical, programmable steps.* **Use logical reasoning to predict the behaviour of simple programs.** *Y2 - Children can 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.* **Computing Systems & Networks** **Recognise common uses of information technology beyond school.** *Y2 - Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom and can share this knowledge. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.* **Information Technology**

Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

Y2 - Children demonstrate an ability to organise data using, for example, a database and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.

Online Safety

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

Y2 - Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically such as posting work to school social media accounts. They develop an understanding of communicating safely online (e.g. using email safely by using 2Respond activities on Purple Mash) and know ways of reporting inappropriate behaviours and content.

Computing Systems & Networks	**Information Technology**	**Coding & Computational Thinking**	**Information Technology**	**Coding & Computational Thinking**	**Information Technology**
2.1: Computing Systems & Networks - IT Around Us *(4 Lessons) * Lessons 1 -4 only and then an independent 'unplugged activity' (see below).*	**2.7: Making Music** *(3 Lessons)*	**2.1: Coding - Crash Course** *(6 Lessons)*	**2.3: Spreadsheets** *(4 Lessons)*	**2.3: Programming [A] - Moving a Robot** *(6 Lessons)*	**2.6: Creating Pictures** *(5 Lessons)*
https://drive.google.com/drive/folders/1FSip5NAkScQ689dLSkcrW9I7dU4-bhL1?usp=sharing	**Resources:** *2 Sequence (Purple Mash)*	**Resources:** *2 Code (Purple Mash)*	**Resources:** *2 Calculate (Purple Mash)*	**Resources:** *Coding robots such as Bee-Bots or Blue Bots*	**Resources:** *2 Paint a Picture (Purple Mash)*
Key Learning/End Points:	**Key Learning/End Points:**	**Key Learning/End Points:**	**Key Learning/End Points:**	**Key Learning/End Points:**	**Key Learning/End Points:**
To recognise the uses and features of information technology.	*To make music digitally using 2Sequence.*	*To understand what an algorithm is.*	*To use 2Calculate image, lock, move cell, speak and count tools to make a counting machine.*	*To describe a series of instructions as a sequence.*	*To learn the functions of the 2Paint a Picture tool.*
To identify the uses of information technology in the school.	*To explore, edit and combine sounds using 2Sequence.*	*To create a computer program using an algorithm.*	*To learn how to copy and paste in 2Calculate.*	*To explain what happens when we change the order of instructions.*	*To learn about and recreate the Impressionist style of art (Monet, Degas, Renoir).*
To identify information technology beyond school.	*To edit and refine composed music.*	*To create a program using a given design.*	*To use the totalling tools.*	*To use logical reasoning to predict the outcome of a program.*	*To recreate Pointillist art and look at the work of pointillist artists such as Seurat.*
To explain how information technology helps us.	*To think about how music can be used to express feelings and create tunes which depict feelings.*	*To understand the collision detection event.*	*To use a spreadsheet for money calculations.*	*To explain that programming projects can have code and artwork.*	*To learn about the work of Piet Mondrian and recreate the style using the lines template.*
	To upload a sound from a bank of sounds into the Sounds section.	*To understand that algorithms follow a sequence.*	*To use the 2Calculate equals tool to check calculations.*	*To design an algorithm.*	*To recap the work of William Morris and recreate the style using the patterns template.*
	To record and upload environmental sounds into Purple Mash.	*To design an algorithm that follows a timed sequence.*	*To use 2Calculate to collect data and produce a graph.*		
			Success Criteria:		

Column 1

To explain how to use information technology safely.

Vocabulary:

Information technology (IT), computer, barcode, scanner/scan

Prior and Future Learning Links:

This unit progresses learners' understanding of technology and how they interact with it. They will develop this understanding to become familiar with the term information technology and will be able to identify common features of IT. This unit also builds on the learners' understanding of using technology safely and responsibly.

Unplugged Activity – *iWristband.* Discuss **'Wearable Technology'** as *'common us of use of ICT beyond school' (KS1 objective)*. What examples do the children know? *(adults in their lives will have Apple Watches, FitBits etc – teachers may also have examples they can demonstrate).* Explain that the task for the pupils is to design their own

Column 2

To use these sounds to create tunes in 2Sequence.

Success Criteria:

Children understand what 2Sequence is and how it works.

Children have used the different sounds within 2Sequence to create a tune.

Children have explored how to speed up and slow down tunes.

Children understand what happens to the tune when sounds are moved.

Children have added sounds to a tune they have already created to change it.

Children have considered how music can be used to express feelings.

Children can change the volume of the background sounds.

Children have created two tunes which depict two feelings.

Children have uploaded and used their own sound chosen from a bank of sounds.

Children have created, uploaded and used their own recorded sound.

Children have created their own tune using some of the chosen sounds.

Vocabulary:

Bars, Beat, Compose, Note, Tune, Repeat, Sound Effect, Soundtrack, Speed, Tempo, Volume.

Column 3

To understand that different objects have different properties.

To understand what different events do in code.

To understand the function of buttons in a program.

To understand and debug simple programs.

Success Criteria:

Children can explain that an algorithm is a set of instructions.

Children can describe the algorithms they created.

Children can explain that for the computer to make something happen, it needs to follow clear instructions.

Children can plan an algorithm that includes collision detection.

Children can create a program using collision detection.

Children read blocks of code and predict what will happen when it is run.

Children can create a program that uses a timer-after command.

Children can explain what the timer-after command does in their program.

Children can predict what will happen in a program that includes a timer-after command.

Children can create a computer program that includes different object types.

Column 4

Children can explain what rows and columns are in a spreadsheet.

Children can open, save and edit a spreadsheet.

Children can add images from the image toolbox and allocate them a value.

Children can add the count tool to count items.

Children can use copying, cutting and pasting to help make spreadsheets.

Children can use tools in a spreadsheet to automatically total rows and columns.

Children can use a spreadsheet to solve a mathematical puzzle.

Children can use images in a spreadsheet.

Children can work out how much they need to pay using coins by using a spreadsheet to help calculate.

Children can create a table of data on a spreadsheet.

Children can use the data to create a block graph manually.

Vocabulary:

Addition, Block Graph, *Cell,* ***Coins,*** *Column,* ***Copy,*** *Count Tool,* ***Cut,*** *Data,* ***Drag, Equals, Equals Tool, Image Value, Label, Paste, Price,*** *Row, Speak Tool,* ***Table, Toolbox, Total.***

Key Question(s):

Column 5

To create and debug a program that I have written.

Vocabulary:

instruction, sequence, ***clear, unambiguous,*** *algorithm, program,* ***order, prediction, artwork, design, route, mat, debugging, decomposition***

Unplugged Activity - Create a *'Getting Up'* *(what do you do from getting out of bed until you leave the house to come to school?)* algorithm flowchart. Focus on the 'precise' nature of steps (for example you do not just 'get out of bed and have your breakfast' – there are many steps to this. Use *'2Chart' (Purple Mash)* to create your flowchart.

Prior and Future Learning Links:

In advance of the lessons in this Year 2 unit, learners should have had some experience of creating short programs using floor robots and predicting the outcome of a simple program. This unit progresses learners' knowledge and understanding of algorithms and how they are implemented as programs on digital devices. Learners will spend time looking at how the order of commands affects outcomes. Learners will use this knowledge and logical

Column 6

To explore surrealism and eCollage.

Success Criteria:

Children can describe the main features of impressionist art.

Children can use 2Paint a Picture to create art based upon this style.

Children can explain what pointillism is.

Children can use 2Paint a Picture to create art based upon this style.

Children can describe the main features of Piet Mondrian's work.

Children can use 2Paint a Picture to art based upon his style.

Children can describe the main features of art that uses repeating patterns.

Children can use 2Paint a Picture to create art by repeating patterns in a variety of ways.

Children can combine more than one effect in 2Paint a Picture to enhance patterns.

Children can describe surrealist art.

Children can use the eCollage function in 2Paint a Picture to create surrealist art using drawing and clipart.

Vocabulary:

Art, Clip-Art, Diagonal, Dilute, eCollage, Fill, Horizontal, Impressionism, Line, Palette, Parallel, Pointillism, Repeating

'iWristband'. What features would your watch contain? Using cardboard strap and paper-folder concertina book pupils make a watch with icons to demonstrate the different features of their iWatch. Showcase your watches to the class at the end of the lesson and discuss feedback.

Lesson slides:

https://drive.google.com/drive/folders/17iBYccf0Pgh97IooAS9-7KCxYXCP_2__?usp=sharing

Online Safety

Education for a Connected World

1.Self-Image & Identity

(2 Objectives)

PROJECT EVOLVE

*Use the **'Guided Knowledge Map'** at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.*

ASSESSMENT

Allocate *Unit 2.7 Quiz (Purple Mash)* to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 1.6 (Animated Story Books): Adding Simple sound effects to stories in 2Create a Story.

Unit 4.6 (Animation): Use of music and sounds in stop animation creation.

Unit 4.9 (Making Music): Electronically compose a piece of music on Busy Beats.

Online Safety

Education for a Connected World

3. Online Reputation

(3 Objectives)

PROJECT EVOLVE

*Use the **'Guided Knowledge Map'** at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be*

Children can modify the attributes (properties) of an object.

Children can use different events in their program to make objects move.

Children can create a computer program that includes a button object.

Children can explain what a button does in their program.

Children can modify the attributes (properties) of a button to fit their program design.

Children can explain what debug (debugging) means.

Children can use a design document to start debugging a program.

Children can debug simple programs.

Vocabulary:

Action, Algorithm, Background, Bug, Button, Click Events, Collision Detection, Collision Detection Action, Collision Detection Event, Command, Debug/Debugging, Event, Execute, Image, Implement, Instructions**, Interaction, Interval, Object, Object Name, Output, Predict, Properties, Run, Scale, Scene, Sequence, Test, Text, Timer, Turtle Object, When Clicked**

ASSESSMENT

Why would you copy and paste when using a spreadsheet?

You might want to rearrange the information in the spreadsheet. It will save you entering the same information many times if you want to repeat things in different cells.

How could a spreadsheet help you when you are planning some shopping?

You could use it to store the process and work out how much it would cost to buy the things that you wanted.

ASSESSMENT

Allocate *Unit 2.3 Quiz (Purple Mash)* to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 1.3 (Pictograms): What is data? Representing data.

Unit 1.8 (Spreadsheets): Introducing 2 Calculate, Spreadsheet navigation, Adding images, Vocab – cell, column, row.

Unit 3.3 (Spreadsheets): Pie charts and bar graphs, Boolean comparison tools (<=>), Spin tool, Advanced mode, Cell references.

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reasoning to trace programs and predict outcomes.

Online Safety

Education for a Connected World

7. Privacy & Security

(4 Objectives)

PROJECT EVOLVE

I can explain how passwords can be used to protect information, accounts and devices.

I can explain and give examples of what is meant by 'private' and 'keeping things private'.

I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords).

I can explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions).

Pattern, Rotated, Stamps, Style, Surrealism, Symmetry, Vertical

Key Question(s):

What are the main features of Impressionism?

Impressionism is a style of painting that focuses on the effects of light and atmosphere on colours and forms. Impressionist artists often used broken brush strokes.

What are the main features of Pointillism?

Pointillism is a painting technique developed by the artist George Seurat. It involves using small, painted dots to create areas of colour that together form a pattern or picture.

What are the main features of Surrealism?

Surrealistic art is characterized by dream-like visuals, the use of symbolism and collage images. Several prominent artists came from this movement, including Renee Magritte, Salvador Dali, and Max Ernst.

ASSESSMENT

Allocate *Unit 2.6 Quiz (Purple Mash)* to all pupils in order to assess knowledge of the unit and skills.

	I can explain how identity online can be copied, modified or altered. *I can demonstrate how to make responsible choices about having an online identity, depending on context.*	*delivered again at the end of the half-term to assess impact.* *I can explain how information put online about someone can last for a long time.* *I can describe how anyone's online information could be seen by others.* *I know who to talk to if something has been put online without consent or if it is incorrect.* **4. Online Bullying** *(3 Objectives)* *** Deliver during Anti-Bullying Week in November** *Use the* **'Guided Knowledge Map'** *at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact.* *I can explain what bullying is, how people may bully others and how bullying can make someone feel.*	Allocate **Unit 2.1 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills. **Prior and Future Learning Links:** **Unit 3.1 (Coding):** *Flowcharts, Timers, Repeat, Code-test-debug process.* **Unit 3.6 (Branching Database):** *Logical decision processing, modelling selection on a binary model.* **Online Safety** **8. Copyright & Ownership** *(2 Objectives)* *Use the* **'Guided Knowledge Map'** *at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.* *I can recognise that content on the internet may belong to other people.*	**Online Safety** **6. Health, Wellbeing & Lifestyle** *(2 Objectives)* *Use the* **'Guided Knowledge Map'** *at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.* *I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment.* *I can say how those rules / guides can help anyone accessing online technologies.*		**Prior and Future Learning Links:** **Unit 1.1 (Exploring Purple Mash):** *General use of Purple Mash, avatar creation, Paint Projects – use of simple paint tools.* **Unit 1.6 (Animated Story Books):** *2Create a Story painting tool, Animating images using the built-in effects, Concept of background (static) and foreground (can move).* **Unit 4.6 (Animation):** *Create a stop motion animation using 2Animate, Use of art tools to create backgrounds and effects.* **Online Safety** **5. Managing Online Information** *(5 Objectives)* *Use the* **'Guided Knowledge Map'** *at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.*

I can explain why anyone who experiences bullying is not to blame. *I can talk about how anyone experiencing bullying can get help.*	*I can describe why other people's work belongs to them.* **2. Online Relationships** *(7 Objectives)* **** Deliver during the week of Safer Internet Day in February*** *Use the **'Guided Knowledge Map'** at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact.* I can give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country). I can explain who I should ask before sharing things about myself or others online. I can describe different ways to ask for, give, or deny my permission online and can identify who can help me if I am not sure. I can explain why I have a right to say 'no' or 'I will have to ask			*I can use simple keywords in **search engines**.* *I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections).* *I can explain what **voice activated searching** is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri).* *I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'.* *I can explain why some information I find online may not be real or true.*

| | | someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do.

I can identify who can help me if something happens online without my consent.

I can explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online.

I can explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online. | | | |
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| | **Optional Online Safety Stories & Videos**

DigiDuck's Big Decision https://www.childnet.com/resources/digiduck-stories/digiducks-big-decision/

Oscar and the Three Elves *(free pdf – Christmas Story with an online safety message)* https://www.walkwoodms.worcs.sch.uk/Content/files/42ca-NOS-Story-Oscar-and-the-3-Elves.pdf

'Lee and Kim' CEOP video: https://drive.google.com/file/d/1b4CZb6362fFyESwfuVgj_81CIip8qHK9/view?usp=sharing

Use masks to identify who was playing the part of the different animals in the game. Were they nice or nasty? Refer to Captain Syd's tips for how to stay safe online.

Link to access masks: https://drive.google.com/drive/folders/1XpdFjA_8WkDs1SBx3UzVXwa-vrqmWc8-?usp=sharing |
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| Year 3 | **National Curricuulum Objectives and Outcomes:**

Coding & Computational Thinking

Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
Y3 - Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it.

Use sequence, selection and repetition in programs; work with variables and various forms of input and output.
Y3 - Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. Children understand how variables can be used to store information while a program is executing. |
|---|---|

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Y3 - Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. In programs they can 'read' programs with several steps and predict the outcome accurately.

Computing Systems & Networks

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.

Y3 - Children can list a range of ways that the internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails. They can describe appropriate email conventions when communicating in this way.

Information Technology

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.

Y3 - Children can 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. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails.

Online Safety

Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.

Y3 - Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools. They know more than one way to report unacceptable content and contact.

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

Y3 - Children can carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine such as Purple Mash search or internet-wide search engines.

Computing Systems & Networks	Information Technology	Coding & Computational Thinking	Information Technology	Information Technology	Information Technology
3.1: Computing Systems & Networks – Connecting Computers *(6 Lessons)*	**3.4: Touch Typing** *(4 Lessons)* **Resources:** *2 Type (Purple Mash)* **Key Learning/End Points:** *To introduce typing terminology.*	**3.1: Coding** *(6 Lessons)* **Resources:** *2 Code (Purple Mash)* **Key Learning/End Points:**	**3.3: Spreadsheets** *(3 Lessons)* **Resources:** *2 Calculate (Purple Mash)* **Key Learning/End Points:**	**3.5: Email** *(6 Lessons)* **Resources:** *2 Email (Purple Mash)* **Key Learning/End Points:**	**3.6: Branching Databases** *(4 Lessons)* **Resources:** *2 Question (Purple Mash)* **Key Learning/End Points:**

https://drive.google.com/drive/folders/1IA9RdVbaw0Bo3dAfwR6wEXKdyt-454Ro?usp=sharing	*To understand the correct way to sit at the keyboard.*	*To understand what a flowchart is and how flowcharts are used in computer programming.*	*To use the symbols more than, less than and equal to, to compare values.*	*To think about different methods of communication.*	*To sort objects using just 'yes' or 'no' questions.*

Column 1

Key Learning/End Points:

To explain how digital devices function.

To identify input and output devices.

To recognise how digital devices can change the way that we work.

To explain how a computer network can be used to share information.

To explore how digital devices can be connected.

To recognise the physical components of a network.

Vocabulary:

digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets

ASSESSMENT

Allocate *'Summative Assessment Questions'* to all pupils in order to assess knowledge of the unit and skills.

Questions:
https://docs.google.com/document/d/1ILQbdX6B71uK4NX-

Column 2

To understand the correct way to sit at the keyboard.

To learn how to use the home, top and bottom row keys.

To practise typing with the left and right hand.

Success Criteria:

Children understand the names of the fingers.

Children understand what is meant by the home, bottom, and top rows.

Children have developed the ability to touch type the home, bottom, and top rows.

Children can use two hands to type the letters on the keyboard.

Children can touch type using the left hand.

Children can touch type using the right hand.

Vocabulary:

Keys, posture, space bar, typing.

Key Question(s):

Why should I have a good posture at the computer?

A good posture is important to help you avoid any injuries that come from repeatedly using the computer incorrectly.

Why should I type certain keys with certain fingers?

Using specific fingers for specific keys allows you to type more quickly.

Column 3

To understand what a flowchart is and how flowcharts are used in computer programming.

To understand that there are different types of timers and select the right type for purpose.

To understand how to use the repeat command.

To understand the importance of nesting.

To design and create an interactive scene.

Success Criteria:

Children can read and explain a flowchart.

Children can use a flowchart to create a computer program.

Children can create a computer program that uses click events and timers.

Children can create a program that uses a timer-after command.

Children can create a program that uses a timer-every command.

Children understand there can be different ways to solve a problem.

Children understand how the turtle object moves.

Children can use the repeat command with an object.

Children can create a computer program that includes use of the repeat command.

Children can create computer programs using prior knowledge.

Column 4

To use the symbols more than, less than and equal to, to compare values.

To use 2Calculate to collect data and produce a variety of graphs.

To use the advanced mode of 2Calculate to learn about cell references.

Success Criteria:

Children can create a table of data on a spreadsheet.

Children can use a spreadsheet program to automatically create charts and graphs from data.

Children can use the 'more than', 'less than' and 'equals' tools to compare different numbers and help to work out solutions to calculations.

Children can use the 'spin' tool to count through times tables.

Children can describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row.

Children can find specified locations in a spreadsheet.

Vocabulary:

Advanced Mode, Bar Graph, Cell Address, *Data, Equals,* ***Less Than, More Than, More Than Less Than & Equal To, Pie Chart, Quiz Tool, Spinner Tool,*** *Table.*

Key Question(s):

Explain how you would collect data to find out children's

Column 5

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.

Success Criteria:

Children can list a range of different ways to communicate.

Children can use 2Connect to highlight the strengths and weaknesses of each method.

Extension: Children can order the various types of communication that have been used through history.

Children can open an email and respond to it.

Children have sent emails to other children in the class.

Extension: Children can use the search option in the address book to find a classmate when sending an email.

Children have written rules about how to stay safe using email.

Children have contributed to classmates' rules.

Extension: Children understand the importance of draft.

Children have created a quiz about email safety which explores scenarios that they could come across in the future.

Column 6

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.

Success Criteria:

Children understand how YES/NO questions are structured and answered.

Children have used YES/NO questioning to play a simple game with a friend.

Children can explain why they choose a particular question to split their database.

Extension: Children can begin to use 'or more' and 'or less' in their questioning.

Children have contributed to a class branching database about fruit.

Children have completed a branching database about vegetables.

Extension: Children can edit and adapt a branching database to accommodate new entries.

Children can choose a suitable topic for a branching database.

Children can select and save appropriate images.

Children can create a branching database.

Children know how to use and debug their own and others branching databases.

zMZMH7RlIOieM_UI/edit?usp=drive_link&ouid=115688390933151199123&rtpof=true&sd=true

Answers:

https://docs.google.com/document/d/1ILdGrMbElWdLaitjFK-YAxKvN7aPByc3/edit?usp=drive_link&ouid=115688390933151199123&rtpof=true&sd=true

Prior and Future Learning Links:

This unit progresses learners' knowledge and understanding of technology by focusing on digital and non-digital devices, and introducing the concept of computers connected together as a network. Following this unit, learners will explore the internet as a network of networks.

Allocate **Unit 3.4 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 2.8 (Presenting Ideas): *Presenting ideas in a variety of styles including through typed text.*

Unit 4.4 (Writing for Different Audiences): *Discussion of effectiveness of different written material, Opportunity to type in a variety of styles.*

Children can run, test and debug their programs.

Children can consider nesting when debugging their programs

Children can use the attributes (properties) table to set the attributes of objects.

Children can plan their scene and code before they create their program.

Children can confidently make several different things happen in a program.

Vocabulary:

Action, Alert, *Algorithm* **Background, Bug, Button, Click Events, Code, Collision Detection Event, Command,** *Debug/Debugging,* **Degrees, Event, Flowchart, Implement, Input, Interval, Nest, Object, Predict, Properties, Repeat, Right-Angle, Run, Scene, Sequence, Test, Timer, Turtle Object.**

Key Question(s):

Why is it useful to use a flowchart to design a computer program?

Using a flowchart to design a computer program is helpful as you can see it in its simplest form as inputs and outputs. You can see where the program is going which will prevent mistakes when creating the code.

What does repeat mean in computer programming?

Using the repeat command will make a block of commands run

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favourite school subjects. What sort of graph would you create?

Label one column 'Subject' and list the subjects in this column. In the cells to the right put in the number of children who like this subject. Use the chart button to automatically create a chart. A pie chart would be a suitable choice.

How can you make a 3 times table machine using the spin tool? Could you use the equals tool to check your answer?

Put the spin tool in the left most cell of a row. Type 0 x 3 in the next three cells. Put an equals tool in the next cell in the row. When you spin the spin tool, the question will change. Enter the answer and the equals tool will tell you if it is correct.

Explain how you would locate a cell in the advanced mode?

Cells in advanced mode have rows labelled with numbers, and columns labelled with letters. So, each cell has a number and letter. For example, A1 or D7.

Allocate **Unit 3.3 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

Extension: Children create title screens for their quizzes explaining what the quiz is about, and how to play it.

Children can attach work to an email.

Children know what CC means and how to use it.

Children can read and respond to a series of email communications.

Children can attach files appropriately and use email communication to explore ideas.

Extension: Children know why the terms CC and BCC are used.

Children understand when to use CC or BCC.

Vocabulary:

Address Book, Attachment, BCC, CC, Communication, Compose, Email, Inbox, Link, Mind Mapping, Node, Password, Personal Information, Save to Draft, Trusted Contact.

Key Question(s):

What is email?

Email is a method of sending electronic communication from one device to another.

What should I do if I receive an email that makes me upset or scared?

If you are at school, you should tell the teacher immediately. If you receive the message at home, then you should tell a parent or guardian.

Vocabulary:

Binary Tree, Branching Database, Data, Database, Debugging.

Key Question(s):

What is meant by data?

Facts about something; data can be words, numbers or pictures. For example, the class register contains data about the names, addresses and attendance of the children in the class.

What is a database?

A collection of data organised in such a way that it can be searched, and information found easily. Database usually refers to data stored on computers.

What is a branching database?

Used to classify groups of objects. It is used to help identify the objects by answering questions with either 'yes' or 'no'. Branching databases can also be called binary trees.

Allocate **Unit 3.6 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

again at the end of the half-term to assess impact.

I can explain what is meant by the term 'identity'.

I can explain how people can represent themselves in different ways online.

I can explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why.

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upon. This should then be delivered again at the end of the week to assess impact.

I can describe appropriate ways to behave towards other people online and why this is important.

I can give examples of how bullying behaviour could appear online and how someone can get support.

2. Online Relationships

(6 Objectives)

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can describe ways people who have similar likes and interests can get together online.

I can explain what it means to 'know someone' online and why this might be different from knowing someone offline.

I can explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including

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for a set number of timers or forever. These saves rewriting the code many times.

What is the difference between 'timer after' and 'timer every'?

A 'timer after' means after a certain amount of seconds, the action will occur. 'Timer every' means that the action will re-occur every certain amount of seconds on a loop.

Allocate *Unit 3.1 Quiz (Purple Mash)* to all pupils in order to assess knowledge of the unit and skills.

<u>**Prior and Future Learning Links:**</u>

Unit 2.1 (Coding): Algorithms, Collision detection, Timers, Objects, Buttons, Debugging.

Unit 4.1 (Coding): Code-test-debug process, IF statements, Repeat until and IF/ELSE statements, Number variables.

Unit 4.5 (Logo): Text-based coding, Utilise understanding of coding structures.

Online Safety

3. Online Reputation

<u>**Prior and Future Learning Links:**</u>

Unit 2.3 (Spreadsheets): Copying & pasting, Totalling tools, Addition, Table layout, Block graph.

Unit 4.3 (Spreadsheets): Formula wizard, cell formatting, Timer, Random Number and Spin buttons, Budget planner sheet, Line graphs.

Online Safety

6. Health, Wellbeing & Lifestyle

(2 Objectives)

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can explain why spending too much time using technology can sometimes have a negative impact on anyone, e.g. mood, sleep, body, relationships; I can give some examples of both positive and negative activities where it is easy to spend a lot of

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What information can I send in an email?

As well as sending a message, files such as photographs, videos, music and other resources can be attached to the email and sent to the receiver.

Allocate *Unit 3.5 Quiz (Purple Mash)* to all pupils in order to assess knowledge of the unit and skills.

<u>**Prior and Future Learning Links:**</u>

Unit 1.1 (Exploring Purple Mash): Safe logins, Concept of privacy, Concept of ownership.

Unit 6.4 (Blogging): Impact of communication on the audience, Appropriate comments.

Online Safety

7. Privacy & Security

(3 Objectives)

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit

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Unit 2.3 (Spreadsheets): Use of 2Calculate to collect data and produce a graph.

Unit 4.3 (Spreadsheets): Inputting and examining data, Presenting data through line graphs.

Online Safety

5. Managing Online Information

(6 Objectives)

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can demonstrate how to use key phrases in search engines to gather accurate information online.

I can explain what autocomplete is and how to choose the best suggestion.

I can explain how the internet can be used to sell and buy things.

I can explain the difference between a 'belief', an 'opinion' and a 'fact. and can give

		what information and content they are trusted with. I can explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried. I can explain how someone's feelings can be hurt by what is said or written online. I can explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and videos.	(3 Objectives) Safer Internet Day *** Deliver during the week of Safer Internet Day in February** PROJECT EVOLVE Use the **'Knowledge Map'** at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact. 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. **8. Copyright & Ownership** (1 Objective) PROJECT EVOLVE Use the **'Knowledge Map'** at the start of the half-term to assess	time engaged (e.g. doing homework, games, films, videos). I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).	and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact. I can describe simple strategies for creating and keeping passwords private. I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult. I can describe how connected devices can collect and share anyone's information with others.	examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc. I can explain that not all opinions shared may be accepted as true or fair by others (e.g. monsters under the bed). I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened.

| | | *understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.*

I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause. | | | |

| | **Year 3 - Optional Online Safety Videos & Books**

'Tek – The Modern Cave Boy' by Patrick McDonnell (link to Stone Age topic). https://www.amazon.co.uk/Tek-Modern-Cave-Patrick-McDonnell/dp/0316338052/ref=sr_1_1?keywords=tek+the+modern+cave+boy&qid=1656583610&sprefix=Tek+the+m%2Caps%2C165&sr=8-1

Book Read Aloud (YouTube): https://www.youtube.com/watch?v=KoctbSakfD0

'Penguin Pig' book by Stuart Spendlow. https://drive.google.com/file/d/1NvfkEvLPpJyqSwdkKxNw3z9VoqSE2LnP/view?usp=sharing

Penguin Pig Read Aloud Video (YouTube): https://www.youtube.com/watch?v=R7pgTXbhizA

'Troll Stinks' by Jeanne Willis. https://www.amazon.co.uk/Troll-Stinks-Online-Safety-Picture/dp/1783445696/ref=sr_1_2?crid=2VDCV7KSH0SKX&keywords=troll+stinks&qid=1656584509&sprefix=troll+stinks+%2Caps%2C77&sr=8-2

Troll Stinks Read Aloud Video (YouTube): https://www.youtube.com/watch?v=nIG9RPQEEz4 |

| **Year 4** | **National Curricuulum Objectives and Outcomes:**

Coding & Computational Thinking

Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
Y4 - When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.

Use sequence, selection and repetition in programs; work with variables and various forms of input and output.
Y4 - Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They 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. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'print to screen'. e.g. 2Code. |

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Y4 - Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They can trace code and use step through methods to identify errors in code and make logical attempts to correct this. e.g. traffic light algorithm in 2Code. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.

Computing Systems & Networks

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.

Y4 - Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.

Information Technology

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.

Y4 - Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software. Children share digital content within their community via a variety of methods.

Online Safety

Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.

Y4 - Children can explore key concepts relating to online safety and can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

Y4 - Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.

Computing Systems & Networks	Information Technology	Coding & Computational Thinking	Coding & Computational Thinking	Coding & Computational Thinking	Information Technology
Teach Computing	**4.6: Animation** *(3 Lessons)*	**4.1: Coding** *(6 Lessons)*	**4.11 Micro:Bits** *(4 Lessons)*	**4.5: Logo** *(4 Lessons)*	**4.4: Writing for Different Audiences** *(5 Lessons)*
4.1: Computing Systems & Networks – The Internet (5 Lessons) * Lessons 1-5 Only.	**Resources:** *2 Animate (Purple Mash)*	**Resources:** *2 Code (Purple Mash)*	**Resources:** *2 Code (Purple Mash) & Physical Micro:Bits*	**Resources:** *2 Logo (Purple Mash)*	**Resources:** *2 Publish Plus (Purple Mash)*
https://drive.google.com/ drive/folders/1MLoYX1rKN	**Key Learning/End Points:** *To discuss what makes a good animated film or cartoon.*	**Key Learning/End Points:** *To begin to understand selection in computer programming.*	**Key Learning/End Points:**	**Key Learning/End Points:** *To learn the structure of the coding language of Logo.*	**Key Learning/End Points:**

	To learn how animations are created by hand.	*To understand how an IF statement works.*	*To understand how sensor inputs from the accelerometer can be used to detect movement, such as when a step is taken.*	*To input simple instructions in Logo.*	*To explore how font size and style can affect the impact of a text.*
Key Learning/End Points:	*To find out how animation can be created in a similar way using the computer.*	*To understand how to use co-ordinates in computer programming.*	*To understand how variables can be used to keep track of things in a program.*	*Using 2Logo to create letter shapes.*	*To use a simulated scenario to produce a news report.*
To describe how networks physically connect to other networks.	*To learn about onion skinning in animation.*	*To understand the 'repeat until' command.*	*To understand how inputs, outputs and computer code work together to make control systems.*	*To use the Repeat function in Logo to create shapes.*	*To use a simulated scenario to write for a community campaign.*
To recognise how networked devices make up the internet.	*To add backgrounds and sounds to animations.*	*To understand how an IF/ELSE statement works.*		*To use and build procedures in Logo.*	**Success Criteria:**
To outline how websites can be shared via the World Wide Web (WWW).	*To be introduced to 'stop motion' animation.*	*To understand what a variable is in programming.*	*To understand what logic is and how it can be used to make different outputs happen according to different inputs.*	**Success Criteria:**	*Children can look at and discuss a variety of written material where the font size and type are tailored to the purpose of the text.*
To describe how content can be added and accessed on the World Wide Web (WWW).	*To share animation on the class display board and by blogging.*	*To use a number variable.*	*To be able to make a control system and game.*	*Children know what the common instructions are in 2Logo and how to type them.*	*Children can use text formatting to make a piece of writing fit for its audience and purpose.*
To recognise how the content of the WWW is created by people.	**Success Criteria:**	*To create a playable game.*	**Success Criteria:**	*Children can follow simple 2Logo instructions to create shapes on paper.*	*Children can role-play the job of a journalist in a newsroom.*
Vocabulary:	*Children have put together a simple animation using paper to create a flick book.*	**Success Criteria:**	*Children can turn a micro:bit into a step counter using the accelerometer and variables.*	*Children can follow simple instructions to create shapes in 2Logo.*	*Children can interpret a variety of incoming communications and use these to build up the details of a story.*
internet, *network,* ***router, security,*** *switch, server,* ***wireless access point (WAP),*** *website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts*	*Children understand animation frames.*	*Children can explore different object types in 2Code.*	*Children can explain that accelerometer is a sensor, an input that senses movement.*	*Children can create 2Logo instructions to draw patterns of increasing complexity.*	*Children can use the incoming information to write their own newspaper report.*
	Children have made a simple animation using 2Animate.	*Children can use a background and objects to create a scene.*	*Children can explain that variables are containers for storing data which can be accessed and updated.*	*Children understand the pu and pd commands.*	*Children can use 2Connect to mind-map ideas for a community campaign.*
	Children know what the Onion Skin tool does in animation.	*Children can plan an algorithm for their scene and use 2Code to program it.*	*Children can code a micro:bit to make a light that switches on when it gets dark using sensors and logic.*	*Children can write 2Logo instructions for a word of four letters.*	*Children can use these ideas to write a persuasive letter or poster as part of the campaign.*
	Children can use the Onion Skin tool to create an animated image.	*Children can create a program that includes an IF statement.*	*Children can explain that sensors are inputs that sense things in the real world, such as movement and light.*	*Children can follow 2Logo code to predict the outcome.*	*Children can assess their texts using criteria to judge their suitability for the intended audience.*
	Children can use backgrounds and sounds to make more complex and imaginative animations.	*Children can interpret a flowchart that depicts an IF statement.*	*Children can explain that logic is how computers make decisions in code based on whether things are true or false.*	*Children can create shapes using the Repeat command.*	**Vocabulary:**
Allocate ***'Summative Assessment Questions'*** to all pupils in order to assess knowledge of the unit and skills.	*Children know what 'stop motion' animation is and how it is created.*	*Children can make use of the X and Y attributes (properties) of objects in their coding.*		*Children can find the most efficient way to draw shapes.*	***Campaign, Format, Font, Genre, Opinion, Reporter, Viewpoint.***
	Children have used ideas from existing 'stop motion' films to recreate their own animation.	*Children can create a program that includes an IF statement.*		*Children can use the Procedure feature.*	**Key Question(s):**
		Children can read code that includes repeat until and IF/ ELSE and explain how it works.		*Children can create 'flowers' or 'crystals' using 2Logo.*	
		Children can create a program that includes an IF/ ELSE statement.			

Questions:

https://docs.google.com/document/d/1MQ3DQ_r9cxCxkitTr5036lc9PoUexaKX/edit?usp=drive_link&ouid=115688390933151199123&rtpof=true&sd=true

Answers:

https://docs.google.com/document/d/1MNlLggWNh0mG7sLh8peo2k-dcFSVvZQY/edit?usp=drive_link&ouid=115688390933151199123&rtpof=true&sd=true

Prior and Future Learning Links:

This unit progresses students' knowledge and understanding of networks in Year 3. In Year 5, they will continue to develop their knowledge and understanding of computing systems and online collaborative working.

Online Safety

Education for a Connected World

1.Self-Image & Identity

(3 Objectives)

PROJECT EVOLVE

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered

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Children have shared their animations and commented on each other's work using display boards and blogs in Purple Mash.

Vocabulary:

Animation, FPS (Frames Per Second), Frame, Onion Skinning, Pause, Stop-Motion.

Key Question(s):

What is an animation?

Animation is the process of giving the illusion of movement to drawings, models, or inanimate objects. Animated motion pictures and television shows are highly popular forms of entertainment.

What is meant by onion skinning?

Onion skinning is a 2D computer graphics term for a technique used in creating animated cartoons and editing movies to see several frames at once.

What is meant by stop motion animation?

Stop motion animation is a filming technique in which objects (such as clay models) are photographed in a series of slightly different positions so that the objects seem to move.

ASSESSMENT

Allocate *Unit 4.6 Quiz (Purple Mash)* to all

Children can interpret a flowchart that depicts an IF/ ELSE statement.

Children can explain what a variable is in programming. • Children can create and use variables when programming.

Children can read code that includes repeat until and IF/ ELSE and explain how it works.

Children can create a program that includes and IF/ ELSE statement.

Children can interpret a flowchart that depicts an IF/ ELSE statement.

Vocabulary:

Action, Alert, Algorithm, Background, Button, Code Blocks, Command, Co-ordinates, Debug/Debugging, Design, Event, Execute, Flowchart, If Statement, If/Else Statement, Input, Nest, Object, Prompt, Implement, Predict, Repeat, Run, Properties, Selection, Sequence, Timer, Variable, Value.

Key Question(s):

Explain the stages of the design, code, test, debug coding process.

This is a process to go through as you create a program using coding:

Design: create a design which could be a flowchart, a labelled diagram or a storyboard. This helps to think through the algorithms required.

Children can code a micro:bit rock, paper, scissors game using inputs, random numbers, variables and logic.

Children can explain how combining inputs, random numbers, variables, and logic can make a computer simulation of a real-world game.

Children can code a micro:bit dice using inputs, random numbers, variables and logic.

Children can explain how combining inputs, random numbers, variables, and logic can make a computer simulation of a real dice.

Vocabulary:

Accelerometer, Light Sensor, Simulation, Data, Logic, Variable, Gestures, Sensor, Infinite Loop, Selection.

Key Question(s):

How can sensors, code and outputs work together?

When using micro:bit a user can program the device to sense the environment around it. When particular environmental conditions are met such as the accelerometer detecting movement, code written can then trigger an output response such as displaying a message.

What examples can you think of a good use for variables when programing micro:bits?

Variables are places in a computer memory that store information and can have their content changed by a program.

Vocabulary:

Debugging, Grid, Logo, Logo Commands, Multi Line Mode, Pen Down, Pen Up, Prediction, Procedure, Repeat, Run Speed, SETPC, SETPS.

Key Question(s):

What is Logo?

Logo is a text-based coding language used to control an on-screen turtle to create mathematical patterns.

ASSESSMENT

Allocate *Unit 4.5 Quiz (Purple Mash)* to all pupils in order to assess knowledge of the unit and skills.

Unplugged Activity: 'Sandwich Bot'. Children to create an algorithm using precise and unambiguous instructions in order to get their teacher *('Sandwich Bot 3000')* to make a jam sandwich.

https://drive.google.com/drive/folders/1Jls0t6vlOG5URo2vTUJE783uLIkrk_DB?usp=sharing

Videos of Phil Bagge as 'Sandwich Bot':

https://www.youtube.com/watch?v=VFUs3GvMSVc

Why should I change the font when I am writing?

Changing the appearance of the font can help make things easier to read and highlight important parts of the text.

ASSESSMENT

Allocate *Unit 4.4 Quiz (Purple Mash)* to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 3.4 (Touch Typing): Keyboard skills, Typing fluency.

Unit 3.5 (Email): Considering communication style, Email simulations.

Unit 6.4 (Blogging): Considering communication style, Impact of communication style on audience response.

Unit 6.5 (Text Adventures): Consideration of audience when creating activities, Use of a variety of tools to create a final piece of work, Planning skills.

Online Safety

Education for a Connected World

again at the end of the half-term to assess impact.

I can explain how my online identity can be different to my offline identity.

I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them.

I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.

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pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 2.6 (Creating Pictures): *2Paint a Picture – art effects, collage effects.*

Unit 5.5 (Game Creator): *Themed art, Art in 3D, Animating 3D characters, Adding a gaming element to animation.*

Unit 5.6 (3D Modelling): *Art effects in 3D, Moving & Designing in 3 Dimensions, Precision art tool use.*

Online Safety

Education for a Connected World

4. Online Bullying

(3 Objectives)

*** Deliver during Anti-Bullying Week in November***

PROJECT EVOLVE

Use the 'Knowledge Map' at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact.

Code: *code the algorithms using to code and adapting the design.*

Test and Debug: *see if the program works and fix any errors.*

What does selection mean in coding and how can you achieve this in 2Code?

The code will contain commands that require a decision and the next code to run will depend upon the outcome of this decision. In 2Code we used the 'if' command for selection.

How can variables and if/else statements be useful when coding programs with selection?

The variable could be set either to 0 or 1 and this could be changed by user action or a timer. If/else statement outcomes could depend upon the value of the variable. command for selection.

ASSESSMENT

Allocate **Unit 4.1 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 3:1 (Coding): *Flowcharts, Timers, Repeat, Code-test-debug process.*

Unit 5.1 (Coding): *Efficient coding, simulating a physical*

An example of this might be creating a variable that stores the number of times a micro:bit's accelerometer is triggered. Each time the accelerometer is triggered, the variable count is changed and then this number is outputted to the micro:bit LED.

ASSESSMENT

Allocate **Unit 4.11 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 3:1 (Coding): *Flowcharts, Timers, Repeat, Code-test-debug process.*

Unit 5.1 (Coding): *Efficient coding, simulating a physical system, Decomposition & abstraction, Friction & functions, Introducing strings, Text strings and concatenation.*

Online Safety

Education for a Connected World

6. Health, Wellbeing & Lifestyle

(2 Objectives)

PROJECT EVOLVE

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https://www.youtube.com/watch?v=leBEFaVHllE

Prior and Future Learning Links:

Unit 3.1 (Coding): *Familiarity with a code environment, Logical planning of sequences, Debugging skills.*

Unit 3.6 (Branching Databases): *Logical decision processing, Forward planning to achieve a solution.*

Unit 5.1 (Coding): *Familiarity with a code environment, Logical planning of sequences and repetition, Debugging skills.*

Unit 5.5 (Game Creator): *Themed art, Art in 3D, Animating 3D characters, Adding a gaming element to animation.*

Unit 5.6 (3D Modelling): *Art effects in 3D, Moving and Designing in 3 dimensions, Precision art tool use.*

Online Safety

Education for a Connected World

7. Privacy & Security

(4 Objectives)

PROJECT EVOLVE

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This

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5. Managing Online Information

(6 Objectives)

PROJECT EVOLVE

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others.

I can describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. social media, image sites, video sites).

I can 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.

I can explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true.

I can recognise when someone is upset, hurt or angry online.

I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat).

I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation).

3. Online Reputation

(2 Objectives)

PROJECT
EVOLVE

Use the *'Knowledge Map'* at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can describe how to find out information about others by searching online.

I can explain ways that some of the information about anyone online could have been created, copied or shared by others.

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system, Decomposition & abstraction, Friction & functions, Introducing strings, Text strings and concatenation.

8. Copyright & Ownership

(2 Objectives)

PROJECT
EVOLVE

Use the *'Knowledge Map'* at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it.

I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.

2. Online Relationships

(3 Objectives)

Safer Internet Day

Use the *'Knowledge Map'* at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can explain how using technology can be a distraction from other things, in both a positive and negative way.

I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.

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should then be delivered again at the end of the half-term to assess impact.

I can describe strategies for keeping personal information private, depending on context.

I can explain that internet use is never fully private and is monitored, e.g. adult supervision.

I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure.

I know what the digital age of consent is and the impact this has on online services asking for consent.

I can explain that technology can be designed to act like or impersonate living things (e.g. bots) and describe what the benefits and the risks might be.

I can explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.

		* Deliver during the week of Safer Internet Day in February **PROJECT EVOLVE** *Use the **'Knowledge Map'** at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact.* *I can describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms).* *I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours.* *I can explain how content shared online may feel unimportant to one person but may be important to other people's thoughts feelings and beliefs.*			

Year 4 - Optional Online Safety Videos & Books

'The Technology Tail: A Digital Footprint Story' by Julia Cook. https://www.amazon.co.uk/Technology-Tail-Footprint-Communicate-Confidence/dp/1944882138/ref=sr_1_1?crid=3V5W9DQ65DMZX&keywords=The+Technology+Tail+Book&qid=1698220679&sprefix=the+technology+tail+book+%2Caps%2C130&sr=8-1

'The Technology Tail Read Aloud Video' (YouTube): https://www.youtube.com/watch?v=FBzfsQaGzxk

'Jigsaw' (CEOP Video) https://drive.google.com/file/d/1NvfkEvLPpJyqSwdkKxNw3z9VoqSE2LnP/view?usp=sharing Discuss how Becky reports her concerns *(clicks on the **'Report Abuse'** button).*

'Play, Like, Share' (CEOP Video) – Episode 1 (link to sites/apps like YouTube and TikTok that children are regularly using) https://www.youtube.com/watch?v=WpnqtGyc_ec&t=193s

'Play Like Share' (CEOP Video) – Episode 2. https://www.youtube.com/watch?v=NscU1ZHYPDk&t=7s

	'Play, Like, Share' (CEOP Video) – Episode 3. https://www.youtube.com/watch?v=tQZGA6dsWpo
Year 5	**National Curruulum Objectives and Outcomes:** **Coding & Computational Thinking** **Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.** *Y5 - Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. Children are able to 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.* **Use sequence, selection and repetition in programs; work with variables and various forms of input and output.** *Y5 - Children can 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.* **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.** *Y5 - When children code, they are beginning to think about their 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.* **Computing Systems & Networks** **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.** *Y5 - Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain how this can be kept safe. Children can select the most appropriate form of online communications contingent on audience and digital content.* **Information Technology** **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.** *Y5 - Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content.* **Online Safety** **Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.** *Y5 - Children have a 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. Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.* **Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.**

Y5 - Children search with greater complexity for digital content when using a search engine. They are able to explain in some detail how credible a webpage is and the information it contains.

Computing Systems & Networks	Information Technology	Coding & Computational Thinking	Information Technology	Information Technology	Coding & Computational Thinking
5.1: Computing Systems & Networks – Systems & Searching	**5.5 Game Creator**	**5.1: Coding**	**5.3: Spreadsheets**	**5.6: 3D Modelling**	**5.10: Micro:Bits**
(6 Lessons)	*(5 Lessons)*	*(6 Lessons)*	*(5 Lessons)*	*(4 Lessons)*	*(4 Lessons)*
https://drive.google.com/drive/folders/1SgbJBXIqhvoChfBH0sAIT9G1P77MsVA8?usp=drive_link	**Resources:**	**Resources:**	**Resources:**	**Resources:**	**Resources:**
	2 DIY3D (Purple Mash)	*2 Code (Purple Mash)*	*2 Calculate (Purple Mash)*	*2 Design & Make (Purple Mash)*	*2 Code (Purple Mash) and Physical Micro:Bits*
Key Learning/End Points:	**Key Learning/End Points:**	**Key Learning/End Points:**	**Key Learning/End Points:**	**Key Learning/End Points:**	**Key Learning/End Points:**
To explain that computers can be connected together to form systems.	*To plan a game.*	*To begin to simplify code.*	*To use formulae within a spreadsheet to convert measurements of length and distance.*	*To be introduced to 2Design and Make and the skills of computer aided design.*	*To use inputs from the accelerometer to execute programs.*
To recognise the role of computer systems in our lives.	*To design and create the game environment.*	*To create a playable game.*	*To use the count tool to answer hypotheses about common letters in use.*	*To explore the effect of moving points when designing.*	*To incorporate conditional logic in programs using IF/THEN coding structures.*
To identify how to use a search engine.	*To design and create the game quest.*	*To understand what a simulation is.*	*To use a spreadsheet to model a real-life problem.*	*To design a 3D Model to fit certain criteria.*	*To use the sensors of the micro:bit to set the values of variables and trigger action in the programs.*
To describe how search engines select results.	*To finish and share the game.*	*To program a simulation using 2Code.*	*To use formulae to calculate area and perimeter of shapes.*	*To refine and print a model.*	*To use the micro:bit to create simulations.*
To explain how search results are ranked.	*To self and peer evaluate.*	*To know what decomposition and abstraction are in computer science.*	*To create formulae that use text variables.*	**Success Criteria:**	*To create devices that give input to the micro:bit via the pins.*
To recognise why the order of results is important, and to whom.	**Success Criteria:**	*To a take a real-life situation, decompose it and think about the level of abstraction.*	*To use a spreadsheet to help plan a school cake sale.*	*Children know what the 2Design and Make tool is for.*	**Success Criteria:**
Vocabulary:	*Children can review and analyse a computer game.*	*To understand how to use friction in code. To begin to understand what a function is and how functions work in code.*	**Success Criteria:**	*Children can explore the different viewpoints in 2Design and Make whilst designing a building.*	*Children can code a story telling game using a 'when gesture' event, random numbers, variables and logic IF/THEN commands.*
system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, *algorithm,* ***search engine***	*Children can describe some of the elements that make a successful game.*	*To understand what the different variables types are and how they are used differently.*	*Children can create a formula in a spreadsheet to convert m to cm.*	*Children can adapt one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form.*	*Children can explain how a computer uses IF/THEN logic statements to select which image to display.*
	Children can begin the process of designing their own game.	*To understand how to create a string.*	*Children can apply this to creating a spreadsheet that converts miles to km and vice versa.*	*Children can explore how to edit the polygon 3D models to design a 3D model for a purpose.*	
	Children can design the setting for their game so that it fits with the selected theme.	*To understand what concatenation is and how it works.*			
	Children can upload images or use the drawing tools to create the walls, floor, and roof.				
	Children can design characters for their game.				

optimisation (SEO), web crawler, content creator, selection, ranking.

Allocate **'Summative Assessment Questions'** to all pupils in order to assess knowledge of the unit and skills.

Questions:

https://docs.google.com/document/d/1Sk9dNQvkGvJakK-FAZOoA5mj-QcKcXdx/edit?usp=drive_link&ouid=115688390933151199123&rtpof=true&sd=true

Answers:

https://docs.google.com/document/d/1SmuOh9c4bIt-KALhCIYrx57rduPne0Xs/edit?usp=drive_link&ouid=115688390933151199123&rtpof=true&sd=true

Prior and Future Learning Links:

This unit progresses learners' knowledge and understanding of computing systems.

Online Safety

Education for a Connected World

1.Self-Image & Identity

Children can decide upon, and change, the animations and sounds that the characters make.

Children can make their game more unique by selecting the appropriate options to maximise the playability.

Children can write informative instructions for their game so that other people can play it.

Children can evaluate my their own and peers' games to help improve their design for the future.

Vocabulary:

Evaluation, Feedback, Image, Instructions, Promotion, Quest, Scene, Screenshot, Texture, Theme.

Key Question(s):

What is the 2DIY3D tool on Purple Mash?

2DIY 3D allows users to create a playing area, such as a maze, in 2D and then turn it into a 3D computer game. The aim is to avoid the 'baddies' and collect 'treasure'.

What makes a good computer game?

A good game designer gives the player continuous challenges in a visually stimulating environment, each of which leads to another challenge, to keep the game challenging and fun.

Why is it important to continually evaluate your game?

Success Criteria:

Children can use simplified code to make their programming more efficient.

Children can use variables in their code.

Children can create a simple playable game.

Children can plan an algorithm modelling the sequence of traffic lights.

Children can select the right images to reflect the simulation they are making.

Children can use their plan to program the simulation to work in 2Code.

Children can make good attempts to break down their task into smaller achievable steps.

Children recognise the need to start coding at a basic level of abstraction to remove superfluous details from their program that do not contribute to the aim of the task.

Children can create a program which represents a physical system.

Children can create and use functions in their code to make their programming more efficient.

Children can create and use strings in programming.

Children can set/change variable values appropriately.

Children can use a spreadsheet to work out which letters appear most often.

Children can use the 'how many' tool.

Children can use a spreadsheet to work out the area and perimeter of rectangles.

Children can use these calculations to solve a real-life problem.

Children can create simple formulae that use different variables.

Children can create a formula that will work out how many days there are in x number of weeks or years.

Children can use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied.

Vocabulary:

Advance Mode, Area, Budget, Columns, *Computational Model,* Data, *Format Cell, Formula, Formula Bar, Formula Wizard, 'How Many' Tool, Perimeter, Profit,* Rows, Spreadsheet, *Totalling Tool, Variable.*

Key Question(s):

How would you add a formula so that the cell shows the product of two other cells?

Click on the cell where you want the product to be displayed then click the formula wizard button. Click on the cell that contains the first number. Choose the x

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Children can refine one of their designs to prepare it for printing.

Children can print their design as a 2D net and then created a 3D model.

Children can explore the possibilities of 3D printing.

Vocabulary:

2D, 3D, 3D Printing, CAD, Design Brief, Net, Pattern Fill, Points, Template.

Key Question(s):

What are the different view of an object available in 2Design and Make?

Net, Points and 3D.

How can the objects designed in 2Design and Make be turned into 3D objects?

You can print the net and then cut and fold this into shape or you can convert the file into a format recognised by 3D printers.

How is CAD software used in industry? Give some examples.

It is used to design 3D objects in a 2D environment. Some examples are; Architectural plans for buildings; designing layouts for interiors; designing objects such as packaging and designing mechanical components; designing shoes and clothing.

Children can program a micro:bit to display the temperature measured by the sensor.

Children can explain that sensors are inputs that sense things in the real world, such as movement, temperature and light.

Children can program IF/THEN statements to introduce selection in their code to make things happen based on changing temperature.

Children can program the 'when gesture: faceup' command to start the code running.

Children can code a micro:bit Magic 8 Ball using gesture inputs, random numbers, variables and logic.

Children can explain that variables are named areas in device memory and are used in programming to keep track of data.

Children can program a simulation of a football match using a 'when pin' event command, variables and text output commands to update and display goals scored.

Children can explain that variables are named areas in device memory and are used in programming to keep track of data. The data can be accessed and updated.

Vocabulary:

Accelerometer, Input, Selection, Crocodile Clip, LED, Sensor, Data, Logic, Simulation, Gestures, Output, Variable, IF/THEN, Pins.

(3 Objectives)

PROJECT EVOLVE

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can explain how identity online can be copied, modified or altered.

I can demonstrate how to make responsible choices about having an online identity, depending on context.

Evaluating your game as you make it allows you to think about ways in which it can be improved. Evaluation may also involve the views of other people who play your game.

ASSESSMENT

Allocate **Unit 5.5 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 4.6 (Animation): Create a stop-motion animation using 2Animate, Use of sounds, backgrounds and effects.

Unit 4.9 (Making Music): Electronically compose a themed piece of music on Busy Beats.

Unit 6.5 (Text Adventures): Plan and create a story-based adventure in 2Create a Story, Full functionality including animation, backgrounds, sound effects.

Online Safety
Education for a Connected World

3. Online Reputation

(2 Objectives)

PROJECT EVOLVE

Children know some ways that text variables can be used in coding.

Children can create a string and use it in their program.

Children can use strings to produce a range of outputs in their program.

Vocabulary:

Abstraction, *Action, Algorithm,* *Command,* **Concatenation, Co-ordinates,** *Debug/Debugging,* **Decomposition, Efficient, Event, Flowchart, Friction, Function, Input, Nest, Object, Output, Physical System,** *Predict,* **Print to Screen,** *Properties,* **Random, Repeat, Selection,** *Sequence,* **Simplify, Simulation, String, Tabs,** *Timer,* **Variable.**

Key Question(s):

What does simulating a physical system mean?

Creating a program where the objects behave as they would in the real world. For example, a football program that uses angles, speed and friction to simulate kicking a football. When simulating a physical system, you first must break the system down into parts that can be coded (decomposition). The different parts will come together to make the full simulation.

Describe how you would use variables to make a timer countdown and a scorepad for a game.

Timer countdown: Create a timer variable and set it to the starting number of seconds. Add a Timer

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operation then click on the second number. Click OK.

What would you use in 2Calculate to have a cell that automatically calculates the number of days since a certain date?

You could use formulae and the totalling tools. To make the spreadsheet easier to understand, you could use named variables.

Explain what a spreadsheet model of a real-life situation is and what it can be used for?

It represents the data of a situation for example: Budgeting for a party; working out how big a field needs to be for a certain number of animals; working out how to spend your pocket money over time. Using the existing data to predict what time your shadow will be a certain length etc.

ASSESSMENT

Allocate **Unit 5.3 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 4.3 (Spreadsheets): Formula wizard, cell formatting, Timer, random number and spin buttons, Budget planner sheet, Line graphs.

Allocate **Unit 5.6 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 4.6 (Animation): Create a stop motion animation using 2Animate, Use of art tools to create backgrounds and effects.

Online Safety
Education for a Connected World

7. Privacy & Security

(3 Objectives)

PROJECT EVOLVE

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can explain what a strong password is and demonstrate how to create one.

I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.

Key Question(s):

What sensors does a microbit have?

Accelerometer: This measures forces in three dimensions, to determine the micro:bit's orientation. This can be used for science experiments, games, and alarms. Compass: This detects magnetic fields, to determine the micro:bit's direction and movement. Light sensor: The micro:bit's LEDs can act as an input device to measure the amount of light falling on them.

How can the microbit respond to external signals such as the touch of foil?

The pins can be used to create elecrical circuits and physically connect the micro:bit to external things. Pins 0,1 and 2 are GPIO pins (general purpose input and output) they can be connected to crocodile clips, foil, headphones and other equipment. The 3V pin can power accessories.

How can sensors, code and outputs work together?

When using micro:bit, a user can program the device to sense the environment around it. When particular environmental conditions are met, such as the accelerometer detecting movement, code written can then trigger an output response, such as displaying a message on the LED screen.

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can search for information about an individual online and summarise the information found.

I can describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect.

4. Online Bullying

(6 Objectives)

* Deliver during Anti-Bullying Week in November

Use the 'Knowledge Map' at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact.

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command that repeats and subtracts 1 every second. Add a text object in design view to display this number.

Score: *Create a variable to store the score, each time the user gains a point, change and display the value of the variable.*

What do the terms decomposition and abstraction mean? Use examples to explain them.

Decomposition *is breaking a task into its component parts so that each part can be coded separately. If you were coding a game of chess, you could decompose into the moves of the different pieces and the setup of the playing space.*

Abstraction *is removing unnecessary details to get the program functioning. In the example, the colour and size of the squares is not important to game play.*

Allocate *Unit 5.1 Quiz (Purple Mash)* to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 4.1 (Coding): *Code-test-debug process, IF statements,*

Unit 6.3 (Spreadsheets): *Spreadsheets for computational models, Probability using random functionality, Budgeting, Event planning.*

Online Safety

6. Health, Wellbeing & Lifestyle

(4 Objectives)

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively.

I can describe some strategies, tips or advice to promote health and wellbeing with regards to technology.

I recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals.

I can explain what app permissions are and can give some examples.

Allocate *Unit 5.10 Quiz (Purple Mash)* to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 4.1 (Coding): *Code-test-debug process, IF statements, Repeat Until & IF/ELSE statements, Number variables.*

Unit 4.5 (Logo): *Text-based coding, Utilise understanding of coding structures.*

Unit 6.1 (Coding): *Using functions, Flowcharts & control simulations, User input.*

Unit 6.5 (Text Adventures): *Development from text-based coding, Maintaining a mental map, Debugging skills.*

Online Safety

5. Managing Online Information

(5 Objectives)

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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.

I can explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult.

I can identify a range of ways to report concerns and access support both in school and at home about online bullying.

I can explain how to block abusive users.

I can describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix).

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Repeat until and IF/ELSE statements, Number variables.

Unit 4.5 (Logo): *Text-based coding, Utilise understanding of coding structures.*

Unit 4.6 (Animation): *Sequencing and animation in logical steps.*

Unit 6.1 (Coding): *Using functions, Flowcharts & control simulations, User input.*

Unit 6.5 (Text Adventures): *Development from text-based coding, Maintaining a mental map, Debugging skills.*

Online Safety

Education for a Connected World

8. Copyright & Ownership

(2 Objectives)

PROJECT EVOLVE

*Use the **'Knowledge Map'** at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.*

I can assess and justify when it is acceptable to use the work of others.

I can give examples of content that is permitted to be reused

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I can explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, loot boxes) and explain the importance of seeking permission from a trusted adult before purchasing.

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*Use the **'Knowledge Map'** at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.*

I can explain the benefits and limitations of using different types of search technologies e.g. voice-activation search engine. I can explain how some technology can limit the information I aim presented with e.g. voice-activated searching giving one result.

I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'.

I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results.

I can explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability and evidence.

I can identify ways the internet can draw us to information for different agendas, e.g. website notifications, pop-ups, targeted ads.

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and know how this content can be found online.

2.Online Relationships

(5 Objectives)

* Deliver during the week of Safer Internet Day in February

*Use the **'Knowledge Map'** at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact.*

I can give examples of technology specific forms of communication (e.g. emojis, memes and GIFs).

I can explain that there are some people I communicate with online who may want to do me or my friends harm.

I can recognise that this is not my / our fault. I can describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming

		communities or social media groups). 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.			

Year 6

National Curricuulum Objectives and Outcomes:

Coding & Computational Thinking

Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
Y6 - Children are able to 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. Children 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.

Use sequence, selection and repetition in programs; work with variables and various forms of input and output.
Y6 - Children 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.

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Y6 - Children are able to 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 whole.

Computing Systems & Networks

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.
Y6 - 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.

Information Technology

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.
Y6 - Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet, e.g. 2Blog. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.

Online Safety

Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.
Y6 - Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities. They recognise the value in preserving their privacy when online for their own and other people's safety

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.
Y6 - Children readily apply filters when searching for digital content. They are able to explain in detail how credible a webpage is and the information it contains. They compare a range of digital content sources and are able to rate them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication.

Computing Systems & Networks	Information Technology	Coding & Computational Thinking	Coding & Computational Thinking	Coding & Computational Thinking	Coding & Computational Thinking
6.1: Computing Systems & Networks – Systems & Searching *(2 Lessons) * Lessons 1 & 2 Only!*	**6.5: Text Adventures** *(4 Lessons)* **Resources:** *2 Create a Story (Purple Mash)* **Key Learning/End Points:**	**6.1: Coding** *(6 Lessons)* **Resources:** *2 Code (Purple Mash)* **Key Learning/End Points:** *To design a playable game with a timer and a score.*	**6.6: Programming [B] – Sensing Movement** *(6 Lessons) * Across Spring [2] & Summer [1]* https://drive.google.com/drive/folders/1ZKcw63uft5NBWwNXyvroI4bCA9UTLN-d?usp=drive_link	**6.6: Programming [B] – Sensing Movement** *(6 Lessons) * Across Spring [2] & Summer [1]* https://drive.google.com/drive/folders/1ZKcw63uft5NBWwNXyvroI4bCA9UTLN-d?usp=drive_link	**6.10: Moving On (Introduction to Python)** *(6 Lessons)* **Resources:** *Python in Pieces (Purple Mash)*

Key Learning/End Points:

To explain the importance of internet addresses.

To recognise how data is transferred across the internet.

Vocabulary:

communication, **protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration,** *internet, public, private***, one-way, two-way, one-to-one, one-to-many.**

Information Technology

6.4 Blogging

(4 Lessons)

Resources:

2 Blog (Purple Mash)

Key Learning/End Points:

To identify the purpose of writing a blog.

To identify the features of a successful blog.

To plan the theme and content for a blog.

To understand how to write a blog and a blog post.

To consider the effect upon the audience of changing the visual properties of the blog.

To find out what a text adventure is.

To use 2Connect to plan a story adventure.

To make a story-based adventure using 2Create a Story.

To introduce an alternative model for a text adventure which has a less sequential narrative.

To use written plans to code a map-based adventure in 2Code.

Success Criteria:

Children can describe what a text adventure is.

Children can map out a story-based text adventure.

Children can use 2Connect to record their ideas.

Extension: Children can turn a simple story with 2 or 3 levels of decision making into a logical design.

Children can use the full functionality of 2Create a Story Adventure mode to create, test and debug using their plan.

Children can explain the features and purpose of code within a given text adventure.

Children are able to step through each line of code and follow the flow of execution.

Children can make logical attempts to debug more complex

To plan and use selection and variables.

To understand how the launch command works.

To use functions and understand why they are useful.

To understand how functions are created and called.

To use flowcharts to create and debug code.

To create a simulation of a room in which devices can be controlled.

To understand how user input can be used in a program.

To understand how 2Code can be used to make a text-adventure game.

Success Criteria:

Children can plan a program which includes a timer and a score.

Children can follow their plans to create a program.

Children can debug when things do not run as expected.

Children can create a program that makes use of functions.

Children can create a program that uses multiple functions with the code arranged in tabs.

Children can explain how their code executes when their program is run.

Children can follow flowcharts to create and debug code.

Key Learning/End Points:

To create a program to run on a controllable device.

To explain that selection can control the flow of a program.

To update a variable with a user input.

To use an conditional statement to compare a variable to a value.

To design a project that uses inputs and outputs on a controllable device.

To develop a program to use inputs and outputs on a controllable device.

Vocabulary:

Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug.

Prior and Future Learning Links:

This unit presumes that pupils are already confident in their understanding of sequence, repetition and selection independently within programming. If pupils are not yet ready for this, you may wish to revisit earlier programming units where these constructs are introduced.

Key Learning/End Points:

To create a program to run on a controllable device.

To explain that selection can control the flow of a program.

To update a variable with a user input.

To use an conditional statement to compare a variable to a value.

To design a project that uses inputs and outputs on a controllable device.

To develop a program to use inputs and outputs on a controllable device.

Vocabulary:

Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug.

Prior and Future Learning Links:

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Online Safety (pre-SATs Reading Comprehenson)

Key Learning/End Points:

To know how to create a program in Python in Pieces.

To write Python code that outputs text.

To write Python code that performs calculations.

To learn some ways to program repetition in Python.

To use Python to program an animation.

To use a 'while true' loop to make code run repeatedly.

Success Criteria:

Children can use the design view to add objects and set properties,

Children can code using the blocks.

Children can compare the blocks and text code views.

Children know how to output text using the print and print all statements.

Children know what the datatype 'string' means.

Children have written code that concatenates and multiplies strings.

Children know how string and number data types differ.

Children know how to code calculations with Python.

Children can convert between string and number datatypes.

To understand how to contribute to an existing blog.

To understand how and why blog posts are approved by the teacher.

To understand the importance of commenting on blogs.

Vocabulary:

Approval, Archive, Blog, Blog Post, Collaborate, Commenting, Connections, Nodes, Vlog.

Key Question(s):

What is a blog?

A blog is a website or webpage that is regularly updated by the author. A blog also allows the reader to post comments or opinion based on what is written.

What can a blog be about?

A blog can be written about any subject. You could write a blog about school such as information about the subject you are studying. Alternatively, you could write a blog about your favourite team or movie.

How are the audience involved in a blog?

A key feature of blogs is that the audience can leave a comment or opinion about what they have read on the blog.

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code involving a combination of functions, variables and a loop.

Children can suggest and implement ideas to further develop the program.

Vocabulary:

Debug/Debugging, Function, Link, QR Code, Repeat, Sprite, Text Adventure, Selection, Variables.

Key Question(s):

What is a text-based adventure?

A text-based adventure is a type of game that uses text rather than graphics to tell the story. The player normally selects the next move from a series of text-based options.

Why is it important to plan a text-based adventure?

Text based adventures can often be complicated and give the player lots of options about what to do next. Planning the game ensures the player doesn't make a decision that has no outcome.

Allocate **Unit 6.5 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Children can create flowcharts for procedures.

Children can be creative with the way they code to generate novel visual effects.

Children can code programs that take text input from the user and use this in the program.

Children can attribute variables to user input.

Children are aware of the need to code for all possibilities when using user input.

Children can follow through the code of how a text adventure can be programmed in 2Code.

Children can design their own text-based adventure game based on one they have played.

Children can adapt an existing text adventure so it reflects their own ideas.

Vocabulary:

Action, Algorithm, Command, Concatenation, Co-ordinates, Debug/debugging, Decomposition, Event, Execute/Run, Flowchart, Function, Input, Launch Control, Object, Output, Predict, Procedure, Properties, Repeat, Repat Until, Selection, Sequence, Simulation, String, Tabs, Text Object, Timer, Turtle Object, Variable, X & Y Properties.

Key Question(s):

How can you use Tabs in 2Code Gorilla?

Allocate **'Unit Assessment Rubric** to all pupils in order to assess knowledge of the unit and skills.

https://docs.google.com/docume

nt/d/1ZMjZZokqqm5jIKg8CmQng O_11znJane4/edit?usp=drive_lin k&ouid=11568839093315119912 3&rtpof=true&sd=true**Online Safety**

6. Health, Wellbeing & Lifestyle

(4 Objectives)

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental

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'Tree Octopus' website www.zapatopi.net/treeoct opus

Children carry out series of comprehension type questions based on website content (do not tell them that website is fake at this stage!!!) End lesson by asking children to evaluate what they read and researched . . . . then reveal that website is FAKE!!!!! *(there is no such thing as a Tree Octopus)* We cannot always trust what we read and see online!

Tree Octopus Comprehension:

https://drive.google.com/file/d/1 nhjlyZIoentUTJIhk6IHWoABR1xeD xpl/view?usp=sharing

Unplugged activity: Underground Algorithms. Children to create a 'route algorithm from one Tube station to another. Check using Journey Planner website to see if route is the most precise.

Online Safety

7. Privacy & Security

Children know how to code a 'for' loop to make code repeat.

Children understand what Python libraries are.

Children can incorporate sound into a program.

Children can use the sleep module to control the flow of a sequence of code.

Children can use the properties of sprites to create visual effects.

Children can use the Random library as part of a program.

Children can create 'while' loops in code.

Children can use 'if' and 'elif' statements inside a 'while' True loop.

Children can use the tools available in Python in Pieces to debug code.

Online Safety

5. Managing Online Information

(6 Objectives)

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives

Allocate **Unit 6.4 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

Prior and Future Learning Links:

Unit 3.5 (Email): *Evaluating communications, Email safety, Sharing images – safety, Attachments, Email simulations.*

Online Safety

Education for a Connected World

1.Self-Image & Identity

(3 Objectives)

PROJECT EVOLVE

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online.

Unit 5.1 (Coding): *Familiarity with the functionality of 2Code, Planning & designing for a logical outcome.*

Unit 5.5 (Game Creator): *Game design planning, Refining and reviewing games.*

Online Safety

Education for a Connected World

3. Online Reputation

(2 Objectives)

PROJECT EVOLVE

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can explain the ways in which anyone can develop a positive online reputation.

I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.

4. Online Bullying

(2 Objectives)

Anti Bullying Week

Tabs are used to organise you code and make it more readable. This also makes it easier to debug. Give the Tabs useful names to help with this.

What is a function in coding? Give an example that you have used in 2Code Gorilla.

A function is a block of code that you can access when you need it, so you don't have to rewrite the same block repeatedly. You call the function each time you want it. In a turtle program you could have a button that will make the turtle draw a square each time you click it. In the text adventure, there were functions for each room that were called when the user navigated to the room.

In 2Code Gorilla, how can a program receive user input?

When the user clicks on an object, when the user presses keys or swipes the screen with the mouse, the 'Get Input' and 'Prompt for input' commands. On a touchscreen: when the screen is touched or swiped.

ASSESSMENT

Allocate **Unit 6.1 Quiz (Purple Mash)** to all pupils in order to assess knowledge of the unit and skills.

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warnings) and describe their purpose.

I recognise and can discuss the pressures that technology can place on someone and how / when they could manage this.

I can recognise features of persuasive design and how they are used to keep users engaged (current and future use).

I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).

(6 Objectives)

PROJECT EVOLVE

Use the 'Knowledge Map' at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser).

I can explain what to do if a password is shared, lost or stolen.

I can describe how and why people should keep their software and apps up to date, e.g. auto updates.

I can describe simple ways to increase privacy on apps and services that provide privacy settings.

I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).

I know that online services have terms and conditions that govern their use.

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to be focussed upon. This should then be delivered again at the end of the half-term to assess impact.

I can explain how search engines work and how results are selected and ranked.

I can explain how to use search technologies effectively.

I can describe how some online information can be opinion and can offer examples.

I can explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal.

I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising and 'ad targeting' and targeting for fake news).

I understand the concept of persuasive design and how it can be used to influences peoples' choices.

	I can describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline. I can explain the importance of asking until I get the help needed.	*Deliver during Anti-Bullying Week in November* **PROJECT EVOLVE** Use the **'Knowledge Map'** at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact. I can describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. I can explain how someone would report online bullying in different contexts.	**Prior and Future Learning Links:** **Unit 5.1 (Coding):** Efficient coding, Simulating a physical system, Decomposition and abstraction, Friction and functions, Introducing strings, Text variables and concatenation. **Unit 5.9 (External Devices):** Program an external device, Program an external controller using inputs and outputs, Monitor real world conditions, Code-test-debug. **Online Safety** **Education for a Connected World** **8. Copyright & Ownership** (2 Activities) **PROJECT EVOLVE** Use the **'Knowledge Map'** at the start of the half-term to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the half-term to assess impact. I can demonstrate the use of search tools to find and access online content which can be reused by others. I can demonstrate how to make references to and acknowledge			

			sources I have used from the internet.			

2.Online Relationships

(4 Objectives)

Safer Internet Day

* Deliver during the week of Safer Internet Day in February

PROJECT EVOLVE

*Use the **'Knowledge Map'** at the start of the week to assess understanding of this unit and to highlight objectives to be focussed upon. This should then be delivered again at the end of the week to assess impact.*

I can explain how sharing something online may have an impact either positively or negatively.

I can describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not.

I can describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs.

I can explain that taking or sharing inappropriate images of someone (e.g. embarrassing

		images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.			

Yesar 6 - Optional Online Safety Videos & Books

'I've seen Alex's Willy' video from NSPCC https://www.facebook.com/nspcc/videos/i-saw-your-willy/10157849113309852/

'Jigsaw' (CEOP Video) https://drive.google.com/file/d/1NvfkEvLPpJyqSwdkKxNw3z9VoqSE2LnP/view?usp=sharing Discuss how Becky reports her concerns *(clicks on the **'Report Abuse'** button).*

'Play, Like, Share' (CEOP Video) – Episode 1 (link to sites/apps like YouTube and TikTok that children are regularly using) https://www.youtube.com/watch?v=WpnqtGyc_ec&t=193s

'Play Like Share' (CEOP Video) – Episode 2. https://www.youtube.com/watch?v=NscU1ZHYPDk&t=7s

'Play, Like, Share' (CEOP Video) – Episode 3. https://www.youtube.com/watch?v=tQZGA6dsWpo