Believe. Achieve. Succeed Together.

Iver Village Junior School
Implementing the Computing Curriculum

Article 28, 29
Education must develop every child's personality, talents and abilities to the full

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Intent Statement

At Iver Village Junior School, we understand the importance of supporting opportunities for all children. Our future workforce should reflect a broad cross section of society, including but not limited to: age, gender, race, religious beliefs, cognitive and physical differences.

If we consider computing and the potential career opportunities and pathways this may lead to, it's vital that a broad workforce is in place, particularly when decisions on design and implementation of systems is required to limit bias. Computing should be integrated within different cultures and experiences of people, for example, farmers using technology to maximise yield of crops.

At IVJS, online safety has a very important role in the computing curriculum. Additional computing lessons focus on safe online relationships, self-image and identity as well as managing potential risks and dangers online. In this ever-changing technological world, pupils should be well equipped to deal with online issues.

Implementation

Curriculum Design

National Curriculum:
The national curriculum for computing aims to ensure that all pupils:
- Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- Can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems.
- Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- Are responsible, competent, confident and creative users of information and communication technology.

In Key Stage 2,
Pupils should be taught to:
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- 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
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that
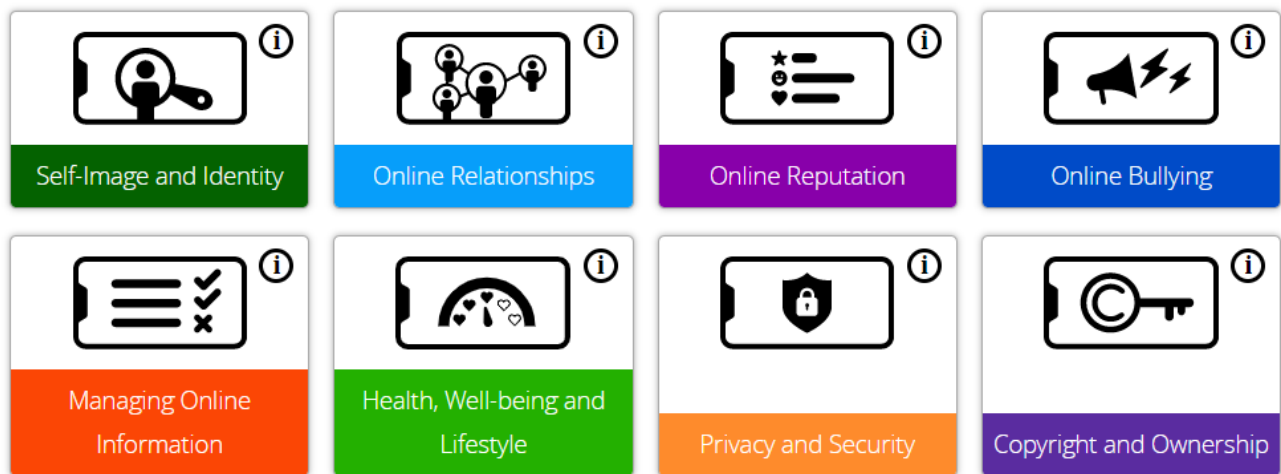
accomplish given goals, including collecting, analysing, evaluating and presenting data and information.
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

The Computing curriculum and Iver Village Junior School

At IVJS, we use the Purple Mash Computing Scheme of Work which is a comprehensive set of resources aligned to the National Curricula for Computing, Technology and Digital Competence. The Scheme of Work is intended to facilitate teachers in achieving the very best outcomes for all children. It exposes children to a wide variety of digital tools, technological skills and innovations to enable them to become informed members of the digital community.

More recently, there has been an increased focus on online safety at school. Once every half term, pupils are taught an *isolated* online safety lesson, which covers one of the following areas:

Self-Image and Identity	Online Relationships	Online Reputation	Online Bullying
Managing Online Information	Health, Well-being and Lifestyle	Privacy and Security	Copyright and Ownership

The lessons cover risks that children may encounter online and pupils engage in tasks relating to a specific area.

Information has been shared with parents about access to National College and National Online Safety resources. This has been through the weekly newsletter. Parents have also been alerted to the new Online Safety Act 2023, which informs them about their increased power and support when it comes to reporting online platforms and companies.

Internet Safety Day is celebrated annually at school through a whole school assembly and a follow-up computing lesson that week relating to the assembly theme introduced.

Cyclical curriculum and repetition:

Key concepts:
- *Abstraction*
- *Logic*
- *Debugging*
- *Data representation*
- *Online Safety*
- *Algorithm*

Key Knowledge:
See Knowledge Progression Document

Key Skills
See Skills Progression Document

Taught Key skills (broken down):
- **Digital Literacy**
- Use technology safely, respectfully and responsibly

- **Information Technology**
- Use search technology effectively
- Select, use and combine a variety of software

Computer science
- Design, write and debug programs
- Use sequence, selection and repetition in programs
- Use logical reasoning
- Understand computer networks, including the internet

Key vocabulary:
Key vocabulary is shared with pupils at the start of the lesson and is recapped throughout the unit. They build on previously taught topics and vocabulary as they progress through the computing units.

See Vocabulary linked to each unit taught via Purple Mash (in progression documents). Words are displayed, once discussed, on the classroom display:
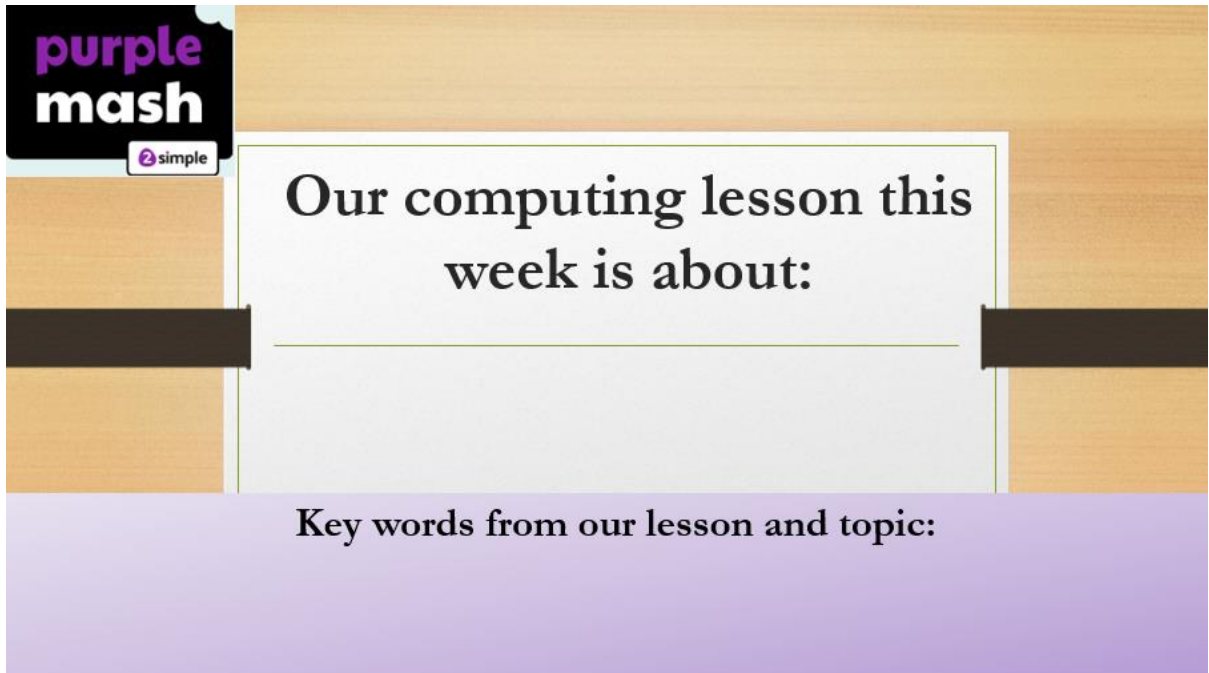
Medium term planning:
Staff can access planning directly from the Purple Mash website. Each year group will cover topics across the six half terms and knowledge organisers are available for staff to use.

Example of a Computing knowledge organiser for Unit 4.2 (Online Safety)

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.2
Online Safety

Key Learning

- To understand how children can protect themselves from online identity theft.
- To understand that information put online leaves a digital footprint or trail and that this can aid identity theft.
- To identify the risks and benefits of installing software including apps.
- To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism.
- To identify appropriate behaviour when participating or contributing to collaborative online projects for learning.
- To identify the positive and negative influences of technology on health and the environment.
- To understand the importance of balancing game and screen time with other parts of their lives.

Key Questions

What is meant by a digital footprint?

A digital footprint is the information that exists about a person based upon sites that they have visited, searches that they have done, information that they have shared and other online behaviours.

What is SPAM?

SPAM messages are emails or online messages sent from a computer to many other users. The users are sent the email without requesting it. The purpose of SPAM is for advertising, phishing or malware.

What is meant by plagiarism?

Plagiarism refers to using someone else's work and claiming it to be your own.

Key Resources

purple mash

2Connect   2Investigate   SPAM

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.2
Online Safety

Key Vocabulary

AdFly
An online advertising marketplace that allows publishers to monetize their website traffic by placing advertisements on their site.

Collaborate
To work jointly on an activity or project.

Digital footprint
The information about a person that exists on the Internet as a result of their online activity.

Plagiarism
Taking someone else's work or ideas and passing them off as one's own.

Spam
Messages sent over the Internet, typically to many users, for the purposes of advertising, phishing or spreading malware.

Attachment
A file, which could be a piece of work or a picture, that is sent with an email.

Cookies
A small amount of data generated by a website and saved by a web browser. Its purpose is to remember information about the user.

Malware
Software that is specifically designed to disrupt, damage, or gain unauthorised access to a computer system.

Ransomware
A type of malicious software designed to block access to a computer system until a sum of money is paid.

Virus
A piece of code which can copy itself and typically has a damaging effect on the device, such as corrupting the system or destroying data.

Citation
Making reference to the original source of a piece of information quotation or image.

Copyright
When the rights to something belong to a specific person.

Phishing
Practice of sending email pretending to be from reputable companies in order to persuade individuals to reveal personal information, such as passwords and credit cards numbers.

SMART rules
A set of rules based around the word SMART designed to help you stay safe when online. SMART represents the words Safe, Meet, Accept, Reliable, Tell.

Watermark
Watermarks are used mainly on images or videos to show who the content belongs to.

Lesson Design

All computing lessons follow a similar structure to support pupils in developing a depth and understanding of key computing skills and knowledge.

Aspect of lesson	Details
Review of previous learning and retrieval practice	Every lesson begins with a weekly recap of the SMART acronym and pre-made slides that question pupils about online safety. Teachers can discuss hypothetical scenarios with pupils following this initial recap.
Introduction of learning question	Teachers load lesson slides (directly from Purple Mash) and introduce the learning question, aims and success criteria of the lesson.
Concepts, knowledge, skills, vocabulary	Pupils work with the teacher to fill in the weekly display with new vocabulary and key concepts to be addressed that week in computing.
Modelling	Teachers delve deeper into the learning of the lesson and talk through slides, accessing Purple Mash resources accordingly.
Guided practice	Pupils work with teachers to understand key concepts of the lesson and work through an example 'To Do' task that pupils will need to complete themselves. Most lessons involve pupils using laptops.
Independent practice (learning tasks)	Tasks are set online through the Purple Mash website. Pupils log in to their account and select 'To Do' to see the task that has been set for them.
Plans for scaffolding	During the lesson, scaffolding comes in the support of: - Displayed key vocabulary and key concepts (as written on the class display poster). -Knowledge organisers (when required) - Mixed pairs working together to support one another with logging in and task management. - Teacher circulating to address misconceptions straightaway in the lesson and diverting attention back to the main teaching board, should the need arise.

Classroom Practice

Retrieval practice	
Modelling:	Pupils follow teacher's explicit modelling and solving of task scenarios on the main smartboard.
Questioning	A range of open and closed questions. Pupils have the opportunity to express their opinions and thoughts at various points in the lesson, especially in relation to online safety scenarios.
Scaffolding:	• Teacher support and additional adult support. • Print outs relevant to the lesson (Eg. how to solve steps in coding) may be handed out to pupils if they need them. • Key vocabulary displayed on class display.
Practise	Weekly recap of SMART acronym and online safety scenarios to embed learning into long term memory. Key vocabulary listed or pupils to see in lesson and for the rest of that week. Past and new vocabulary is recapped on the Purple Mash lesson slides.

Oracy	Oracy-based online safety scenarios are shared with pupils with sentence stems so they can articulate their answers. Teachers encourage pupils to answer in full sentences during the lesson and when explaining how to complete a task (eg coding and algorithms).

Examples of oracy opportunities in computing:

Your friend asks you to join Facebook.

What should you do?

In this situation, I would....

You are on a website when a page pops up saying you have won a prize and asks you to click on it.

What should you do?

In my computing lesson on SPAM, I learnt that...

Adaptive teaching:

The main aim for adaptive teaching within computing is providing appropriate and timely scaffolding to allow for all pupils to access the lesson. The table below identifies some of the ways scaffolding is provided during computing lessons.

Knowledge organisers and worked examples	Examples modelled through whole class 'To Do's' that are set prior to the lesson.
Task organisers	Lesson slides introduce the order of tasks and allow pupils to stretch their practise through extension tasks.
Physical Resources	Computers are available to pupils with log in details for those that require them.
Visual supports	Classroom display outlining key vocabulary from the lesson and key concepts/skills that form that lesson.
Adult support	Teacher as main resource. LSA support available at times.

Additional intervention

For some pupils, additional support is required to support the development of pupils' computing understanding. The below table identifies the types of additional intervention that may be provided. This provision is planned with support from the SENCo.

Pre-teaching of vocabulary	This is done at the end of a computing lesson (when teachers summarise learning and introduce upcoming learning and vocabulary). Targeted pupils may speak directly with their class teacher or LSA, who will provide key words in advance of the lesson.

Support for teachers:

Subject knowledge	https://www.purplemash.com/sch/theiver-sl0#/ • On the Purple Mash website, staff have the opportunity to develop their computing subject knowledge by watching videos about the different units to be taught. • They can look ahead at knowledge organisers so they ensure they impart correct knowledge.

Pedagogy	https://www.purplemash.com/sch/theiver-sl0#/ https://nationalcollege.com/primary • On the Purple Mash website, staff have the opportunity to develop their CPD in different computing units by watching videos. • They have taken part in a Purple Mash twilight training session in January 2023. • Staff have access to National College which covers a broad range of computing pedagogy and updates in online safety.