



Upper Nidderdale Primary Federation

Computing

Intent, Implementation and Impact
Long Term Plans & Progression

EYFS, KS1 and KS2 - updated September 2023



At Upper Nidderdale Primary Federation, we will all approach everything we do in the CHAMPS way, help every child flourish into a caring, confident and resilient young person who has a **love of learning** and:

Chooses the right way and takes **responsibility** for their own actions

Honest in everything they do and shows **compassion** for others

Achieves the best they can with the talents they have and develop their **wisdom**

Manners shown to everyone and treats everyone with **respect**

Perseveres when situations are difficult and shows **courage** when they are challenged

Safety and knowing how to keep safe on and offline to ensure that everyone is kept physically and emotionally safe. This shows the special relationship we have with each other, where as a **community**, we look after each other, keeping each other safe – **Koinonia**

As Rights Respecting schools, our intents are based around the following articles;

Article 23

You have the right to special education if you have a disability.

Article 28

All children have the right to a good quality education.

Article 29

All children have the right to an education that helps to develop their talents and abilities.

Computing

Intent

All pupils have the right to have rich, deep learning experiences that balance all the aspects of computing. With technology playing such a significant role in society today, we believe 'Computational thinking' is a skill children must be taught if they are to be able to participate effectively and safely in this digital world. A high-quality computing education equips pupils to use creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. In Computing lessons, pupils are introduced to a wide range of technology, including laptops, iPads and interactive whiteboards, allowing them to continually practice and improve the skills they learn. This ensures they become digitally literate so that they are able to express themselves and develop their ideas through information and computer technology- at a level suitable for the future workplace and as active participants in a digital world.

We teach a curriculum that enables children to become effective users of technology who can:

- Understand and apply the essential principles and concepts of Computer Science, including logic, algorithms and data representation;
- Analyse problems in computational term, and have repeated practical experience of writing computer programs in order to solve such problems;
- Evaluate and apply information technology analytically to solve problems;
- Communicate ideas well by utilising appliances and devices throughout all areas of the curriculum.

Internet Safety

We take internet safety extremely seriously. We have an E- Safety Policy that provides guidance for teachers and children about how to use the internet safely. Every year group participates in lessons on e-safety and children understand how to stay safe when using technology.

Computing

Implementation:

Teachers are provided with an additional three planning days per year in addition to their PPA, to plan their curriculum. As part of this planning process, teachers need to plan the following:

- A knowledge organiser which outlines knowledge (including vocabulary) all children must master;
- A cycle of lessons for each subject, which carefully plans for progression and depth;
- A low stakes quiz which is tested regularly to support learners' ability to block learning and increase space in the working memory;
- Challenge questions for pupils to apply their learning in a philosophical/open manner;
- Trips and visiting experts who will enhance the learning experience;
- February 2021 - Internet Safety RSHE units (**Online Relationships** and **Internet Safety and Harms**) are an integral party of PSHE and Computing lessons.

Impact:

Our Computing curriculum is high quality, well thought out and is planned to demonstrate progression. If children are keeping up with the curriculum, they are deemed to be making good or better progress. In addition, we measure the impact of our curriculum through the following methods:

- A reflection on standards achieved against the planned outcomes
- Children can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation;
- Children can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems;
- Children can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems;
- Children are responsible, competent, confident and creative users of information and communication technology.
- A celebration of learning for each term which demonstrates progression across the school;

Tracking of gains in each quiz;

- Pupil discussions about their learning;

Computing → SMSC Links

Spiritual

- Use the internet as a gateway to big life issues.
- Promote self-esteem through opportunities to present their work to others.
- Consider how we can connect with others through the world wide web.
- Understand the advantages and limitations of ICT.

Moral

- Use online safety lessons to explore the moral issues surrounding the use of data, social media and online safety.
- Create an awareness of encouraging respect for and developing a tolerance of people's views and opinions.
- Consider the benefits and potential dangers of the internet.
- Discuss the moral implications of cyberbullying.

Social

- Use digital media services to link with other schools and communities.
- Highlight ways to keep safe when online, especially using social media.
- Encourage collaborative learning through paired activities.
- Discuss the impact of ICT on the ways people communicate e.g. Skype.

Cultural

- Develop a sense of awe and wonder at human ingenuity.
- Develop an awareness of their audience when communicating in a digital world.

Computing → Fundamental British Values

We understand the importance of promoting the fundamental British Values that are recognised around the world. It is our aim as a school to address these values wherever possible in the curriculum, including in computing.

Computing is becoming an increasingly vital part of the curriculum as it is an integral part of modern daily life. Wherever possible we find it important to immerse the children in these values which are important to our identity. Children can do this through research on the internet. We can use computing to learn about different cultures and to discuss the similarities and differences between them and our own.

We are starting to use computing to communicate with other people around the world, including our link school in Kenya, which allows the children to ask questions about different faiths and cultures, but also to make friends using a safe learning forum. We educate children on online safety and have this as a basis when using the tablets in school. The children engage in regular online safety lessons to continually update their knowledge and understanding of staying safe linked to current affairs.

EYFS - Computing

Practitioners will;

- Provide opportunities to use technology to solve problems.
- Provide opportunities for pupils to use technology to produce creative outcomes.
- Provide opportunities to take part in a variety of tasks with digital devices such as Bee Bots.
- Provide opportunities to use toys such as remote control cars, walkie talkies and interactive pets.
- Provide opportunities to use digital cameras, voice recorders or microphones and iPads.

Computing Knowledge

Substantive Knowledge

Substantive knowledge in computing is understanding how to use technology, how to be safe and knowing how to program. This is developed through deliberate practice and by children applying their knowledge of how to be computational thinkers.

Concepts and Approaches

- Logic - Predicting and analysing
- Algorithms - Making steps and rules
- Patterns - Spotting and using similarities
- Abstraction - Removing unnecessary steps
- Evaluation - Making judgements
- Creating - Designing and making
- Debugging - Fixing and finding errors

"Computational thinking is an important life skill, which all pupils now need to develop. It is central to both living in and understanding our digitally enriched world. It is a cognitive process involving logical reasoning by which problems are solved across the whole curriculum and through life in general." (Computing at School, 2015)
In order to develop as computational thinkers children engage with computational concepts and approaches:

Disciplinary Knowledge

Disciplinary knowledge in computing is the use and interpretation of substantive knowledge in order to develop original digital content and programs.

SEND Adaptions for Computing

Cognition and Learning

Communication and Interaction

Subject Challenges for SEND	SEND Provision	Subject Challenges for SEND	SEND Provision
<p>Interpretation of artists' work.</p> <p>Reading/studying of artists' backgrounds and styles.</p> <p>Understanding of subject specific vocabulary.</p> <p>Difficulty in producing accurate pieces of writing e.g. an artist study.</p> <p>Sequencing of physical art task (knowing which steps to complete first).</p>	<p>Use stem sentences to provide subject specific language in a particular format – this will enable children to accurately communicate their thoughts and opinions.</p> <p>Use shorter texts which are comprised of less complex, phonetically decodable sentences. Texts can be supported by visuals – all teachers have access to Widgit Online.</p> <p>Pre-teach subject specific vocabulary. Draw particular attention to subject specific vocabulary which can be used in everyday speech e.g. 'expression.' Create word banks to demonstrate that the same word can have different meanings in different contexts.</p> <p>Use writing frames, 'fill in the blank' sentences, sentence starters, vocabulary mats, visuals to sequence etc.</p> <p>Children who have difficulties structuring their writing/who have difficulties with short term memory could use talking tins to 'hold their sentences' whilst they write at an individual word pace. Children can record work differently e.g. through the use of ICT (PowerPoints, Word documents, videos etc).</p> <p>Utilise 'shared tasks' by pairing children with a learning buddy. One partner verbally explains the process of making something whilst the other asks questions. Partners swap roles and repeat the task. This will reinforce sequencing.</p>	<p>Expressing themselves and sharing their thoughts and opinions orally.</p> <p>EAL pupils may find it difficult to access resources/learning.</p>	<p>Use stem sentences to provide subject specific language in a particular format – this will enable children to accurately communicate their thoughts and opinions.</p> <p>Use flash cards supported by visuals to allow the children to choose adjectives to support their reasoning. E.g. children could select the word 'bright' to describe why they like a particular piece of artwork. Children could then match these flash cards to different pieces of artwork to demonstrate understanding. Teacher can use these flash cards to prompt verbal reasoning.</p> <p>Use a reduced number of simple instructions which are supported by visuals e.g. 'cut, stick, colour.'</p> <p>Appropriate modelling to aid understanding.</p> <p>Differentiated written resources can be supported by visuals and could be translated using Word. (Teachers click Review – Translate – Translate Document). This will fully translate the document and open in a new window.</p>

SEND Adaptions for Computing

Sensory and Physical

SEMH

Subject Challenges for SEND

SEND Provision

Subject Challenges for SEND

SEND Provision

Fine motor skills/physical difficulties.

Sensory difficulties accessing specific materials during Art lessons. For example, some children may find it very difficult to handle a material such as cotton wool due to tactile sensory difficulties.

Children with a visual impairment may find it difficult to view text/images.

Teachers to be proactive in identifying appropriate resources and manipulatives for each individual child's need. For example, some children may require cross guard pencil grips/spring assisted scissors. Speak to SENDCo if unsure.

Ensure any sensory difficulties are considered at the point of planning and alternative materials are provided to avoid sensory overload. E.g. replace cotton wool for polyfill stuffing.

Ensure that font size used in resources matches the specific font size specified in the child's report provided by the Visual Impairment Team (saved in SEND files on T Share). Enlarge images to appropriate sizes to aid access.

Low self-esteem in art ability.

Difficulties with social skills may result in children finding group work challenging.

Showcase different artists' work and a focus on the creation process rather than on the end result. Teacher be conscious to praise effort rather than ability.

Make use of learning objectives which focus upon the specific art skill and not the resulting artwork. E.g. focus upon the shading of a sunflower rather than the accuracy of the shape of the petals.

Pre-teach key information and vocabulary so that children feel prepared for the lesson and can share their knowledge with their peers – resulting in raised self-esteem.

Carefully consider seating arrangements during group work to ensure that children are placed next to patient, non-dominant children. Additional adult support can be deployed as necessary.

Ensure children have access to usual aides such as ear defenders to reduce noise. Provide talking tins for children who struggle with impulsivity so that they can record their contributions as they think of them but can play them back to other children at the appropriate time.

**Internet Safety
and Harms
(Updated February 2021)**

Know that for most people the internet is an integral part of life and has many benefits.

Know about the benefits of rationing time spent online, the risks of excessive time spent on electronic devices and the impact of positive and negative content online on their own and others' mental and physical wellbeing.

Know why social media, some computer games and online gaming, for example, are age restricted.

Know how to consider the effect of their online actions on others and know to recognise and display respectful behavior online and the importance of keeping personal information private.

Know that the internet can also be a negative place where online abuse, trolling, bullying and harassment can take place, which can have a negative impact on mental health.

Know how to be a discerning consumer of information online including understanding that information, including that from search engines, is ranked, selected and targeted.

Know where and how to report concerns and get support with issues online.

Online Relationships (Updated February 2021)

Know that people sometimes behave differently online, including by pretending to someone they are not.

Know that the same principles apply to online relationships as face to face relationships, including the importance of respect for others online including when we are anonymous.

Know how to critically consider their online friendships and sources of information including awareness of the risks associated with people they have never met.

Know how information and data is shared and used online.

Know the rules and principles for keeping safe online, how to recognise risks, harmful content and contact and how to report them.

KS 1 Computing - Long Term Overview

Purple Mash

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
2023-2024	<u>Unit 1.1</u> Online Safety (4 weeks) (Exploring Purple Mash)	<u>Unit 2.5</u> Effective searching (3 weeks) <u>Unit 1.4</u> Lego Builders (3 weeks)	<u>Unit 1.9</u> Technology outside school (2 weeks) <u>Unit 1.2</u> Grouping & Sorting (2 weeks)	<u>Unit 2.6</u> Creating Pictures (5 weeks)	<u>Unit 1.8</u> Spreadsheets (3 weeks) <u>Unit 1.7</u> Coding (3 weeks)	<u>Unit 1.7</u> Coding (3 weeks) <u>Unit 2.1</u> Coding (5 weeks)
2025-2023	<u>Unit 2.2</u> Online Safety (4 weeks) (Exploring Purple Mash) <u>Unit 1.5</u> Maze Explorers (3 weeks)	<u>Unit 2.4</u> Questioning (5 weeks)	<u>Unit 2.2</u> Online Safety (3 weeks) <u>Unit 2.7</u> Making Music (3 weeks)	<u>Unit 1.6</u> Animated story books (5 weeks)	<u>Unit 2.3</u> Spreadsheets (4 weeks) <u>Unit 1.3</u> Pictograms (3 weeks)	<u>Unit 2.8</u> Presenting Ideas (4 weeks)

Lower KS 2 Computing - Long Term Overview Purple Mash

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
2023- 2024	<u>Coding</u> (6 weeks)	<u>Unit 3.2</u> Online Safety (3 weeks) <u>Unit 3.3</u> Spread- sheets (3 weeks)	<u>Unit 3.4</u> Touch Typing (4 weeks)	<u>Unit 3.5</u> Email and email safety (6 weeks)	<u>Unit 3.6</u> Branching Database (4 weeks) <u>Unit 3.7</u> Simulations (3 weeks)	<u>Unit 3,8</u> Graphing (3 weeks)
2024- 2025	<u>Coding</u> (6 weeks)	<u>Unit 4.2</u> Online Safety (4 weeks) <u>Unit 4.6</u> Animation (3 weeks)	<u>Unit 4.3</u> Spreadsheets (6 weeks)	<u>Unit 1.6</u> Writing for different audiences (5 weeks)	<u>Unit 4.5</u> Logo (4 weeks) <u>Unit 4.9</u> Making Music (4 weeks)	<u>Unit 4.7</u> Effective Search (3 weeks) <u>Unit 4.8</u> Hardware Investigators (2 weeks)

Upper KS 2 Computing - Long Term Overview

Purple Mash

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
2023- 2024	<u>Unit 5.1</u> Coding (6 weeks)	<u>Unit 5.2</u> Online Safety (3 weeks)	<u>Unit 5.3</u> Spreadsheets (5 weeks)	<u>Unit 5.4</u> Databases (4 weeks)	<u>Unit 5.5</u> Game Creator (5 weeks) <u>Unit 5.6</u> 3D Modelling (2 weeks)	<u>Unit 5.6</u> 3D Modelling (2 weeks) <u>Unit 5.7</u> Concept Maps (4 weeks)
2024- 2025	<u>Unit 6.1</u> Coding (6 weeks)	<u>Unit 6.2</u> Online Safety (3 weeks) <u>Unit 6.6</u> Networks (3 weeks)	<u>Unit 6.3</u> Spreadsheets (5 weeks)	<u>Unit 6.4</u> Blogging (5 weeks)	<u>Unit 6.5</u> Text Adventures (5 weeks)	<u>Unit 6.7</u> Quizzing (6 weeks)

Vocabulary Progression

EYFS

**Control
Information
Internet
Program**

Key Stage One

**Computer Networks
Control
Debug
Execute
Information
Input
Internet
Online
Output
Password
Program
Search
Selection
Sequence
Software
Website
World Wide
Web**

Key Stage Two

**Algorithm
Block
Command
Control
Data
Digital
Digital Content
Iteration
Logical
Output
Page rank
Reasoning
Repetition
Scripts
Selection
Sequence
Services
Simulation**

National Curriculum - Purpose of Study

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Aims

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

National Curriculum - Aims

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

National Curriculum - Key Stage One

Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

National Curriculum - Key Stage Two

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.

Agreed End Points

We have plotted end points for each year group to ensure that children keep on track for the end of Key Stage end points. In this way we can get children ready for the next stage of their education

Our end points ensure that our curriculum is purposefully structured and logically sequenced, and new knowledge builds on previous knowledge - links can be made across different areas of study.

EYFS

ELGs in Purple

Managing Self

- Pupils will explore how things work.
- Pupils will follow rules, understanding why they are important.
- Pupils will know and talk about the different factors that support their overall health and wellbeing - sensible amounts of 'screen time.'
- Pupils will explain the reasons for rules, know right from wrong and to behave accordingly (Online safety rules)
- Pupils will be confident to try new activities and show independence, resilience and perseverance in the face of challenge.

Computing	Year One	Year Two
Texta and Multimedia	<ul style="list-style-type: none"> Work with others and with support to contribute to a digital class resource which includes text, graphic and sound. 	<ul style="list-style-type: none"> Generate their own work, (with help where appropriate with multimedia) combining text, graphics and sound. Save and retrieve and edit their work.
Digital Images	<ul style="list-style-type: none"> Use a range of simple tools in a paint package / image manipulation software to create / modify a picture. 	<ul style="list-style-type: none"> Use a range of tools in a paint package / image manipulation software to create / modify a picture to communicate an idea. Create a simple animation to tell a story.
Sound and Music	<ul style="list-style-type: none"> Chose suitable sounds from a bank to express their ideas. Record short speech. 	<ul style="list-style-type: none"> Compose music from icons. Produce a simple presentation incorporating sounds the children have captured, or created.
Electronic Communication	<ul style="list-style-type: none"> Contribute ideas to a class email to another class / school etc. 	<ul style="list-style-type: none"> Work collaboratively by email to share and request information of another class or story character.
Research and ESafety	<ul style="list-style-type: none"> As a class exercise children explore information from a variety of sources (electronic, paper based, observations of the world around them, etc.). <p><u>PSHE Links</u> <u>H12</u> - To know rues for keeping physically and emotionally safe including responsible ICT use and online safety. <u>H16</u> - To know what is meant by 'privacy' their right to keep things private, the importance of respecting others' privacy. <u>R13</u> - To recognise different types of teasing and bullying (including online)</p>	<ul style="list-style-type: none"> Children use a search engine to find specific relevant information to use in a presentation for a topic. <p><u>PSHE Links</u> <u>H12</u> - To know rues for keeping physically and emotionally safe including responsible ICT use and online safety. <u>H16</u> - To know what is meant by 'privacy' their right to keep things private, the importance of respecting others' privacy. <u>R13</u> - To recognise different types of teasing and bullying (including online)</p>
Control and Algorithms	<ul style="list-style-type: none"> Control simple everyday devices to make them produce different outcomes. 	<ul style="list-style-type: none"> Control a device, on and off screen, making predictions about the effect their programming will have.

Computing	Year One	Year Two
Handling Information	<ul style="list-style-type: none"> As a class or individually with support, children use a simple pictogram or painting program to develop simple graphical awareness / one to one correspondence. 	<ul style="list-style-type: none"> Use a graphing package to collect, organise and classify data, selecting appropriate tools to create a graph and answer questions. Enter information into a simple branching database, database or word processor and use it to answer questions. They save, retrieve and edit their work.
Modelling	<ul style="list-style-type: none"> Make simple choices to control a simple simulation program. 	<ul style="list-style-type: none"> Children are able to play an adventure game and use a simple simulation, making choices and observing the results. Their conversation shows they understand that computers are good at replicating real life events and allowing them to explore contexts that are otherwise not possible.
Data Logging		
Individual Technologies	<ul style="list-style-type: none"> Show an awareness of the range of devices and tools they encounter in everyday life 	<ul style="list-style-type: none"> Show an awareness of a range of inputs to a computer (IWB, mouse touch screen, microphone, keyboard, etc.)
Understanding Technologies (network)	<ul style="list-style-type: none"> how an awareness that what they create on a computer or tablet device can be shown to others via another device (e.g. printer, projector, Apple TV) 	<ul style="list-style-type: none"> Begin to show an awareness that computers can be linked to share resources
Understanding Technologies (the internet)		<p>Use websites and demonstrate an awareness of how to manage their journey around them (e.g. using the back/forward button, hyperlinks)</p>

Computing	Year Three	Year Four
Texts and Multimedia	<ul style="list-style-type: none"> Record and present information integrating a range of appropriate media combining text and graphics in printable form and sound and video for on-screen presentations which include hyperlinks. Begin to show an awareness of the intended audience and seek feedback. 	<ul style="list-style-type: none"> Use advanced tools in word processing / DTP software such as tabs, appropriate text formatting, line spacing etc. appropriately to create quality presentations appropriate for a known audience.
Digital Images	<ul style="list-style-type: none"> Manipulate digital images using a range of tools in appropriate software to convey a specific mood or idea. 	<ul style="list-style-type: none"> Make a short film / animation from images (still and / or moving) that they have sourced, captured or created.
Sound and Music	<ul style="list-style-type: none"> Create a simple podcast, selecting and importing already existing music and sound effects as well as recording their own. 	<ul style="list-style-type: none"> Create multiple track compositions that contain a variety of sounds.
Electronic Communication	<ul style="list-style-type: none"> Begin to understand the need to abide by school e-safety rules. 	<ul style="list-style-type: none"> Share ICT work they have done electronically by email, VLE, or uploading to authorised sites. Where possible seek and respond to feedback.
Research and ESafety	<ul style="list-style-type: none"> Using another curriculum area as a starting point, children ask their own questions then use ICT sources to find answers, making use of search engines, an index, menu, hyperlinks as appropriate. Children use the information or resources they have found. <p><u>PSHE Links</u> <u>H22</u> - Develop strategies for keeping safe online; the importance of protecting personal information. <u>H25</u> - To know how to manage requests for images of themselves or others; what is and is not appropriate to ask for or share ; who to talk to if they feel uncomfortable.</p>	<ul style="list-style-type: none"> Make use of copy and paste, beginning to understand the purpose of copyright regulations and the need to repurpose information for a particular audience. They show an understanding that not all information on the internet is accurate. <p><u>PSHE Links</u> <u>H22</u> - Develop strategies for keeping safe online; the importance of protecting personal information. <u>H25</u> - To know how to manage requests for images of themselves or others; what is and is not appropriate to ask for or share ; who to talk to if they feel uncomfortable.</p>
Control and Algorithms	<ul style="list-style-type: none"> Children are able to type a short sequence of instructions and to plan ahead when programming devices on and off screen. 	<ul style="list-style-type: none"> Use control software to control devices (using output commands) or to simulate this on screen. Predict, test and refine their programming.

Computing	Year Three	Year Four
Handling Information	<ul style="list-style-type: none"> Children use a simple database (the structure of which has been set up for them) to enter and save and save information on a given subject. They follow straight forward lines of enquiry to search their data for their own purposes. They talk about their experiences of using ICT to process data compared with other methods. 	<ul style="list-style-type: none"> Children work as a class or group to create a data collection sheet and use it to setup a straight forward database to answer questions. Enter information and interrogate it (by searching, sorting, graphing etc.). Begin to reflect on how useful the collected data and their interrogation was and whether or not their questions were answered.
Modelling	<ul style="list-style-type: none"> Use models and simulations to find things out and solve problems. Recognise that simulations are useful in widening experience beyond the classroom. Make simple use of a spreadsheet to store data and produce graphs. 	<ul style="list-style-type: none"> Set up and use a spreadsheet model to explore patterns and relationships. Make predictions. Know how to enter simple formulae to assist this process.
Data Logging	<ul style="list-style-type: none"> Begin to use a data logger to sense physical data (sound, light, temperature). 	<ul style="list-style-type: none"> Use a data logger confidently, connected to the computer or remotely, to capture continuous or intermittent data readings. Interpret the results and use these in their investigations.
Individual Technologies	<ul style="list-style-type: none"> Begin to show discernment in their use of computing devices and tools for a particular purpose and explain why their choice was made. <p>PSHE Links - H24 To develop the responsible use of mobile phones; safekeeping and safer use habits (time limits, use of passcodes, turning off at night)</p>	<ul style="list-style-type: none"> Make choices about the devices and tools they use for specific purposes and explain them in relation to the context. <p>PSHE Links - H24 To develop the responsible use of mobile phones; safekeeping and safer use habits (time limits, use of passcodes, turning off at night)</p>
Understanding Technologies (network)	<ul style="list-style-type: none"> Show an awareness of where passwords are critical in everyday use (e.g. parents accessing bank details) 	<ul style="list-style-type: none"> Show an understanding of the school network and how it links computers to resources in school and beyond.
Understanding Technologies (the internet)	<ul style="list-style-type: none"> Show an awareness that not all the resources/tools they use are resident on the device they are using. 	<ul style="list-style-type: none"> Perform a search using different search engines and check the results against each other, explaining why they might be different.

Computing	<p style="text-align: center;">Year Five & Year Six Consolidation of previous skills and knowledge</p>
Texts and Multimedia	Multimedia work shows restrained use of effects that help to convey meaning rather than impress.
Digital Images	Use images that they have sourced / captured / manipulated as part of a bigger project (e.g. presentation or document).
Sound and Music	Create and share more sophisticated podcasts and consider the effect that their podcasts will have on the audience.
Electronic Communication	Abide by school rules for e-safety - share this information with younger pupils. Follow these rules at home, considering safe and appropriate use of social media.
Research and ESafety	<ul style="list-style-type: none"> • Independently and with due regard for safety, search the internet using a variety of techniques to find a range of information and resources on a specific topic. • Use appropriate methods to validate information and check for bias and accuracy. • Repurpose and make appropriate use of selected resources for a given audiences, acknowledging material used where appropriate. <p><u>PSHE Links</u> H22 - Develop strategies for keeping safe online; the importance of protecting personal information. H25 - To know how to manage requests for images of themselves or others; what is and is not appropriate to ask for or share ; who to talk to if they feel uncomfortable.</p>
Control and Algorithms	<ul style="list-style-type: none"> • Independently create sequences of commands to control devices in response to sensing (i.e. use inputs as well as outputs). • Design, build, test, evaluate and modify the system; ensuring that it is fit for purpose.

Computing	<p style="text-align: center;">Year Five & Year Six Consolidation of previous skills and knowledge</p>
<p>Handling Information</p>	<ul style="list-style-type: none"> Independently solve a problem by planning and carrying out data collection, by organising and analysing data involving complex searches using a database, and by drawing conclusions and presenting findings. The need for accuracy is demonstrated and strategies for spotting implausible data are evident. To be able to talk about issues relating to data protection and the need for data security in the world at large (e.g. health, police databases).
<p>Modelling</p>	<ul style="list-style-type: none"> Set up and use their own spreadsheet, which contains formulae to investigate mathematical models. Ask "what if ..." questions and change variable in their model. Understand the need for accuracy when creating formulae and check regularly for mistakes, by questioning results. Relate their use of spreadsheets to model situations to the wider world.
<p>Data Logging</p>	<ul style="list-style-type: none"> To identify their own opportunities for data logging and carry out their own experiments. They check and question results and are able to spot trends in data and identify when problems may have occurred.
<p>Individual Technologies</p>	<ul style="list-style-type: none"> Evaluate the tools available to them including any that are unfamiliar or new and use them to solve problems. Demonstrate an awareness of the appropriateness of outcomes depending on choices regarding tools and devices. <p>PSHE Links - H24 To develop the responsible use of mobile phones; safekeeping and safer use habits (time limits, use of passcodes, turning off at night)</p>
<p>Understanding Technologies (network)</p>	<ul style="list-style-type: none"> Show an understanding of how filtering and monitoring tools affect their use of the school network and Internet and compare this with their experience of access outside school.
<p>Understanding Technologies (the internet)</p>	<ul style="list-style-type: none"> Use collaborative tools and e-mail showing a sensitivity for this type of remote collaboration and communication