

What is Computing?

Computing 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 an ever changing digital world.

Intent in Computing:

All children at St Margaret's Academy have the right to have deep, rich learning experiences that balance all the skills of computing. With technology playing such a significant role in today's society, we believe that '**Computational Thinking**' is a skill children must be taught if they are able to participate effectively and safely in this digital world.

Our knowledge rich curriculum is balanced with the opportunity for pupils to use their skills and apply what they have learned creatively which will in turn help our pupils become skilful computer scientists. Where it is an enhancement to learning, we intend to embed computing across the whole curriculum to ensure that learning is accessible to all.

By Upper Key Stage 2, we want our pupils to be fluent with a range of tools to best express their understanding and to feel confident in applying themselves independently.

Best practice in teaching and learning computing

At St Margaret's Academy, we believe high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world.

Teachers and St Margaret's Academy...

- Are enthusiastic about computing.
- Are facilitators (not dictators).
- Encourage computational thinking.
- Model and educate pupils on how to use technology positively, responsibly and safely.
- Adapt the learning to meet children's need.
- Allow time to give bespoke individual feedback.
- Have high expectations for all pupils.

Learners at St Margaret's Academy...

- Are responsible, competent, confident and creative users of information and communication technology.
- Are enthusiastic about computing and engaged in each learning task.
- Know that their learning is purposeful.
- Are able to use their computational thinking skills to solve problems.
- Are equipped with the skills and knowledge to tackle the ever changing digital world.

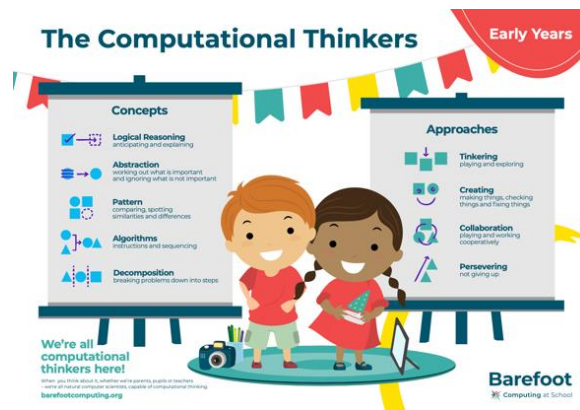
Our Computing Curriculum

Our Computing curriculum focuses on a progression of skills in **Digital Literacy, Computer Science, Information Technology and Online Safety** to ensure that children become competent in safely using, as well as understanding, technology. These strands are revisited repeatedly through a range of themes during children's time in school to ensure the learning is embedded and skills are successfully developed.

Computing in Early years

Computing and technology are still vitally important subjects to deliver to Reception children. We want our children to enter Year 1 with a strong foundation of knowledge and will also ensure that children develop listening skills, problem-solving abilities and thoughtful questioning.

In the Early Years, we use the resources from 'Barefoot Computing' based around computational thinking concepts and approaches.



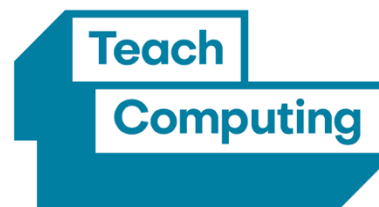
EYFS Computational Thinking simple definitions

EYFS Computational Thinking Skills	Simple definitions
Tinkering	Playing and exploring
Creating	Creating, checking and fixing things
Collaboration	Playing and working collaboratively
Persevering	Not giving up
Logic	Anticipating and explaining is logical reasoning
Pattern	Grouping things, comparing, spotting similarities and differences, working out rules
Abstraction	Naming and labelling, working out what is important, sticking to the main theme, ignoring what is not important, creating a summary
Algorithms and Decomposition	Responding to instructions, ordering things, sequencing things, introducing storylines, working out different ways to do things, breaking problems down into steps

Computing in KS1 and KS2

In year 1-6, we follow the 'Teach Computing' programme of work.

The Teach Computing curriculum is structured into units for each year group, and each unit is broken down into lessons. Units can generally be taught in any order, with the exception of programming, where concepts and skills rely on prior knowledge and experiences. Lessons must be taught in numerical order.



- Computer systems and networks
- Creating media
- Data and information
- Programming

There are 6 units of work for each year group as shown on Whole School Overview below:

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
	Computer systems and networks	Programming 1	Creating Media 1	Programming 2	Data and information	Creating Media 2
1	Technology around us	Moving a Robot	Digital Painting	Introduction to animation	Grouping Data	Digital Writing
2	IT around us	Programming A: Robot algorithms	Creating Media-making music	Creating Media-Digital Photography	Data and Information: Pictograms	An introduction to quizzes
3	Connecting Computers	Sequence in music	Animation	Events and actions	Branching databases	Desktop Publishing
4	The Internet	Repetition in shapes	Audio Editing	Repetition in games	Data Logging	Photo Editing
5	Sharing Information	Selection in physical computing	Vector drawing	Selection in Quizzes	Flat File databases	Video Editing
6	Communication	Variables in games	3D modelling	Sensing	Spreadsheets	Web Page creation

Esafety

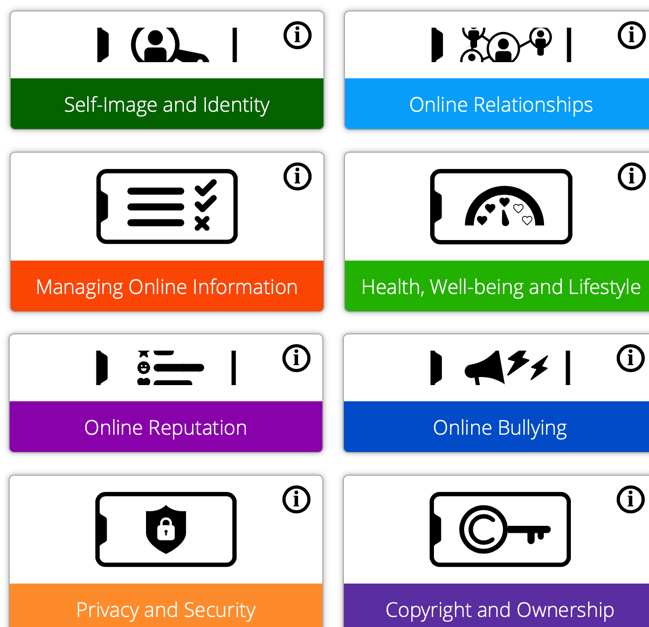
Whilst ensuring they understand the advantages and disadvantages associated with online experiences, we want children to develop as respectful, responsible and confident users of technology, aware of measures that can be taken to keep themselves and others safe online. Our Online Safety Curriculum focuses on underpinning knowledge and behaviours that can help pupils to navigate the online world safely and confidently regardless of the device, platform or app.

For this, we use ProjectEVOLVE resources based on UKCIS framework "Education for a Connected World" (EFACW) that covers knowledge, skills, behaviours and attitudes across eight strands of our online lives from early years to year 6.

The eight strands are:

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

Esafety is also weaved into some 'Teach Computing' units and some JIGSAW PSHE lessons.






Substantive and Disciplinary

Substantive Knowledge in Computing

Strand	Definition
Computer systems and networks	Understand what a computer is and how networks can be used to retrieve and share information, and how they come with associated risks.
Creating media	Select and create a range of media including text, images, sounds, and video
Data and information	Understand how data is stored, organised, and used to represent real-world artefacts and scenarios.
Design and development	Understand the activities involved in planning, creating, and evaluating computing artefacts.
Effective use of tools	Use software tools to support computing work.
Impact of technology	Understand how individuals, systems, and society as a whole interact with computer systems.
Programming and algorithms	Create software to allow computers to solve problems and be able to comprehend, design, create, and evaluate algorithms
Safety and security	Understand risks when using technology, and how to protect individuals and systems.

Disciplinary Skills in Computing

Below are the 10 the disciplinary skills that children will develop from year 1-6. As the children move up through the school, they will build on the skills learned previously. E.g. in UKS2 children will still continue to identify & use (KS1) and explain & recognise (LKS2), but will also demonstrate their ability to and evaluate and develop. You will find the key Disciplinary skills in **bold** on the assessment rubric sheets.

Strand	KS1 Key Disciplinary Skills	LKS2 Key Disciplinary Skills	UKS2 Key Disciplinary Skills
			
Computer systems and networks examples	To identify information technology beyond school. To create rules for using technology responsibly.	To explain how digital devices function To recognise how networked devices make up the internet	To evaluate different ways of working together online To evaluate different ways of working together online
Programming examples	To identify the effect of changing a value. To use logical reasoning to predict the outcome of a program (series of commands).	To explain that in programming there are infinite loops and count controlled loops To recognise that a sequence of commands can have an order	To evaluate my project To develop a program to use inputs and outputs on a controllable device
Creating media examples	To identify that there are patterns in music. To use a computer on my own to paint a picture.	To explain that digital images can be changed To recognise how text and images convey information	To evaluate my vector drawing To develop and improve a digital 3D model To compare working digitally with 2D and 3D graphics
Data and information examples	To identify that objects can be counted. To create a pictogram,	To explain that data gathered over time can be used to answer questions	To compare paper and computer-based databases

Assessment in Computing

Assessment in computing should be to determine whether children can **remember** what they were taught and if they can then **apply** that knowledge.

Progress of our computing curriculum is demonstrated through formative assessments, regular conferencing with pupils, summative assessments and assessment rubrics.

The way pupils showcase, share, celebrate and publish their work will best show the impact of our curriculum.

Year 3 – Creating Media - Desktop publishing - Assessment Rubric



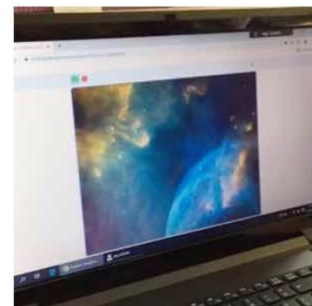
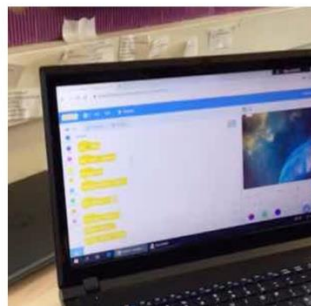
Class:	Teacher:	Date:	
Insert the names of the children in your class			
Creating a template	<ul style="list-style-type: none"> Some placeholders have been used to divide the page 	<ul style="list-style-type: none"> Placeholders are used appropriately to divide the page (magazine) 	<ul style="list-style-type: none"> Background colours are changed Images are added Word art is included
Creating a magazine	<ul style="list-style-type: none"> Some text has been added 	<ul style="list-style-type: none"> Text and images have been added Some formatting has been done to the text 	<ul style="list-style-type: none"> Text changes include resizing, colours, and font types Images and text are placed appropriately on the page
Layout	<ul style="list-style-type: none"> Recognise that text and images can be laid out in different formats 	<ul style="list-style-type: none"> Choose an appropriate layout for a given scenario 	<ul style="list-style-type: none"> Explain why that layout is most suited to the scenario

Teachers can also access examples of ARE for computing and moderate final outcomes against this.

Y4 AT/GD example of Programming - Games

This child was able to:

- Choose relevant sprite and backdrops for his game
- Create a algorithm that includes show, hide, and move blocks
- Include sound blocks
- Create additional sprites and copy code over to those sprites
- Modify his code for additional sprites
- Run his code and identify whether it meets the requirements of the task
- Evaluate how successfully he met the task



Computing Year 4 Computing Year 4