Computing

Moulton Chapel Primary School

1. *To be able to read, write and speak with confidence and fluency.*
2. *To be able to use mathematical concepts to tackle problems and resolve them.*
3. *To be global citizens that have had cultural experiences beyond their normal lives.*
4. *To aspire our children to dream big in their career path.*
5. *Grow into responsible, respectful young people who value each other.*

Intent

At Moulton Chapel, it is our intention to enable children to find, explore, analyse, exchange and present information. We also focus on developing the skills necessary for children to use information in a discriminating and effective way. We want children to know more, remember more and understand more in computing so that they leave our school equipped with the skills needed for their next phase of learning. Our children will have the opportunity to develop their creativity and confidence in use technology. Our computing curriculum prepares children to live safely in an increasingly digital society where pupils can evaluate and apply information technology to solve problems.

Implementation

We teach the National Curriculum, supported by a clear skills and knowledge progression. Staff use the Teach Computing published by the National Centre for Computing Education (NCCE) to support their lesson delivery and this allows for the children to build on skills and knowledge year on year and provides coverage in line with the National Curriculum. The units within the scheme are tailored to the context and needs of our children. The children have access to resources whish add the acquisition of skills and knowledge. The scheme is built around the core purpose of the Computing programme of study ensuring that Computer Science, Digital literacy and use of Information Technology is embedded. The children also have access to the hardware and software resources that support the teaching of skills and knowledge within our curriculum. Children cover work on:

- *Computing systems and networks*
- *Creating media*
- *Programming / problem solving / logical thinking*
- *Data and information*
- *E-safety*

Lessons are taught in a cross curricular way if possible to support our thematic teaching approach, but may also be taught as discreet sessions by the class teachers.

Impact

The impact of computing teaching is measured by whether children meet age related expectations by the end of phases. We endeavour for our children to be confident and competent users of technology to support their learning and out of school interests in a safe manner. We want our children to know, apply and understand that matters, skills and process within computing by the time they leave our school.

National Curriculum requirements:

EYFS requirements:

Understanding the World – Technology

- *To recognise that a range of technology is used in places such as homes and schools.*
- *To select and use technology for particular purposes.*

Key stage 1

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.*

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.*

1. *To be able to read, write and speak with confidence and fluency.*
2. *To be able to use mathematical concepts to tackle problems and resolve them.*
3. *To be global citizens that have had cultural experiences beyond their normal lives.*
4. *To aspire our children to dream big in their career path.*
5. *Grow into responsible, respectful young people who value each other.*

Progression through the school

	EYFS	Year 1 and 2	Year 3 and 4	Year 5 and 6
Computer Science *Programming / problem solving / logical thinking*	***Problem Solving*** *– begin to understand what algorithms are.* ***Problem Solving*** *– begin to understand how algorithms used on digital devices.* ***Programming*** *– begin to create and debug simple programs such as giving instructions one at a time.* ***Logical thinking*** *– begin to predict what a program is going to do*	***Problem Solving*** *– understand what algorithms are in daily context.* ***Problem Solving*** *– understand how algorithms are used on devices; and that programs execute precise instructions.* ***Programming*** *– create and debug simple programs by giving more than one instruction.* ***Logical Thinking*** *– use logical reasoning to predict the behaviour of programmes.*	***Problem Solving*** *– Design, write and debug programs that accomplish specific goals.* ***Problem Solving*** *– Control or simulate physical systems.* ***Problem Solving*** *– Solve problems by decomposing them into smaller parts.* ***Programming*** *– Use sequence, selection and repetition in programs* ***Programming*** *– work with various input and outputs such as writing a program to create an output on screen.* ***Logical Thinking*** *– use logical reasoning to explain how some simple sequence algorithms.* ***Logical Thinking*** *– Use logical thinking to detect and correct sequences.* ***Logical Thinking*** *– Understand computer networks including the internet.* ***Logical Thinking*** *– Understand how networks can provide multiple services.*	***Problem Solving*** *– Design, write and debug programs that accomplish specific goals.* ***Problem Solving*** *– Controlling or simulating physical systems experimenting with computer control applications.* ***Problem Solving*** *– Solve problems be decomposing them into smaller parts, planning a solution to a problem.* ***Programming*** *– Use sequence, selection and repetition in programs; work with variables, using sequence, selection and repetition.* ***Programming*** *– work with various forms of input and output, writing a program that accepts keyboard input and produces on-screen output.* ***Logical Thinking*** *– Use logical reasoning to accurately detect and efficiently correct errors in algorithms and programs.* ***Logical Thinking*** *– Understand computer networks understanding the internet as a network of networks.* ***Logical Thinking*** *– Understand how networks can provide multiple services, such as understanding the difference between a domain name and an IP address.*
Digital literacy *E-safety / IT beyond school*	***E-safety*** *– begin to use technology safely and respectfully, knowing they need to stay safe while they are using technology.* ***E-safety*** *– begin to keep personal information private* ***E-safety*** *– begin to identify where to go for help and support when they have concerns about content or contact* ***E-safety*** *– understand what to do if they see disturbing content online* ***Using IT beyond school*** *– begin to*	***E-safety*** *– use technology and respectfully, keeping safe while using digital technology.* ***E-safety*** *– keep personal information private, understanding that information on the internet.* ***E-safety*** *– identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.* ***E-safety*** *– understand what to do if they see disturbing content online at home or school.*	***E-safety*** *– Use technology safely, respectfully and responsibly, using digital technology safely and show respect for others when working online.* ***E-safety*** *– Recognise acceptable/unacceptable behaviours online.* ***E-safety*** *– know a range of ways to report concerns and inappropriate behaviour.* ***E-safety*** *– to know how to report issues and who to talk about any concerning IT behaviour.*	***E-safety*** *– Use technology safely, respectfully and responsibly, demonstrating that they can act responsibly when using the internet.* ***E-safety*** *- Recognise acceptable/unacceptable behaviours online.* ***E-safety*** *– know a range of ways to report concerns and inappropriate behaviour.* ***E-safety*** *– to know how to report issues and who to talk about any concerning IT behaviour.*

	recognise common uses of information technology beyond school, naming some uses of IT beyond school.	***Using IT beyond school*** *– recognise common uses for information technology beyond school, showing awareness of IT is being used beyond school.*	***E-safety*** *– be discerning in evaluating content, deciding whether a web page is relevant for a given purpose.* ***E-safety*** *– Understand the opportunities networks offer for communication and collaboration, contributing to a shared project.*	***E-safety*** *– be discerning in evaluating content, deciding whether digital content is reliable and unbiased.* ***E-safety*** *- Understand the opportunities networks offer for communication and collaboration, contributing to a shared project.*
Information Technology Creating content / Searching	***Creating content*** *– begin to use technology purposefully to organise, store and retrieve, such as ability to store content on a digital device.* ***Creating content*** *– to begin to create content on a digital device with some support.*	***Creating content*** *– use technology to organise, store and retrieve content.* ***Creating content*** *– be able to store and retrieve content from a digital device.*	***Creating content*** *– Select, use and combine a variety of software (including the internet) on a digital device.* ***Creating content*** *– Design and create a range of programs, systems and content that accomplish given goals, designing and creating content on a computer.* ***Creating content*** *– Collect, analyse, evaluate and present data and information.* ***Searching*** *– Use search technologies effectively, searching for information on a single site.* ***Searching*** *– Appreciate how search results are selected and ranked, understanding that search engines rank pages according to keywords.*	***Creating content*** *– Select, use and combine a variety of software (including internet) on a digital device.* ***Creating content*** *– Design and create a range of programs, systems and content that accomplish given goals, designing and creating content on a computer.* ***Creating content*** *– Collect, analyse, evaluate and present data and information, analysing and presenting data accurately.* ***Searching –*** *Use search technologies effectively, using a standard search engine to find information.* ***Searching –*** *Appreciate how search results are selected and ranked, understanding that search engines rank results based in-bound links to a page.*

Whole School Overview

Year	Autumn 1	Autumn2	Spring 1	Spring 2	Summer 1	Summer 2
R / Y1 / Y2 A	*Technology around us*	*Digital writing*	*Grouping data*		*Making music*	
R / Y1 / Y2 B	*Information technology around us*		*Programming animations*		*Digital photography*	*Programming quizzes*
R / Y1 / Y2 C		*Digital painting*	*Pictograms*		*Moving a robot*	*Robot algorithms*
Year 3 / 4 A	*Connecting computers*	*Stop-frame animation*	*Sequencing sounds*	*Branching databases*	*Desktop publishing*	*Events and actions program*
Year 3 / 4 B	*The internet*	*Audio editing*	*Repetition in shapes*	*Data logging*	*Photo editing*	*Repetition in games*
Year 5 / 6 A	*Sharing information*	*Video editing*	*Selection in physical computing*	*Flat-file databases*	*Vector drawing*	*Selection in quizzes*
Year 5 / 6 B	*Internet communication*	*Programming Variables 1*	*Introduction to spreadsheets*	*Sensing*	*3D modelling*	*Webpage creation*

Computing vocabulary – subject specific vocabulary (language you want the children to use and know the definition of)

EYFS & Year 1 & 2

E-safety	***Programming***	***Multimedia***	***Technology in our lives***	***Data handling***
Choices internet website rules online private email appropriate inappropriate	*Equipment buttons movement instructions robots patterns program forward backward right angle turn algorithm sequence debug predict*	*Screen mouse images keyboard paint videos camera stills sounds image bank word bank space bar effects templates animation document index finger typing enter/return caps lock backspace*	*Technology share create internet purpose online tools communicate sources website content*	*Collect sets of photos count organise photographs video sound data pictogram digitally magnified images questions graphs charts save retrieve*

Year 3 & 4				
E-safety ***+ previous vocab*** *Cyber-bullying digital footprint keyword secure passwords block report*	***Programming*** ***+ previous vocab*** *Sequence instruction sequence debugging test + improve logo commands programming Type, edit + logo commands sensors open-ended problems complex programming*	***Multimedia*** ***+ previous vocab*** *Multimedia presentations alignment brush size repeats reflections green screen amend copy paste modifying bullet points spell check*	***Technology in our lives*** ***+ previous vocab*** *Devices computer parts collaborate search tools websites networks information collection reliability owners*	***Data handling*** ***+ previous vocab*** *Questioning database construct contribute recording data present data database searches inaccurate data*

Year 5 & 6				
E-safety *+ previous vocab* *Responsible online Communication informed choice virus threat blogs messaging*	***Programming*** ***+ previous vocab*** *Explore and refine procedures variable hardware software control change inputs commands plan, program, test + review link errors*	***Multimedia*** ***+ previous vocab*** *Online sharing multimedia effects multimedia modifications transition hyperlinks editing tools refining online sharing audience atmosphere structure copyright HTML code storing*	***Technology in our lives*** ***+ previous vocab*** *Computing devices internet parts collaboration searching strategies webpages information movement connecting devices acknowledge resources*	***Data handling*** ***+ previous vocab*** *Spreadsheets complex searches problem solving analyse information question data interpret generate process store plausibility interrogate investigations*