








COMPUTING

AT

HAZEL LEYS ACADEMY



HAZEL LEYS ACADEMY CURRICULUM INTENT

VALUES	  
INTENT	<p>At Hazel Leys Academy, we aim to provide all pupils with a well-sequenced, knowledge-rich curriculum, centered around a stimulating and inclusive educational environment in which everyone feels safe, respected, and supported to grow and develop to their full potential. Our school's vision is to ignite the spark of curiosity in every child. We want to make them excited about learning new things and discovering the world around them.</p> <p>We encourage them to aspire to great heights, to dream big and believe in themselves. With hard work and dedication, we believe they can achieve anything they set their minds to and become exceptional contributors to their communities. Together, we can ignite, aspire, and achieve amazing things!</p> <ul style="list-style-type: none"> • Ignite. We ignite passions. • Aspire. We inspire aspirations. • Achieve. We achieve greatness. <p>The principles of our knowledge-rich curriculum are:</p> <ul style="list-style-type: none"> • Knowledge is valued and specified • Knowledge is well-sequenced • Knowledge is taught to be remembered <p>The content in our curriculum has been carefully chosen by subject experts and has been sequenced in a meaningful way that enables children to make connections and progress from unit to unit, term to term and year to year, supported by additional schemes of work such as Teach Computing, Jigsaw and Primary Languages.</p>   
SKILLS FOR LIFE	<p>The curriculum entitlement supports the development of individual essential skills for life through the Skills Builder aspects:</p> <ol style="list-style-type: none"> 1. Listening 2. Speaking 3. Problem Solving 4. Creativity 5. Staying Positive 6. Aiming High 7. Leadership 8. Teamwork 

OVERVIEW

At Hazel Leys, we know that technology is an integral part of everyday life, with new careers in technology ever evolving. We want to prepare our children for a future which is shaped by technology. It is important that we model and educate our children on how to use technology safely, positively and responsibly. We aim for our pupils to be creators, rather than consumers of technology and our curriculum focused on computer science, information technology and digital literacy to reflect this.

We want our pupils to understand the many choices that come with technology and to understand the lasting imprint their digital footprint leaves. Our computing curriculum aims to engage children in all the different ways that technology can be used positively, moving away from a social media culture. At Hazel Leys, we want the children to become confident with a range of tools to best express their understanding of technology and to feel comfortable using these tools independently as they prepare for key stage 3.

The curriculum fulfils the requirements of the National Curriculum for England. This course of study seeks to show how technology shapes the world around us. The curriculum is split into 6 areas of learning. It is designed so that each year group will complete a unit of work in these different areas once a year. The curriculum is designed on a spiral approach meaning that the themes are constantly revisited so that learning can be consolidated and then built upon.

INTENT

Each unit specifies the concepts and skills which the students are expected to learn over the course of a unit. These concepts and skills progress gradually throughout the course of the six years of study. At Hazel Leys, our computing curriculum is the “Teach Computing” scheme. The intent of the curriculum is for all learning outcomes to encapsulate the disciplines of computing:

- Algorithms
- Computing networks
- Computing systems
- Creating media
- Data and information
- Design and development
- Effective use of tools
- Impact of technology
- Programming
- Safety and security

The “Teach Computing” scheme is designed to support all pupils, with lessons being sequenced so that it builds on the learning from the previous lesson. Activities are scaffolded so that all pupils can succeed and thrive. Options for deepening understanding are available in all lessons.

IMPLEMENTATION

At Hazel Leys, the sequence of lessons follows a structure to enable the students to become familiar with, understand and practise using technology. Planning for each unit of work specifies the discipline/skills the children will work on. Throughout the course of the lessons the students explore how to use technology to create content safely, positively and responsibly. All staff know that modelling is an important part of the teaching process, as such, lessons are structured in order to support the children to use technology independently.

The students’ understanding of key skills and concepts builds from year to year, assessing and cementing prior learning, and therefore the implementation of the curriculum in the given sequence is crucial. Built within the “Teach Computing” scheme is the “Education for a Connect World” framework, which aims to support and broaden the provision of online safety education. We believe that high quality online safety must be taught if children are to keep themselves safe in the virtual world. It is therefore essential to ensure pupils are equipped with the skills to recognise risks online, to be critically aware of the materials and content they access online, along with guidance on how to accurately validate information accessed via the internet. In addition to this provision, the whole school participates in 'Safer Internet Day' in February to reinforce the importance of using technology responsibly.

Alongside our curriculum, staff make connections with local STEM hubs to ensure that the children have access to up-to-date technology. STEM ambassadors are invited into school to talk to the children about careers in technology and to apply their learning to the wider world. Computing is taught every week from years 1-6, with opportunities to use technology in other curriculum areas.

EYFS

The children in the Early Years will have daily opportunities to use technology. Technology is incorporated into daily lessons, so that the children can see the far-reaching uses that technology can have, but also so that staff can model how to use it responsibly and positively. The aims of technology in the Early Years is to familiarize pupils with technology that will use more formally in Key Stage 1. Children will have access to iPads, interactive whiteboards, laptops, keyboards, bee-bots, cameras, and other recording devices. Staff will use role play opportunities for children to act how they can use technology.

Digital literacy is a fundamental skill for all and this starts in the Early Years. By introducing computing to our youngest pupils, it will help them get to grips with technology, preparing them for a world where digital skills are essential. E-safety is also delivered to the children in EYFS to support them form healthy relationships with technology.

Every unit of work covers all of the Early Learning Goals (ELG’s) within the Early Years Framework.

IMPACT

The impact of this curriculum design will lead to progress across key stages relative to a child's individual starting point and their progression of skills. Our Computing curriculum will also lead pupils to be enthusiastic learners, evidenced in a range of ways, including pupil voice, work scrutiny and confidence when using technology. We ensure that children who are achieving well, as well as those who need additional support, are identified, and additional provision and strategies are planned in and discussed with class teachers.

We will measure the impact of our curriculum through the following methods:

- Annual reporting of standards across the curriculum.
- A reflection on standards achieved against the planned outcomes;
- A celebration of learning for each term which demonstrates progression across the school;
- Pupil discussions about their learning; which includes discussion of their thoughts, ideas, and evaluations of work.

Pupils should leave school equipped with a range of skills to enable them to succeed in their secondary education and be innovative and resourceful members of society. We will be able to evaluate the impact of our Computing curriculum through recording the children's voice and monitoring the work that they produce.

We expect that children will be able to demonstrate:

- Confidence when using technology.
- An understanding of algorithms.
- An understanding of how computer networks can be used to retrieve and share information.
- An understanding of what a computer is and how its constituent parts function together as a whole.
- How to select and create a range of media.
- How data is stored, organised and used to represent real world artifacts and scenarios.
- An understanding of activities involved in planning, creating and evaluating computing artifacts.
- How to use software tools to support computing work.
- An understanding of individuals, systems and society as a whole interacts with computer systems.
- How to use software to allow computers to solve problems.
- An understanding of risks when using technology and how to protect individuals and systems.
- The end of key stage expectations outlined in the National curriculum for Computing.

CURRICULUM OVERVIEW

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 1	Technology around us Recognising technology in school and using it responsibly.	Digital painting Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.	Moving a robot Writing short algorithms and programs for floor robots, and predicting program outcomes.	Grouping data Exploring object labels, then using them to sort and group objects by properties.	Digital writing Using a computer to create and format text, before comparing to writing non-digitally.	Programming animations Designing and programming the movement of a character on screen to tell stories.
Year 2	Information technology around us Identifying IT and how its responsible use improves our world in school and beyond.	Digital photography Capturing and changing digital photographs for different purposes.	Robot algorithms Creating and debugging programs, and using logical reasoning to make predictions.	Pictograms Collecting data in tally charts and using attributes to organise and present data on a computer.	Digital music Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.	Programming quizzes Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.

National Curriculum Coverage – Years 1 and 2	1.1 Technology around us	1.2 Digital painting	1.3 Moving a robot	1.4 Grouping data	1.5 Digital writing	1.6 Programming animations	2.1 Information technology around us	2.2 Digital photography	2.3 Robot algorithms	2.4 Pictograms	2.5 Digital music	2.6 Programming quizzes
	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 on the internet or other online technologies	✓			✓	✓		✓	✓	✓	✓		

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 3	Connecting computers Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks	Stop-frame animation Capturing and editing digital still images to produce a stop frame animation that tells a story	Sequencing sounds Creating sequences in a block-based programming language to make music.	Branching databases Building and using branching databases to group objects using yes/no questions.	Desktop publishing Creating documents and modifying text, images and page layouts for a specific purpose.	Events and actions in programs Writing algorithms and programs that use a range of events to trigger sequences of actions.
Year 4	The internet Recognising that the internet is a network of networks including the WWW, and why we should evaluate online content.	Audio production Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	Repetition in shapes Using a text-based programming language to explore count-controlled loops when drawing shapes.	Data logging Recognising how and why data is collected over time, before using data loggers to carry out an investigation,	Photo editing Manipulating digital images, and reflecting on the impact of the changes and whether the required purpose is fulfilled,	Repetition in games Using a block-based programming language to explore count-controlled and infinite loops when creating a game.

National Curriculum Coverage – Years 3 and 4	3.1 Connecting computers	3.2 Stop-frame animation	3.3 Sequencing sounds	3.4 Branching databases	3.5 Desktop publishing	3.6 Events and actions in programs	4.1 The internet	4.2 Audio production	4.3 Repetition in shapes	4.4 Data logging	4.5 Photo editing	4.6 Repetition in games
	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.		✓		✓			✓	✓			✓	

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 5	Systems and searching Recognising IT systems in the world and how some can enable searching on the internet.	Video production Planning, capturing, and editing video to produce a short film.	Selection in physical computing Exploring conditions and selection using a programmable microcontroller.	Flat-file databases Using a database to order data and create charts to answer questions.	Introduction to vector graphics Creating images in a drawing program by using layers and groups of objects.	Selection in quizzes Exploring selection in programming to design and code an interactive quiz.
Year 6	Communication and collaboration Exploring how data is transferred by working collaboratively online.	Webpage creation Designing and creating webpages, giving consideration to copyright, aesthetics and navigation.	Variables in games Exploring variables when designing and coding a game.	Introduction to spreadsheets Answering questions by using spreadsheets to organise and calculate data.	3D modelling Planning, developing, and evaluation 3D computer models of physical objects.	Sensing movement Designing and coding a project that captures inputs from physical devices.

National Curriculum Coverage – Years 5 and 6

	5.1 systems and searching	5.2 Video production	5.3 Selection in physical computing	5.4 Flat-file database	5.5 Introduction to vector graphics	5.6 Selection in quizzes	6.1 Communication and collaboration	6.2 Webpage creation	6.3 Variables in games	6.4 Introduction to spreadsheets	6.5 3D modelling	6.6 Sensing movement
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.	✓	✓						✓	✓		✓	

SEND – Strategies for supporting access

- Break down learning – now/then
- Adult support – start off then independent
- Images to support- presentations to model steps
- Specific simple instructions
- Adaptive teaching
- Partner work (if needed)

Enrichment

Educational visits are another opportunity for Art to take place outside of the classroom.

- Local jobs using computing
- Creating for a purpose
- Internet safety day
- Jam Coding

SUBJECT LEADERSHIP AND DEVELOPMENT

Subject Strengths

- Laptops and iPads available.
- Clear computing progression.
- Resources to support staff.

Areas to Develop

- Consistency of computing lessons.
- Staff confidence in delivering computing.

Monitoring

- T1 Focus – Lesson observations, pupil voice, work scrutiny, PP focus.
- T2 Focus – Lesson observations, pupil voice, work scrutiny, SEND/EAL focus.
- T3 Focus – Lesson observations, pupil voice, work scrutiny, INT/PP focus.

CPD

- How to use Teach Computing
- STEM ambassador
- Teaching computing teacher certificate