

	Name of School	Corbets Tey School
	Policy Review Date	Autumn Term 2021
	Next Review Date	Autumn Term 2022
	Reviewed by	Governor Name: Phil Brimson Governor Signature: 

Computing Policy

Equality Impact Assessment

The school aims to design and implement services, policies and procedures that meet the diverse needs of our provision, population and workforce, ensuring that none are placed at an unreasonable or unfair disadvantage over others. We are confident that this policy does not place anyone at an unreasonable or unfair disadvantage, and is compliant with relevant equalities legislation.

1. Introduction

Computing is concerned with how computers and computer systems work, and how they are designed and programmed. Students studying computing will gain an understanding of computational systems, sequences and algorithms of all kinds, whether or not they include computers. Computational thinking provides insights into many areas of the curriculum. It includes prediction, problem solving, and changing and editing (debugging) solutions in order to achieve a desired outcome. This has applications in all areas of life and therefore these principles can influence thinking in every curriculum area and on many different levels. These concepts can be made accessible and appropriate for all of our students at every age and ability and can help to develop higher level thinking and problem solving skills.

Students are encouraged to develop a confident and safe approach to Computing and the use of technology, with the understanding of the capabilities and limitations of their resources. Online Safety Policies should be read in conjunction with this policy.

2. Purpose

- We believe that we have an obligation to equip our students with the skills to use technology as a tool to support them throughout their lives. As educators we must ensure that students are aware and excited by the developing state of technology and its importance in the world. We recognise that technology can facilitate communication and independence for students, within school and the wider community, and is particularly suited to develop the attention, concentration and engagement of students at Corbets Tey.
- We believe that technology should be embedded throughout the curriculum to make learning motivating and engaging so that skills are applied and reinforced and that standards will be raised across the curriculum.
- We believe that every student and member of staff is entitled to become a confident and competent user of technology and that a culture of development and improvement in our provision is important to ensure continued motivation in students and staff. Therefore, our provision will be continually reviewed and refined in line with current developments, the needs of the students and the training needs of staff.

3. Aims

- Computing Leaders and the Senior Leadership Team support staff to deliver a high quality computing education across the whole curriculum by providing consultation, planning support, staff training, staff surveys and appropriate resources such as software/hardware, schemes of work and physical resources.
- Computational thinking (the ability to solve problems in a creative logical and collaborative way) is developed through repeated exposure to a wide range of practical and conceptual learning opportunities to build understanding and apply the concepts of computer science.
- Students become responsible, competent, confident and creative users of information and communication technology.
- Students have a growing awareness of how technology is used in the world around them and of the benefits and challenges that it provides. They are supported to evaluate and use information technology, including new or unfamiliar technologies.
- Opportunities for communication and collaboration allow students to develop a functional, social purpose for using technology in the real world.
- Technology facilitates home and school learning opportunities.
- Technology is used imaginatively to engage all learners and widen their learning opportunities.
- Students have access to a variety of devices and resources and are encouraged to reflect on the choices they make to use them.
- We expect our students to:
 - Develop computing skills, knowledge and understanding;
 - Develop an understanding of the wider applications of computer systems and communication technology in society;
 - Develop independent and logical thinking through reasoning, decision making and problem solving;
 - Develop imagination and creativity;
 - Work independently and collaboratively.

4. The Nature of Computing

The National Curriculum presents the subject as a way for students to understand the world. There is a focus on computational thinking and creativity, as well as opportunities for creative work in programming and digital media. The introduction makes clear the three aspects of the computing curriculum: computer science (CS), information technology (IT) and digital literacy (DL).

The core of computing is computer science, in which students learn the principles of computation, how digital systems work and how to experiment using sequences, algorithms and programming. Building on this knowledge and understanding, students are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that students become digitally literate, are able to use and express themselves and develop their ideas through information and communication technology at a level suitable for their futures; in their daily lives, in the workplace and as active participants in a modern digital world. They also gain an awareness of how to stay safe online at an appropriate level of understanding and likely exposure to risk.

5. Entitlement

The National Curriculum 2014 states that students should be taught to:

	Key Stage 1	Key Stage 2	Key Stage 3	Key Stage 4
Computer Science	<p>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</p> <p>Create and debug simple programs</p> <p>Use logical reasoning to predict the behaviour of simple programs</p>	<p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</p> <p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p> <p>Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web</p> <p>Appreciate how [search] results are selected and ranked</p>	<p>Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems</p> <p>Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem</p> <p>Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions</p> <p>Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]</p> <p>Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems</p> <p>Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits.</p>	<p>Develop and apply their analytic, problem-solving, design, and computational thinking skills</p>

	Key Stage 1	Key Stage 2	Key Stage 3	Key Stage 4
Information Technology	Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Use search technologies effectively 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	Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability	Develop their capability, creativity and knowledge in computer science, digital media and information technology
Digital Literacy	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	Understand the opportunities [networks] offer for communication and collaboration Be discerning in evaluating digital content Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.	Understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns. All students must have the opportunity to study aspects of information technology and computer science at sufficient depth to allow them to progress to higher levels of study or to a professional career.

Early Years

- In the Foundation Stage, Information Communication Technology requirements are stated within the Knowledge and Understanding of the World element of the Early Learning Goals Foundation Curriculum.
- Students build confidence to use technology purposefully to support their learning for all Early Learning Goals as appropriate.
- Students in Foundation Stage class will have experiences using technology indoors, outdoors and through role play in both child initiated and teacher directed time.

6. Roles and Responsibilities

- The school community works together to ensure the implementation of the Computing curriculum.
- The Senior Leadership Team, assisted by the Enterprise and Technology Lead, are responsible for monitoring curriculum coverage and the impact of teaching and learning and assists teaching staff in its implementation.
- Class Teachers are responsible for the delivery of an effective Computing curriculum within an appropriate curriculum pathway and integrating this into their planning of other subject areas where this is appropriate.
- The school receives technical support from Joskos, and the technician is responsible for the maintenance of computers, printers, the school network and keeping software up to date. The Enterprise and Technology Lead liaises with the technician to ensure that systems are running efficiently and effectively for the needs of the school.

7. Implementation

- Computing is taught both as a discrete subject, and cross-curricular throughout the curriculum where this adds to the richness and diversity of teaching and learning.
- Students working below National Expectations at Year 1 will work on developing early technology skills within the Learning Pathway (see Assessment Policy)
- The school's Computing Curriculum Framework (see section 10) details coverage of skills and links to the school's Computing resources to support learning.
- The school has a range of resources to support the delivery of the Computing Curriculum, the Early Years Framework and learning across all areas of the National Curriculum.
- Access to the computing curriculum is through a range of resources such as:
 - Specialist cause and effect resources (e.g. OmiVista Projector, iSandBOX)
 - Laptops, Chromebooks and desktop computers
 - iPads and a wide range of appropriate apps covering skills in many subject areas
 - Programmable and control resources (e.g. BlueBots, Code-a-Pillar)
 - Cause and effect toys (e.g. remote control cars, pull along toys, friction cars)
 - Switch Operated resources and switch interface hardware (APPLICATOR, Big Macs, etc)
 - Eye gaze hardware and software
 - Assistive technology (e.g. specialist key pads, overlay keyboards, touch screens, switches)
 - Electronic musical instruments and systems (e.g. ClipHit, Sound Beam, Cosmo)
 - Digital cameras, scanners, printers
 - Voice-operated equipment (eg: Alexa, Google, etc.)
 - The Internet and e-mail via LGFL LondonMail and Google Classroom Tools
 - Specialist Software (Clicker, Widgit, etc)
- Online Subscriptions are maintained to support learning such as:
 - Education City
 - LGFL Content Grid
 - Twinkl
 - HelpKidz Learn
 - Choice Maker

8. Curriculum Organisation

Each term classes will develop medium term and weekly plans.

Feedback will be sought from class teacher or tutors by the computing lead to improve future curriculum and resource planning and training support.

Guidance in iPad apps and their relevance within curriculum areas is provided through training and support to enhance curriculum access for all students.

Home-School support in using technology is provided through Homework activity ideas booklets with linked technology accessible at home. This will be made available in hard copy and on the school website. Parents are also kept up to date with technology and online safety support through regular Technology and Online Safety information sent home electronically and in hard copy.

9. Progression and Continuity

At Corbets Tey School we plan activities in Computing so that they build on the children's prior learning. We give children of all abilities the opportunity to develop their skills, knowledge and understanding, ensuring an increasing challenge for each child. Individual learners are able to make progress in the acquisition of concepts, knowledge and skills at the rate most appropriate to their ability and stage of development.

Within the National Curriculum many attainment levels may not be achievable for our students within their actual year groups. Therefore, the curriculum is planned and taught in terms of appropriate learning pathways and multi-sensory approaches to engagement and the development of functional skills.

10. Computing Curriculum Pathway Frameworks

(see Shared Staff Network Drive - *T:\AAA School Documents\PLANNING\SPECIALIST SUBJECT PLANNING\COMPUTING\Computing Curriculum Map NEW\ComputingPathwayMaps*)

The school is organized through curriculum pathways which represent the most appropriate curriculum, learning approaches and assessment and target setting for each student.

- **Green** - Multi-sensory Communication Curriculum with a focus on functional communication & life skills development
- **Orange** - Personalised programmes focused on functional communication & life skills development
- **Purple** - Personalised programmes delivered through NC and functional targets

The Computing Curriculum framework has been organised to reflect the three curriculum pathways through the school and most appropriate skills to focus on at each level.

Each Computing Pathway is divided into the three computing strands:

- **Computer Science** - Computational thinking, solving problems, sequences and writing programs
- **Digital Literacy** - Online safety, solving problems by using technology
- **Information Technology** - Understanding how information is used and shaped

Each strand is then divided into progressive sets of skills that can be taught within each level of student capability and understanding.

Appropriate resources are identified and linked to each strand to assist teachers awareness of the technology resources at the school and to utilize these in teaching computing skills.

These include;

- Schemes of Work (Switched on Computing, Greenwich, Newham, Equals)
- Online Lesson Plans (Barefoot Computing, etc)
- iPad Apps
- Clicker Resources/Apps
- Online Learning Platforms (Google, Apple, Microsoft, Adobe Spark, etc.)
- Physical Books
- Online Resources (Education City, Just 2 Easy, BBC Bitesize, etc.)
- Physical Resources (Osmo, BeeBots, WeDo, etc.)

Switched on Computing Units are adaptable and teachers can incorporate the learning activities with work in other subject areas.

11. Curriculum Planning

- Planning for computing is implemented using two core documents: the National Curriculum Programme of Study (POS) for Computing and the Statutory Framework for Early Years Foundation Stage.
- Computing is included in Long Term Curriculum Overviews and published on the school website www.corbetsteyschool.org.uk.
- Medium (Termly) Plans and Short Term (Weekly) Plans detail where technology is used both within Computing and throughout other subject areas.
- Learning through the use of technology is integrated into activities in other curriculum areas and especially where technology makes learning more accessible and engaging.

12. Class Planning

Class teachers are responsible for writing medium term class plans and weekly short term plans with the computing and technology either taught as a discreet lesson or within other subject areas with the use of technology to support learning and to develop computing skills and knowledge.

Weekly planning will be informed by progress and individual personalised targets for each student and assessment towards specific learning objectives.

Suitable learning opportunities are provided for all children by matching the challenge of the task to the ability and experiences of the child. We achieve this in a variety of ways by:

- Setting open ended tasks, which can have a variety of responses;
- Setting tasks of increasing difficulty (not all children complete all tasks);
- Using the computer and interactive whiteboard to generate discussion or collaboration to a group of students or the whole class;
- Individual or paired work;
- Peer support or collaboration for mixed ability students;
- Collaborative work in groups;
- Co-operative activities in groups;
- Setting different tasks for each ability student group;
- Using classroom assistants to support the work of individual children or groups of children.

13. The school's arrangements for assessing and reviewing the progress of students

The school uses a range of assessment systems, which provides a small step assessment of each student's progress and skill attainment. These include:

- Verbal Behavior Milestones Assessment and Placement Program (VB-MAPP) milestones/task analysis skill acquisition, barriers to learning and transitions assessment and target setting.
- Functional skills assessment.
- iPad apps (Proloquo2Go, Snap Core First and Clicker Communicator) data sheet tracking of communication and interaction skill acquisition through progressive levels of communication.
- TacPac Assessment combines touch and music to promote communication and social interaction, sensory, neurological and emotional development.
- Intensive Interaction to improve non-verbal communication and social interaction skills.
- Precision Teaching intensive assessment of phonics.
- Learning Pathway Assessment (under Year 1 expectations).
- Twinkl and Rising Stars Assessment Progress Tests in English, Maths and Science.
- Rising Stars Progression Frameworks at Year1 and above.
- Personal Learning Goals (PLGs) through Evidence for Learning where teachers regularly set and evidence progress towards current targets that are challenging, relevant and promote functional skills individualised for each student.

14. Inclusion

- All students, regardless of race or gender, shall have the opportunity to develop computing skills.
- Children with a computer at home are encouraged to use it for educational benefit and parents are offered advice about safety and appropriate use.
- The school is aware that not all students have the same access to computers at home and this is considered in the planning and delivery of the curriculum.
- Class teachers differentiate work by task, resource or support, to ensure the individual needs of all students are met.

15. Augmentative and Alternative Communication (AAC)

People of all ages with complex speech, language, communication and interaction difficulties use a range of AAC methods to assist them to communicate their wants, needs and views.

AAC includes non-technological systems such as signing, use of symbols and picture charts as well as sophisticated technology including dedicated computerised systems and voice output communication aids. Without support, people with communication difficulties are unable to realise their potential and face social isolation, dependency, a decreased quality of life, and increased care costs.

Communication is more than giving someone a message, but needs to allow a person to initiate and end interactions, maintain different topics of conversation, make requests, relate information and allow a historical narrative to be maintained. AAC strategies can help a person communicate wants, needs, thoughts, and ideas and express their personality when they are unable to use speech.

The school has taken a pro-active approach to initiating and introducing the use of AAC devices through iPad Minis and Proloquo2Go, Snap Core First and Clicker Communicator apps. This is trialed in classes where a communication need has been identified for a particular student and other communication methods have been tried and found to be ineffective and non-functional for the particular student (eg: speech or signing).

Where a need for an alternative communication method is identified for a student, the introduction of high tech devices can be completed in consultation and referrals from a wide

range of external professionals such as speech and language therapists, local AAC development teams and other national communication services. Progress will be monitored against and grids updated with an increasing range of buttons and folder structure complexity in line with student need and ability.

Eye gaze technology is available for use with a number of students who require an alternative method of communication to speech or sign but also struggle with the physical demands of using more traditional AAC equipment.

With the use of this hardware and specialist software (Insight), we are able to analyse early vision skills including:

- Looking at Images (detection and fixation).
- Visual Attention (sustained fixation).
- Tracking (fixation and smooth pursuit movements).
- Recognition (perception and memory skills).
- Inspecting (shifting gaze and saccadic movements).
- Searching (discrimination and comparison skills).

Eye gaze differs from other access devices in that the on screen visual tracking of where the student is looking can provide an insight into the information the student is processing visually. Through this observation and awareness of where a student is looking we can gain an insight into what is happening cognitively (how the student is thinking) to make something happen or to solve a problem on the screen.

16. Online Safety

- Opportunities for learning about online safety are part of the PSHE and RSE curriculum and reinforced whenever technology is used.
- Students are regularly reminded about online safety issues at a level that is appropriate to their understanding and need.
- Digital Literacy strand within the Computing Curriculum framework details Online Safety Skill coverage in each pathway.
- Parents sign the acceptable user policy agreement when their child joins the school.
- Switched-On computing units ensure progression and coverage for the responsible use of technology.
- The school has an Online Safety Policy in place detailing how the principles of online safety are promoted and monitored.

17. Health and Safety

- Equipment is maintained to meet agreed safety standards.
- Students are taught to respect and care for technology equipment.
- Further guidance can be found in the school's Health and Safety Policy.

Associated Policies and other Documents

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| <ul style="list-style-type: none"> • Online Safety Policy • What Do We Do If Policy • Assessment Policy • PSHE Policy | <ul style="list-style-type: none"> • Health and Safety Policy • Computing Curriculum Pathway Frameworks (Green, Orange and Purple) • Social Media Policy |
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