Cornerstone Multi Academy Trust

Computing Policy

Mission Statement

Cornerstone Academy Trust creates and promotes challenging learning environments that inspires children to achieve high standards and become life-long learners. The trust has high-expectations, builds children's confidence, and ensures success for all. We seek to foster creative thinkers, inquisitive questioners and avid problem solvers with flexible skills, who are successful communicators. Children learn to collaborate effectively at all levels, including working with our international partners and are able to adapt to the needs of a diverse and fast changing society.

Breadth of study

Aims

Careful planning and preparation ensure that throughout the trust children engage in:

- practical activities and tasks using a variety of digital, physical and 'unplugged' resources
- problem solving and debugging to challenge thinking
- individual, paired, group and whole class learning and discussions
- purposeful practise where time is given to apply their learning
- open and closed tasks
- a range of approaches to learning, including tinkering, debugging, creating, persevering and collaborating
- working with technology and devices as a computing tool

Teachers planning and organisation

The National Curriculum for Computing (2014) and the Teach Computing Curriculum provide the basis of our computing curriculum taught across the trust.

Teachers work in year group teams across the trust to plan and deliver lesson sequences, based on the termly curriculum document and mapped out in the year group OneNote notebook. In this way they support and develop the year group team through shared planning, shared resourcing and an ongoing professional dialogue which is expected to accompany each weeks' delivery in class. Teachers endeavour to provide plenty of time to build elements of computational thinking into the wider curriculum.

Timings

All classes have a unit of computing lessons each half term which are enriched by integrating activities founded in computational thinking approaches across the curriculum and as part of before and after school activities and clubs. Due to the trust's approach to

digital tools across the curriculum, aspects of computing are reinforced more broadly, particularly in the attitudes and IT skills which would be used in other learning areas such as typing and using input devices or touch screens, working on a range of software and elements of digital literacy.

Resources

Resources are undoubtedly a key ingredient for delivering a successful computing education, whether that be physical technology with an IT focus, online software to fine tune digital literacies, or the practical, tactile 'unplugged' resources, which are understood to be a core tool in developing children's computing understanding. Nearly all 21st-century schools and businesses rely on technology to operate. By understanding how computers work, children will feel more comfortable and knowledgeable about the world we live in. They'll feel more confident with tasks that require an understanding of technology and will be able to share their knowledge with others.

Each class has access to a range of core resources that are age appropriate. These include, but are not limited to:

- Beebots (EYFS)
- iPads
- Microsoft Surfaces (1:1 provision Year 1-6)
- Unplugged resources, taking form in many varieties

These resources are readily available for all classes across the trust. In this way, shared planning is possible based on equivalent resource availability.

Online Resources

A large part of the computing curriculum is best delivered through the use of online resources. We have a catalogue of software subscription to enable us to do this. Again, each class has access to a range of online resources that are age appropriate. These include but are not limited to:

- Discovery Education Coding
- Scratch
- Purple Mash 2Code
- Minecraft Education
- Microsoft Hacking STEM
- MakeCode
- Code.org
- Kodu

The skills they will acquire from these online experiences will be even more valuable in later life. As technology continues to progress and the resources, we offer at Cornerstone progress with them, your child will have the foundational knowledge to understand new innovations and learn how to use them quickly and efficiently. With these fantastic resources, you can encourage children to move out of their comfort zone and explore the fascinating world of computing.

EYFS

The EYFS framework is structured very differently from the National Curriculum and is split into 7 areas of learning rather than subject areas. There are statements within the framework which act as pre- requisite skills for computing in KS1. The most relevant statements for computing are taken from the following areas of learning:

- Personal, social and emotional development
- Physical Development
- Understanding the World
- Expressive Arts and Design

Two and three year-olds are encouraged to follow rules and understand why they are important, match their developing physical skills to tasks and activities and explore how things work. In Reception children are encouraged to show resilience and perseverance in the face of a challenge, develop their small motor skills and know and talk about the different factors that affect their overall health and well- being, including understanding the importance of a healthy amount of screen time.

Children in EYFS have access to a range of devices including iPads, Desktops or Microsoft Surfaces and large table-top computers. They are used as part of planned continuous provision activities and encourage the children to practice skills such as using software eg. mice and keyboards, taking photos and using painting and graphics applications.

SEND / Able Pupils

Computing lessons are inclusive of pupils with Special Educational Needs and disabilities. Where required, children's IEP's incorporate suitable objectives from the National Curriculum for Computing or Development Matters and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the lesson. Focused intervention in school helps children with gaps in their learning and understanding. These are delivered by trained support staff and overseen by the SENCO and/or the class teacher.

Within the computing lessons, teachers have a responsibility to not only provide differentiated activities to support children with SEND but also activities that provide sufficient challenge for children who are high achievers. It is the teachers' responsibility to ensure that all children are challenged at a level appropriate to their ability. Where relevant, the trust Pupil Premium policy also details how additional support or challenge may be delivered.

Equal Opportunities

Positive attitudes towards computing are encouraged, so that all children, regardless of race, gender, ability or special needs, including those for whom English is an additional language, develop an enjoyment and confidence with computing. This policy is in line with the school's 'Racial Equality' policy. The aim is to ensure that everyone makes progress and gains positively from lessons and to plan inclusive lessons. Lessons involving lots of visual, aural and kinaesthetic elements will benefit all children including those for whom English is an additional language (EAL).

Differentiated questions are used in lessons to help children and planned support from Teaching Assistants and other adults. In all lessons, learning objectives and success criteria are clearly displayed and discussed. The emphasis in lessons is to make teaching interactive and lively, to engage all children encouraging them to talk about computing.

Lessons involve elements of:

- Instruction – giving information and structuring it well;
- Demonstrating – showing, describing and modelling computing using appropriate resources and visual displays;
- Explaining and illustrating – giving accurate and well-paced explanations;
- Questioning and discussing;
- Consolidating;
- Reflecting and evaluating responses – identifying mistakes and using them as positive teaching points;
- Summarising – reviewing computing that has been taught enabling children to focus on next steps

Pupils' Records of Work

All children will have a computing area of their OneNote area in which the majority of their computing work will be collected and evidenced. OneNote is used with the class notebook tool to allow pupils and teachers to snapshot work and evidence learning as is appropriate to the age of the learner.

Marking

Marking of children's work is marked against success criteria, in line with the trust marking policy, and includes next steps. Children are encouraged to self-assess their work and ideally given time to read teachers' comments and make corrections or improvements and to identify where they have made misconceptions and how to resolve them. Responses to marking are made as close to the work as possible, ideally at the start of the next lesson. Some pieces of work in computing may be marked by children themselves or their peers, exercises involving routine practice with support and guidance from the teacher – particularly in Years 5 & 6. Tools within OneNote and Office365 are also used as appropriate to snapshot evidence of learning or to match to children's individual targets.

Marking Virtually

Marking and feedback for children working virtually is achieved in a similar way as mentioned above. Work is marked against criteria in line with the trusts policy. Using assignments in MS Teams, teachers can create specific criteria and rubrics for a given assignment. Once they have had the assignment returned, teachers can provide children with tailored feedback and next steps which are immediately returned to the child to view.

Assessment and Recording

Teachers regularly assess progress through observations and evidence. Key objectives to be assessed are taken from the National Curriculum to assess computing each term. The school uses Teach Computing objectives as a guide when assessing pupils after each unit of work. Assessing computing is an integral part of teaching and learning and key to good practice. Assessment should be process orientated - reviewing the way that techniques and skills are applied purposefully by pupils to demonstrate their understanding of computing concepts. As assessment is part of the learning process, it is essential that pupils are closely involved.

Assessment can be broken down into:

· Formative assessments are carried out during and following short, focused tasks and activities. They provide pupils and teaching staff the opportunity to reflect on their learning in the context of the agreed success criteria. This feeds into planning for the next lesson or activity.

· Summative assessment should review pupils' ability and provide a best fit 'level'. Independent tasks provide a number of opportunities and scope for pupils to

demonstrate their capability throughout the term. There should be an opportunity for pupil review and identification of next steps. Summative assessment should be recorded for all pupils.

We assess the children's work in computing by making informal judgments as we observe the children during lessons. Once the children complete a unit of work, we make a summary judgment of the work for each pupil as to whether they have yet to obtain, obtained or exceeded the expectations of the unit.

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and evaluated in light of these assessments.

Role of the Computing Lead

· To lead in the development of computing throughout the trust.
· To monitor the planning, teaching and learning of computing throughout the trust.
· To help raise standards in computing.
· To provide teachers with support in the teaching of computing.
· To provide staff with CPD opportunities in relation to computing within the confines of the budget and the School Improvement Plan
· To monitor and maintain high quality resources.
· To keep up to date with new developments in the area of computing.

Appendices:

1. Progression in the Teaching of Computing.

Appendix 1: Progression in the Teaching of Computing

Areas of use

ICT Across the School

Pupils in the Early Years Foundation Stage (EYFS) begin to learn how to log on and are shown what websites to use on the computer. In addition, they are introduced and encouraged to participate in programming activities where the children apply their ability to problem solve and find an outcome to the problem. Children are then able to begin to explain how to be safe online and what they should do if something happened.

Examples:
- Begin to log in using 'Windows Hello' for support
- Know and demonstrate how to be safe online
- Digital inking
- Programme basic algorithms through talk and actions
- Begin to programme basic algorithms through computer software
- Learn how to use Office 365 and other software as a resource and tool for learning

As the children move into Year 1 they continue to develop how to apply their computer knowledge in their day to day work, as a tool for learning and programming. The children experience a wider range of software in Year 1 than they do in the EYFS that the teacher models and explores in the class with the children.

Pupils have a secure understanding across the school of how to use IT to enhance their learning which is supported and modelled by members of staff. In particular, children effectively use Office 365's wide range of tools to view resources, produce their own work and then present their work.

Examples:
- OneNote
- Sway
- Forms
- PowerPoint
- Yammer
- Outlook

In addition to using Office 365's tools, both staff and children use a wide range of software to enhance learning. The software used allows staff to set assigned activities that are pitched appropriately to the child's ability.

Examples:
- Accelerated Reader/Maths
- Spellodrome/ Mathletics
- Espresso
- Purple Mash
- Literacy Planet
- LanguageNut
- ClickView

Communication and collaboration

Pupils use ICT to communicate, collaborate and share ideas, allowing them to work together in new ways with others, both in school and globally, and changing the way in which knowledge is created.

Examples:

- Make and edit TV programmes for broadcast in school and beyond
- Collaborate with overseas pupils via video conference
- Make, edit and publish videos and podcasts
- Participate with others in the development of wikis
- Create and use blogs
- Create computer-based games
- Web publishing

Exploring ideas and manipulating information

Pupils solve problems creatively by using ICT to find information, explore ideas and try alternatives. They identify patterns and test hypotheses by using ICT to research topics and model different scenarios.

Examples:

- Create spreadsheets to plan project work.
- Use and create spreadsheets to explore patterns and relationships between variables.

- Undertake web-based research of text, images and sounds and to use this to, acquire and develop knowledge, and to test hypotheses.
- Develop sequences of instructions to control artefacts or models.

<u>Critical evaluation</u>

Pupils review and reflect critically on what they and others produce using ICT. Older pupils learn that information should not be taken at face value, but should be analysed and evaluated to take account of its purpose, author, currency and context.

Examples

- Express views on their own work and that of others; recognise how ICT can help to improve it
- Use blogs, learning diaries, video diaries etc to reflect on their work
- Develop an appreciation of visual literacy eg in photographs, TV programmes, videos, PowerPoint screens etc.
- Learn to receive and act on constructive criticism from others
- Evaluate websites and the information contained in them

<u>Understanding the Impact of technology</u>

Pupils explore how ICT changes the way we live our lives and has significant social, ethical and cultural implications. They learn to recognise issues of risk, safety and responsibility surrounding the use of ICT.

Examples:

Pupils consider:

- How ICT has changed the way people find information, shop, learn, communicate with others etc.
- How ICT has changed entertainment – eg videos, music, games etc.
- How ICT has changed the world of work – eg PoS terminals, web-based marketing.
- The opportunities and risks associated with online communication and their own responsibilities in this area.
- Computer-based crime.

<u>Programming and Computer Science</u>

Teaching and learning programming demonstrates Cornerstone's mission statement and provides rich opportunities for pupils to be creative thinkers, inquisitive questioners and avid problem solvers. Programming encourages children to become problem solvers by explicitly asking them to create an algorithm where an outcome is evident. For them to achieve this they will use different programming language to build their algorithm, reason about why a problem might occur and work through the problem systematically in order to find a fix.

More competent members of staff support staff members in creating and delivering programming that links to projects that are being undertaken in a year group. The purposeful link to programming allows children to embed their understanding of the overarching project and to programme in context.

By the end of Year 6, pupils should be able to use ICT to:

<u>Find information</u>

- consider systematically the information they need to solve a problem, complete a task or answer a question, and explore how it will be used
- use and refine search methods to obtain information that is well matched to purpose, by selecting appropriate sources
- collect and enter quantitative and qualitative information, checking its accuracy
- analyse and evaluate information, judging its value, accuracy, plausibility and possible bias.

<u>Develop ideas</u>

- select and use ICT tools and techniques appropriately, safely and efficiently
- solve problems by developing, exploring and structuring information, and deriving new information for a particular purpose
- test predictions and discover patterns and relationships, exploring, evaluating and developing models by changing their rules and values
- use ICT to make things happen by planning, testing and modifying a sequence of instructions
- bring together, draft and refine information, including through the combination of text, sound and image.

<u>Communicate information</u>

- use a range of ICT tools to present information in forms that are fit for purpose, meet audience needs and suit the content
- communicate and exchange effectively, safely and responsibly use technical terms appropriately and correctly.

Evaluate

- review, modify and evaluate work as it progresses, reflecting critically and using feedback
- reflect on their own and others' uses of ICT to help them develop and improve their ideas and the quality of their work
- reflect on what they have learnt and use these insights to improve future work.

Work Safely

- know the personal risks associated with communicating via computer, mobile phone etc
- apply this knowledge to their own use of ICT
- understand their own responsibilities in communicating via ICT.

Programming

- programme in 2 languages (block, java script and python)

Professional Development

Staff are encouraged to explore and experiment with new hardware and software and develop their personal skills. This is furthered by peer mentoring and whole staff training, provided either internally by more competent members of staff, or by arranging external training by the software or hardware providers.