Computing Curriculum Statement
2022 - 2023

Intent

At our school we want pupils to be Masters of Technology and not slaves to it. Technology is everywhere and will play a pivotal part in students' lives. Therefore, we want to model and educate our pupils on how to use technology positively, responsibly and safely. We want our pupils to be creators not consumers and our broad curriculum encompassing **Computer Science** (programming and understanding howdigital systems work), **Information Technology** (using computer systems to store, retrieve and sendinformation) and **Digital Literacy** (evaluating digital content and using technology safely and respectfully) reflects this. We want our pupils to understand that there is always a choice with using technology and as a school we utilize technology (especially social media) to model positive use.

At Sennen School we follow the National Curriculum 2014 for Computing. We aim to provide high-quality computing education which equips children to use computational thinking and creativity to prepare them for the future world they will be living in. We believe that computing is an essential part of the curriculum; a subject which not only stands alone but also forms an integral part of our curriculum. We use 2 main programs to help us deliver our curriculum: Teach computing (for digital science and Information Technology) and Natterhub (for Digital literacy).

We recognise that the best prevention for a lot of issues we currently see with technology/social media is through education. Building our knowledge in this subject will allow pupils to effectively demonstrate their learning through creative use of Technology. We recognise that technology can allow pupils to share their learning in creative ways. We also understand the accessibility opportunities technology can provide for our pupils. Our knowledge rich curriculum has to be balanced with the opportunity for pupils to apply their knowledge creatively which will in turn help our pupils become skillful computer scientists.

We encourage staff to try and embed computing across the whole curriculum to make learning creative and accessible. We want our pupils to be fluent with a range of tools to best express their understanding and hope by Upper Key Stage 2, children have the independence and confidence to choose the best tool to fulfil the task and challenge set by teachers.

We make a significant investment in mobile technology which enables us to embrace a more flexible and in-depth coverage of the computing curriculum.

Following Covid-19, we have increased our focus on basic skills and meeting any learning "gaps" as well as having a whole-school priority of children's mental and physical health and wellbeing.

Implementation

At Sennen School we follow the Teach Computing Scheme of Work which is designed for the delivery of the curriculum through the use of Chrome books and ipads.

The Teach computing programme follows 12 pedagogy principles of teaching computing. These are as follows:

Lead with concepts

Support pupils in the acquisition of knowledge, through the use of key concepts, terms, and vocabulary, providing opportunities to build a shared and consistent understanding. Glossaries, concept maps, and displays, along with regular recall and revision, can support this approach.

Unplug, unpack, repack

Teach new concepts by first unpacking complex terms and ideas, exploring these ideas in unplugged and familiar contexts, then repacking this new understanding into the original concept. This approach (semantic waves) can help pupils develop a secure understanding of complex concepts.

Create projects

Use project-based learning activities to provide pupils with the opportunity to apply and consolidate their knowledge and understanding. Design is an important, often overlooked aspect of computing. Pupils can consider how to develop an artefact for a particular user or function, and evaluate it against a set of criteria.

Challenge misconceptions

Use formative questioning to uncover misconceptions and adapt teaching to address them as they occur. Awareness of common misconceptions alongside discussion, concept mapping, peer instruction, or simple quizzes can help identify areas of confusion.

Structure lessons

Use supportive frameworks when planning lessons, such as PRIMM (Predict, Run, Investigate, Modify, Make) and Use-Modify-Create. These frameworks are based on research and ensure that differentiation can be built in at various stages of the lesson.

Work together

Encourage collaboration, specifically using pair programming and peer instruction, and also structured group tasks. Working together stimulates classroom dialogue, articulation of concepts, and development of shared understanding.

Model everything

Model processes or practices — everything from debugging code to binary number conversions — using techniques such as worked examples and live coding. Modelling is particularly beneficial to novices, providing scaffolding that can be gradually taken away.

Add variety

Provide activities with different levels of direction, scaffolding, and support that promote active learning, ranging from highly structured to more exploratory tasks. Adapting your instruction to suit different objectives will help keep all pupils engaged and encourage greater independence.

Make concrete

Bring abstract concepts to life with real-world, contextual examples and a focus on interdependencies with other curriculum subjects. This can be achieved through the use of unplugged activities, proposing analogies, storytelling around concepts, and finding examples of the concepts in pupils' lives.

Read and explore code first

When teaching programming, focus first on code 'reading' activities, before code writing. With both block-based and text-based programming, encourage pupils to review and interpret blocks of code. Research has shown that being able to read, trace, and explain code augments pupils' ability to write code.

Get hands-on

Use physical computing and making activities that offer tactile and sensory experiences to enhance learning. Combining electronics and programming with arts and crafts (especially through exploratory projects) provides pupils with a creative, engaging context to explore and apply computing concepts.

Foster program comprehension

Use a variety of activities to consolidate knowledge and understanding of the function and structure of programs, including debugging, tracing, and Parson's Problems. Regular comprehension activities will help secure understanding and build connections with new knowledge.

Find out more about our principles and add some or all to your personal pedagogy toolkit.

ncce.io/pedagogy

The children will build their own learning portfolio that develops as they progress through the school with opportunities and set assessment points planned in for children to reflect upon and express feedback and engage in discussion about new concepts. Our curriculum provides a balanced coverage of the computing curriculum where children will have experiences of all three strands in each year group. The subject knowledge imparted becomes increasingly specific and in depth ensuring learning is built upon.

Across the school we have a set of 25 ipads and 16 laptops. These are shared resources that staff are able to use to developer the curriculum both in computing lessons, and across other subjects. All classes have interactive white boards (IWBs) and visualisers to aid teaching and learning. In the EYFS, with the focus of the curriculum being on Communication and Language, and PSED, technology is not directly taught but is accessed via whole class teaching using interactive whiteboards and own learning opportunities to access activities on IWBs.

Our curriculum is fully inclusive, and we ensure all children have the same entitlement to a broad curriculum by making adaptations where needed; this may be through peer to peer support, changes to text type or screen colour, voice recognition/recording features (such as talking tiles to aid writing tasks) as well as small group work/adult supported tasks. Specific

Apps will also be downloaded and used for children with specific additional needs (such as IDL to support with literacy and numeracy interventions)

Impact

Our curriculum enables teachers to deliver the curriculum in a fun, engaging and high-quality way which supports varied paces of learning and ensures all pupils make good progress. Employing cross-curricular links motivates pupils and supports them to make connections and remember the steps they have been taught. Teachers are able to assess children's knowledge, understanding and skills in Computing by making observations, through conversations with the children during lessons, the children's computing journal and the quality of the digital content they create. Built into the activities are several points where the teacher has the opportunity to assess and take stock of the children's progress, then provide feedback addressing misconceptions and gaps as each unitprogresses.

Much of the subject-specific knowledge developed in our computing lessons equip pupils with experiences which will benefit them in secondary school, further education and future workplaces. From research methods, use of presentation and creative tools and critical thinking, computing at Sennen gives children the building blocks that enable them to pursue a wide range of interests and vocations in the next stage of their lives.