# Computing  Policy

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## Recovery Curriculum

Due to the events of Covid-19, we acknowledge that there is a need for a change to the curriculum to support pupils during these exceptional circumstances. We understand that all pupils have had different experiences and therefore we aim to provide a flexible curriculum which will nurture and develop at the pace of the pupils.

## Introduction

This policy outlines what we are aiming to achieve in respect of pupils' Science education. It also describes our agreed approach to the planning, delivery and assessment of the Science curriculum.

The National Curriculum 2014 and EYFS documents for Computing describe what must be taught in each key stage.

This policy provides information and guidance for staff, members committee and other interested persons.

## INTENT

The use of information and communication technology is an integral part of the National Curriculum and is a key skill for everyday life.

At Golden Hill we aim to do the following (these work alongside our curriculum policy principles):
• To provide a relevant, challenging and enjoyable curriculum for Computing for all pupils.
• To follow the guidelines as set out by the National Curriculum Programmes of Study for Computing.
• To promote positive attitudes and an enthusiasm for Computing work in school.
• To respond to new developments in technology
• To enhance learning in other areas of the curriculum using Computing.
• To provide breadth and balance of Computing activities for all children.
• To develop the understanding of how to use Computing safely and responsibly.

Objectives

Early Years Foundation Stage
Children in the Early Years have a broad, play-based experience of Computing in a range of contexts, including outdoor play. Children gain confidence, control and language skills through opportunities with Beebots and remote controlled toys. Recording devices can support children to develop communication skills. Ipads give children the flexibility of learning both indoors and outdoors.

By the end of Key Stage 1 children should be taught to:
• Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following a sequence of instructions.

• Write and test simple programs
• Use logical reasoning to predict the behaviour of simple programs in computing
• Organise, store, manipulate and retrieve data in a range of digital formats
• Communicate safely and respectfully online, keeping personal information private and recognise common uses of information technology beyond school

By the end of Key Stage 2 children should be taught to:
• Design and write programs that accomplish specific goals, including controlling or stimulating 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; generate appropriate inputs and predicted outputs to test programs
• Use logical reasoning to explain how a simple algorithm and to detect and correct errors in algorithms and programs
• Understand computer networks including the internet; how they can provide multiple servers, such as world-wide web; and the opportunities they offer for communication and collaboration
• Describe how internet search engines find and store data; use search engines effectively; be discerning in evaluating digital content; respect individuals and intellectual property; use technology responsibly, securely and safely

## **IMPLEMENTATION**

At Golden Hill School we aim to provide a broad and balanced education to all pupils. Many of our children are working below age-related expectations and it is our aim to improve their understanding and close the gap in their learning. We also recognise, and aim to make provision for, pupils who have a particular ability in Computing.

Computing is taught as a separate subject. It is taught directly for a half term, during the Autumn term 1, which may be delivered as weekly lessons, or 1 block.

As our classes are mixed age range and mixed ability, with children arriving and leaving at any point in the year, we may teach the Computing topic from different year groups. Topics can change depending on the children we have in school.

Children may work as a whole class, independently or in groups. They are encouraged to take responsibility for their work, supported by adults where needed.

Online Safety is directly taught 1 hour per half term, together with joining in with the National Safer Internet Day in February.

Throughout the year, children will also have the opportunity to use their Computing skills in other curriculum areas.

We use teaching assistants to provide appropriate support to individuals or to groups of pupils. Teaching assistants are viewed as an important 'asset' to the school, and, as such, are appropriately involved in the delivery of the Computing curriculum. Their knowledge, skills and understanding is constantly updated through involvement in school-based and LA led inset.

All children, regardless of their race, gender, culture or ability, will have equal access to participate in activities.

**SEND**
Suggestions from the SEND Handbook 2024:

## Computing

Consider what assistive technology devices could be embedded into practice to give opportunities for all learners to fully access lesson content.

### Curriculum Considerations

Computing equips learners to use computational thinking and creativity to understand the digital world we live in. Computing has deep links with mathematics, science and design and technology, and ensures that learners become digitally literate, offering the opportunity to learn in different ways.

### Key Stage 1

At this stage, learning should be focused on the concept of computational thinking and equipping learners with the skills to tackle challenging problems using logical reasoning. Practical activities that encourage them to get hands-on with problems can help them visualise solutions. Giving learners the opportunity to predict behaviour of simple programs can also develop their problem-solving skills. It's important to use and to teach learners the correct technical terminology within lessons, to ensure that misconceptions are not embedded early into their computing education.

### Key Stage 2

At this stage, learners begin to apply and build upon the skills learnt at Key Stage 1 through designing and writing programs that accomplish specific goals. Learners should be able to detect and correct errors in algorithms. When teaching learners to solve various problems, encourage them to be resilient and think outside the box.

Learners should also be shown how to use technology safely, respectfully and responsibly. Learners need to be able to identify unacceptable behaviour and know how to report concerns.

## Computing

### Strategies to Scaffold Learning

**How can I support learners who struggle to access lessons because of literacy difficulties?**

- Model the correct use of vocabulary. Show examples of common errors/misconceptions and work with learners to improve literacy within given text.
- For those with appropriate access arrangements, encourage the use of a reader to support learners in reading and interpreting large sections of text.
- Chunk key information and create clear, easy-to-follow checklists. This can help your learner focus on one section at a time and have a clear set of goals.
- During classroom discussions, listen to the answers given and when re-iterating points, rephrase sentences to include key vocabulary.
- Consider your classroom display and how you can promote the definitions and use of Tier 2 words.
- Provide learners with a glossary of key terms which they can refer to during the lesson.

**How can I support learners who struggle to retain vocabulary?**

- Embed opportunities to recall key terms within lessons. Memorisation techniques such as tracked retrieval practice can give learners the opportunity to revisit topics across the curriculum.
- Provides learners with a glossary of key terms which they can refer to during the lesson.
- Use rephrasing techniques to strengthen learner answers with correct vocabulary.
- Introduce new terms slowly and rehearse news words. Get learners to interact with the key terms in various ways such as writing, speaking, mini games, questioning and more.

**How can I support learners who need additional time to develop conceptual understanding?**

- Model answers and get learners to look at and discuss completed examples.
- Assess and use learners' prior knowledge to create links between old and new content.
- Walk through examples together, giving learners the opportunity to ask questions.
- Address misconceptions early.

**How can I support learners who struggle with attention?**

- Learn what hobbies or topics the learners are interested in. Find ways to incorporate this into lessons and questions. Use learners' names in written questions to further engage them in text.
- Give clear instructions within the form of a checklist. This will break down the task into more manageable chunks.
- Praise learners on their contributions and for targets met, encourage them to continue and to have a growth mindset.
- Consider the learning environment and potential distractions and make appropriate arrangements to remove these barriers.
- Ensure instructions are clear and signposted.
- Be concise in teacher-led delivery. Chunk material in larger topics so learners can complete a range of engaging activities.
- Check in with the learners throughout the activity, initially to check they have understood the task, to praise work completed and to challenge them further.

## Computing

### Planning Inclusive Lessons

**Tasks**

Incorporate learning materials that are accessible for learners of all abilities. For learners with special educational needs and disabilities, specific resources or approaches may be required to enable them to access the curriculum. Ensure you have considered what barriers learners may have within a lesson and embed support strategies to help them overcome these.

Scaffold learning so that learners benefit from support during initial phases of learning. Adapt tasks to make the curriculum accessible to all. For example, tools such as *CodeJumper* and *Blocks4All* can be used for learners who are visually impaired.

**Problem Solving**

In computer science, there can be multiple solutions to a problem. Focus your instruction and encouragement on solving problems and the problem-solving process, rather than finding a single right answer. Emphasize guided inquiry, designing learning opportunities where learners can ask questions, explore, try different approaches and challenge their own and each other's ideas.

**Brain**
**Board**
**Buddy**
**Google**
**Boss**

Encourage learners to take ownership over their learning, strategies such as the 'BBBGBs' (Brain, Board, Buddy, Google, Boss) and expert learners are effective ways to embed this into lessons. If a learner struggles with complex, multi-step problem-solving, give them additional support in the beginning, then slowly remove the support once learners build their skills and confidence.

**High Expectations**

One of the largest subject barriers we face is learners' own belief systems about who can succeed in computer science. If a teacher holds lower expectations of a learner, it can have a negative impact on a learner's achievement in the subject.

Encourage learners to reflect on their perspectives and potential biases and challenge yourself to do the same. Build relationships with learners to identify opportunities to connect learning to their personal experience. Look for stories and experiences about using computer science that will be meaningful and relatable to your learners.

### Creating an Inclusive Environment

**Vocabulary**

Whilst you model the skills and understanding required to develop a rich vocabulary knowledge, consider your use of words within a lesson. Familiarise learners with Tier 2 words by embedding them into classroom displays and lesson activities. It's important that you find ways for learners to encounter these terms, as this will empower them to access a higher level of language with which they can communicate and understand ideas across the curriculum.

**Vision Impairment**

At Key Stage 1 and 2, coding is primarily taught using block-based programming languages such as Scratch. Carefully consider what inclusive practices are appropriate. For example, embedding the use of braille, allowing learners to orient themselves to the classroom space, careful selection of colours within resources, installing a screen reader and magnifier aids. Together these approaches support learners in solving complex challenges.

**Space**

The learning environment is important in making learners feel included. Incorporate visuals that will appeal to a wide range of learner interests and backgrounds. Include examples of learners and professionals with disabilities, the representation of a diverse range of figures in computing can send a powerful message to your learners.

Arrange the learning space to promote collaboration and hands-on activities, whilst also being mindful of how learners will access their workstations. Arrange aisles and workstations so that learners with mobility aids can get to all the areas they need to access to participate fully.

**Planning**

Computing has a long term plan, with staff planning their topic and Online Safety lessons, using upto date resources provided by LCC, purplemash, twinkl and Dfe.

The headteacher and Computing subject leader are responsible for monitoring the Computing planning within our school

**Assessment**

Assessment has two main purposes:
- assessment of learning (also known as summative assessment);
- assessment for learning (also known as formative assessment).

**Assessment of learning (AoL) – summative assessment**
Assessment of learning is any assessment that summarises where learners are at a given point in time – it provides a snapshot of what has been learned. At Golden Hill School AoL is used appropriately, e.g. to provide a Teacher Assessment grade at the end of KS1, to provide an assessment grade at the end of each term.

**Assessment for learning (AfL) – formative assessment**
"Assessment for learning is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to get to and how best to get there."

Assessment Reform Group, 2002

At Golden Hill School we recognise that AfL lies at the heart of promoting learning and in raising standards of attainment. We further recognise that effective AfL depends crucially on actually using the information gained.

The assessment procedures within our school encompass:
- Making ongoing assessments and responding appropriately to pupils during 'day-to-day' teaching. These 'immediate' responses are mainly verbal and are not normally recorded;

- Adjusting planning and teaching within units in response to pupils' performance;

- Use of ongoing teacher assessment in order to identify gaps during the topic and using this information to grade a child's attainment using the emerging, expected and exceeding judgements.

At the end of the unit, the class teacher makes a judgement on each child's progress for that topic as below expected, expected and above expected based on observations and the work completed throughout the unit.

**EYFS**

Work undertaken within the Foundation Stage is guided by the requirements and recommendations set out in the EYFS curriculum. We give all the children ample opportunity

to develop their understanding of ICT.  We aim to do this through varied activities that allow them to use, enjoy, explore, practise and talk confidently about ICT .

## Resources

There are a range of resources to support the teaching of Computing across the school. Each class has a Smart board, with all pupils having access to either a laptop or ipad. Other resources are available in the Server room.

## Responses to Children's Work

We recognise the importance of responding to children's work, whether orally or in writing.  We seek to encourage children by acknowledging positive achievements. Children are given opportunities, and actively encouraged, to explain their work to others and to display their work when it seems appropriate.  They are encouraged to value and respect the work of others. (see marking policy)

## Recording of Computing

Most Computing work will be recorded and saved in a child's individual folder on the Pupils Domain on the main server or on their individual iPad. If purplemash, Scratch or other online resources are used, pupils will also save work on a named folder.

Where appropriate, both Key Stages may use Floor Books to record Computing work as a whole class. A floor book is a large book for recording children's Computing learning, individually and collaboratively. Floor books are used as a strategy for developing and assessing children's understanding of Computing and can be used with any age group.

Floor books can include photographs, children's comments, drawings, tables, graphs, annotated diagrams, classification keys and writing. Having a class record means it is easier to track changes in children's ideas and understand how children are developing their understanding of computing. They can be referred to in lessons and are available for the children to pick up and read.

Adults may scribe what children have said or noticed, particularly those children who struggle with their reading and writing.

Learning Objectives are clearly noted to identify what has been taught/learnt during that session.

Work should be differentiated to meet the needs of the children.

In KS1, there is a bigger emphasis on recording the children's ideas via SeeSaw. At Golden Hill, the youngest children in school often come in working at the very early stages of learning and are not always able to read and write. The adults in class use SeeSaw as a tool to record what they have learnt and their understanding of Computing.

## IMPACT

Our children demonstrate confidence, independence and resilience, and have a real thirst for learning in Computing. They are able to use Computing vocabulary accurately when discussing their work.

Our children have access to a wide and varied curriculum, allowing each of them to excel as individuals and be the best they can be.

Children are engaged in their learning and are keen to talk about what they have learnt.

Teacher Assessment shows that children are making progress in their learning.