

# **River Primary School**

## **Computing Policy**

**Our school policies reflect our commitment to an inclusive, creative and exciting curriculum, based around high quality teaching and learning.**

### **PURPOSE OF STUDY**

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

### **CURRICULUM DRIVERS IN COMPUTING**

**Collaboration:** Pupils work together, sharing and developing ideas for a range of different purposes such as: presenting data and information, designing and making multimedia presentations, composing music, word processing, photography and coding. Throughout the development stage, communication is a key tool for success. Pupils learn how to engage in a collaborative dialogue, listening to and acting upon each other's thoughts and ideas, discussing the next steps in their learning, working together to achieve the end goal and overcoming any issues that may arise along the way. As a result, they develop positive relationships with their peers and learn how to empathise with and accommodate the thoughts and feelings of those around them. Through coding, children develop their problem-solving skills, by creating algorithms and debugging code. Ensuring children become digitally literate through regular opportunities across the curriculum will ensure that they are suitably prepared for the future workplace and ready to become active participants in an ever-changing digital world.

**Initiative:** Pupils use their computing experiences to navigate the online world. They make informed decisions about online content and information, learning how to identify fake information, developing an understanding of terms such as misinformation and disinformation, and employing strategies for how to keep personal information safe online. Developing competence in coding for a variety of practical and inventive purposes, including the application of ideas within other subjects, enables children to generate and act on their own ideas. Children will of course develop resilience and will need to make decisions and modify approaches when technical setbacks occur. When presenting data and information or designing and making multimedia presentations, they make their own decisions about the style, design and layout of their work, making sure to carefully consider the audience and purpose of their project before publishing the final version. This gives them the opportunity to develop their creativity, have ownership of their learning and take pride in the work that they produce.

**Diversity:** Children are taught to recognise and understand their responsibilities towards themselves and others through regular e-safety teaching. This includes our whole-school focus on e-safety during Safer Internet Day. The children learn how to connect with others safely and respectfully, understanding the need to act within the law and with moral and ethical integrity. We encourage children to develop a tolerance towards each other's ideas and articulate their thoughts and feelings. Through the specific disciplines of information technology, digital literacy and computer science, children develop a sense of excitement and curiosity about the digital world – the curriculum providing them with a wide range of opportunities to explore the many different guises of computing in the 21<sup>st</sup> century. The children also have the opportunity to experience computing and apply their skills across the curriculum, allowing them to embed their skills through a variety of different contexts. This can be illustrated through a number of examples such as: the use of word processing programs when presenting information related to topic work or English; the use of iPads and tablets to engage, encourage and monitor the children in reading; the use of TTRS and other online games and programs to promote and develop skills in mathematics; data-logging equipment to monitor, record and organise data from investigations in science; and the close relationship between online-safety and the PSHE curriculum.

## AIMS

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

## SUBJECT SKILLS

As a school, we recognise Cornerstones' ten Big Ideas across the National Curriculum. Big Ideas are present within each subject. In computing the Big Ideas are:

- Humankind: Understanding what it means to be human and how human behaviour has shaped the world.
- Nature: Understanding the complexities of the plant and animal species that inhabit the world.
- Processes: Understanding the many dynamic and physical processes that shape the world.
- Place: Understanding the visual, cultural, social and environmental aspects of places around the world.

- Creativity: Understanding the creative process and how everyday and exceptional creativity can shape the world.
- Comparison: Understanding how and why things are the same or different.
- Investigation: Understanding the importance of investigation and how this has led to significant change in the world.
- Materials: Understanding the properties of all matter, living and non-living.

For each subject, the Big Ideas are split into aspects to help us ensure progression in key elements across the curriculum.

Big Idea	Aspect
Humankind	<ul style="list-style-type: none"> <li>• Communication</li> <li>• Staying safe</li> <li>• Digital citizenship</li> </ul>
Nature	<ul style="list-style-type: none"> <li>• Real world</li> </ul>
Processes	<ul style="list-style-type: none"> <li>• Physical interaction</li> </ul>
Place	<ul style="list-style-type: none"> <li>• Digital world</li> <li>• Real world</li> </ul>
Creativity	<ul style="list-style-type: none"> <li>• Creation</li> </ul>
Comparison	<ul style="list-style-type: none"> <li>• Digital searching</li> </ul>
Investigation	<ul style="list-style-type: none"> <li>• Data and Computational Thinking</li> <li>• Networks</li> </ul>
Materials	<ul style="list-style-type: none"> <li>• Hardware</li> <li>• Software</li> </ul>

## Computing in EYFS

Whilst there is not a specific technologies area within the EYFS framework, we continue to provide opportunities for our children to use technology to solve problems and produce creative outcomes. It is important in the Foundation Stage to give children a broad, play-based experience of Computing in a range of contexts, including outdoor play. Computing is not just about computers. Our early years learning environment features Computing scenarios based on experience in the real world; such as role play. Children gain confidence, control and language skills through opportunities to explore using non-computer based resources such as metal detectors, controllable traffic lights and walkie-talkie sets. Recording devices can support children to develop their communication and turn taking skills. Allowing children the opportunity to explore technology in an often child-led way, means that not only will they develop a familiarity with equipment and vocabulary but they will have a strong start in Key Stage 1 Computing and all that it demands.

Technology in the Early Years can mean:

- taking a photograph with a camera or tablet
- playing games on the interactive whiteboard
- exploring an old typewriter or other mechanical toys
- using a Beebot

# **SUBJECT CONTENT**

## **Key stage 1**

### **Pupils should be taught about:**

- 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 where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Our curriculum includes the theme of understanding algorithms in order to create and debug simple programs in Year 1.

Our curriculum includes the theme of recognizing the use of technology beyond school, and to use this to purposefully create, organise, store, manipulate and retrieve digital content in Years 1 and 2.

Our Curriculum includes the theme of using technology safely, by keeping information private and identifying where to go for help and support in Year 1 and 2.

## **Key stage 2**

### **Pupils should be taught about:**

- 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

Our curriculum includes the theme of designing, writing and debugging programs that accomplish specific goals in Year 3. These skills are then developed by solving problems in programs in Years 4 and 5.

Our curriculum includes the theme of understanding computer networks including the internet in Years 4 and 6.

Our Curriculum includes the theme of selecting, using and combining a variety of software on a range of digital devices in Year 3. These skills are then developed to design and create a range of programs in Years 4, 5 and 6.

Our Curriculum includes the theme of using technology safely, respectfully and responsibly, and recognising acceptable and unacceptable behavior, across Key Stage 2.

## **CROSS-CURRICULAR LEARNING**

We approach learning through cross-curricular themes so that children make links and see the relevance of their learning in different subjects. More detail can be found in our Curriculum Policy and on our school website [www.river.kent.sch.uk](http://www.river.kent.sch.uk).

Consistent with our curriculum aims, we identify learning by subject so children know when they are learning computing. This ensures that the integrity of the subject is not degraded and children acquire the underlying knowledge needed to access the subject in later years, including the acquisition of specific subject vocabulary.

## **ASSESSMENT AND REPORTING**

Assessment of computing at both KS1 and KS2 is based on teacher assessment. This is recorded using subject specific statements on our assessment system, Target Tracker. Parent consultations provide a formal opportunity to discuss both progress and attainment and parents also have the opportunity to have a look at the learning that children have been doing in computing, through their books. Pupil annual reports shared with parents in July provide a formal report of attainment in computing.

## **Subject Leader Evaluation, overview of Assessment and Monitoring**

To ensure best practice, the subject leader has been involved in curriculum review and has worked with the teaching team to ensure that our current curriculum is well-designed to include all the required aspects of computing, whilst making it relevant to our children in our context. In taking this approach, we capitalise on the locality and learning from direct experiences as far as possible.

To evaluate the impact of the curriculum and the quality of teaching and learning, the subject leader

works alongside the senior team to monitor standards of teaching and learning. This is achieved through evidence gathering such as: a structured approach to planning, lesson visits, conversations with teachers, conversations with children together with the outcomes of their learning.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Chair of Learning and Development Team