Peterhouse CofE Primary Academy

Computing Policy

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Approved By:	**Peterhouse LGB**
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Person Responsible:	**S. Garthwaite (curriculum lead)**

Introduction

Technology in the current global environment, particularly coding and online information sharing, have become vital tools for success in both business and education. As such, a robust curriculum is required to ensure the proper understanding and use of these tools across all Key Stages. The aim of this document is to provide an overview to the new Computing Curriculum and a programme of study across the Key Stages. It should also serve as a glossary of terms allowing a clear understanding of the curriculum layout and its contents.

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
- **Analyse** problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- **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.

Programme of Study

The programme of lessons will be taken from the **Teach Computing** syllabus. Each year group has a total of 36 sessions, 6 per half term unit. These lessons must be taught in chronological order to develop the relevant skills required for the following year's syllabus. Each course is split into the following 4 areas:

- **Computing systems and networks**- Creating a firm foundation of understanding about how computer components work individually, how they function together as part of a system, and how links between networks (including the internet) allow for the sharing of information across systems.
- **Creating media**- Using ICT resources and software effectively to create images, websites, videos and information sharing media through the Microsoft Office Suite.
- **Data and information –** Using ICT resources to gather, collate and represent information in relevant ways, such as databases, graphs, or information web pages.
- **Programming-** Understanding and applying knowledge of algorithms and coding in software (such as scratch) or hardware (Code-a-pillars, Micro-bits) to create a programmed series of outcomes (animation, measurement, movement etc).

Each half term syllabus teaches these areas in this order (there is one additional session for creating media and programming in each term).

The course is sequential across all key stages and covers all National Curriculum criteria.

Cross curriculum use

The ICT resources now available can be used to greatly enhance other areas of the curriculum. Many children are already adept with search engines, typing, mouse work and the relevant hand eye coordination skills. By using these resources for research, maths programmes such as TT Rock stars and typed pieces of work for literacy and topic, they will have a chance to show off knowledge and skills that staff may be unaware of, and give a more accurate reflection of the abilities and potential of students. As such, teachers should plan these opportunities for use in these areas across the curriculum.

Assessment

By the end of each Key Stage, pupils are expected to know, apply and understand the matters, skills and processes outlined in the relevant programme of study. Evidence of saved work should be available on the year group server areas, and some more complex units will have a summative assessment package included with them.

Subject content

Key stage 1

Pupils should be taught to:

- 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.

Key stage 2

Pupils should be taught to:

- 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.

Resources

- There is now a full suite of ICT resources available to each Key Stage both relevant and required for the curriculum.
- **Student laptops:** Each year group has a generic year group sign in and password. Each year group also has an exclusive area on the server to save work and supply evidence for assessment. There are 30 laptops available for each Key Stage, with the external year 5 building having their own suite.
- **Student iPads:** Each Key Stage has a suite of 30 iPads available, with 30 iPads in the external year 5 building. The ICT coordinator has supervision rights over these to add any required apps across all iPads.
- **Concrete Resources:** Digital programmable toys are available to all year groups. There are 6 Code-a-Pillars, designed for similar algorithm teaching to BeeBots, and are suitable for EYFS and KS1. KS2 has available a full year group's worth of BBC Micro-bit processors for programming.
- **Old and Obsolete Technology:** Older technology that can no longer be used to teach the current syllabus (such as iPads and laptops no longer accepting updates) is being reprogrammed and repurposed for use by EYFS. This will give children the understanding of how technology works, so they can apply this knowledge at the beginning of KS1.

Glossary of Terms

Abstraction

Only focussing on the details relevant to the task, in computing this may be by using a database to handle data. In doing this the data can be looked at in specific groups. An example is using Target Tracker to show the progress of pupils on Pupil Premium.

Logic

The non-arithmetic operations performed by a computer, such as sorting, comparing, and matching, that involve yes-no decisions. This might be completed using programs such as Excel.

Algorithms

The step-by-step procedure for a machine to complete a task, for example the instructions given to a code-a-pillar to guide it round a track, or the instructions put into a bee-bot to guide it through a maze.

Data Representation

The way in which information is presented. This could be representing a data set as a graph. However, it is also using the appropriate software for the task. Not everything has to be done in Word or PowerPoint.