ICT and Computing across the Curriculum

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ICT AND COMPUTING ACROSS THE CURRICULUM

Introduction

This document is a statement of the aims, principles and strategies for the teaching and learning of Information Communication Technology and Computing at Ashley College.

Information Communication Technology (ICT) comprises a variety of systems that handle electronically retrievable information. Computers are the most obvious of these but ICT also includes programmable robots, microphones, calculators, synthesizers and video and digital cameras. ICT is an integral part of the whole curriculum and as such there are two areas: the skills and the application. The latter is in the majority of cases experienced through the complete curriculum.

The importance of Computing 'A high-quality computing education equips students 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 students 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, students are equipped to use information technology to create programs, systems and a range of content.

Computing also ensures that students 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'. Computing Curriculum 2014.

Computing is a core subject for KS1 to KS3 students. Students should be taught to effectively use tools and information sources to analyse, process and present information and to develop programming and computer science skills. Information Communication Technology is important because:

- It is an integral part of our daily lives and we are preparing the students for their future
- Its use is widespread in the modern technological world and is likely to continue to grow
- It is an important medium for learning and study at all educational levels. Computing is seen as a cross-curricular subject in the National Curriculum and indications for its use are given in other subject areas.

We are able to facilitate Computer Science as a GCSE through use of a tutor should a student wish to pursue this option at Key Stage 4.

Aims of this policy

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

- 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.

Aims of our school for ICT/Computing

- To enable each student to experience computing across the curriculum as part of a whole school approach.
- To meet the requirements of the National Curriculum
- To encourage the students to enjoy using ICT and tackle all applications with confidence and a sense of achievement
- To integrate ICT effectively within the classroom to the benefit of all students
- To ensure that equal opportunity is given to all students to develop their capabilities in ICT
- To use information sources and ICT tools to solve problems and support learning in a variety of contexts
- To understand the capabilities and limitations of ICT and the implications and consequences of its use
- To understand the implications of ICT for working life and society.

Role of the Information Communication Technology Coordinator

The ICT Coordinator's role is to:

- Take the lead in policy development and the integration of ICT into schemes of work designed to ensure progression and continuity in students' experience throughout the school.

- Support colleagues in their efforts to include ICT in their development of detailed work plans, in their implementation of those schemes of work and in assessment and record keeping activities.

- Monitor progress in ICT and advise the head teacher on action needed

- Take responsibility for the purchase and organisation of resources for ICT

- Disseminate information to colleagues as appropriate

- Keep up to date with key developments in ICT

- Support staff training, especially with the computer science aspects of the new curriculum

Future Developments, as ICT is a fast developing subject, replacement and chip dating of equipment is essential in order to achieve the best possible results.

The main priorities for development in Computing within the school involve:

- Continuing a programme of training for the staff to develop Computing skills focusing on the use of peripheral hardware across the curriculum, including training on programming and coding

- Developing teacher understanding of how to integrate ICT effectively across the curriculum

- Developing the use of control technology throughout the school

- Being aware of any E-safety issues and developments

- Continuing to develop the use of PG Online and monitor its impact

Strategies for the Teaching of Computing

Computing is taught as a discreet subject but is also used to support and enrich the teaching of other subject areas. The emphasis in our teaching with Computing is on the use of computers as a support to learning thus

- Students are made familiar with basic aspects of using a computer including printing and efficient use of keyboard and mouse through the PG Online series of lessons and resources

- Many activities using computers are allied to other work which is carried out away from the computer

- As students progress through the school they are given increasing control of their use of ICT, gaining growing independence in their use of ICT. The predominant mode of working in Computing is individually with each student having access to their own computer in the ICT Suite, although learning partner and small groups work may be used where appropriate. The major part of the students' learning comes through hands on experience although group or class discussion may be used to gather data, set challenges and analyse results.

Teaching Assistants may be used in Computing, to assist with:

- Loading and saving work although the majority of students should be able to use ICT effectively with little or no assistance

- Helping students to edit or improve their work

Equal Opportunities

The computer use is carefully managed so all students are given equal opportunities. ICT use is not seen as a stick or a carrot (to be withdrawn as a punishment or offered as a reward for good work or behaviour) but is offered as an entitlement for all students. All students, including students for whom English is an additional language, gifted students and those with special educational needs should be able to benefit from their ICT education. We aim to offer all students within the school appropriate experience of Information Communication Technology. The individual student's needs and ability should determine the appropriateness of the task, but all students should have equal opportunity to develop their skills in this curriculum area.

ICT and Special Educational Needs

All our students have SEND. Students with special needs have the same computing entitlement as all other students and are offered the same curriculum. However, in addition, particular applications of ICT are used for students with difficulties in learning, who need to be motivated to practice basic skills regularly and intensively, and thus benefit from use of programs in which skills practice is set in the context of a motivating game. Students who have difficulties in language may use Word Processing more frequently for handwriting to improve the appearance and accuracy of work and to provide added motivation. All our students are provided with a laptop computers.

Students of high ability may be extended through the use of programs, which offer challenges and opportunities for investigation.

Progression and Continuity

Planning for the use of Computing is a process in which all teachers are involved, wherein

- Suggestions for Computing activities are developed by the class teacher in collaboration with the ICT coordinator
- ICT is integrated into all curriculum areas as well as discrete Computing learning.

Recording, Reporting Feedback

Formative assessment is used to guide the progress of individual students in their use of Computing. It involves identifying each student's progress, determining what each student has learnt and therefore what help is required to take the student on to the next stage in his/her learning. Formative assessment is mostly carried out informally by teachers and students in line with the school's assessment and feedback policy.

Information about the student is gathered throughout the year through observation, informal discussion with the student, and occasional specific assessment tasks. Students are encouraged to carry out regular self and peer assessment set against the success criteria for the task. Teacher feedback to students about their progress in Computing is usually done while a task is being carried out, through discussion between student and teacher.
Reporting to parents is done on a termly basis through a written report. Reporting on Computing will focus on their experience of using different programs and the student's ability to use the computer with confidence.

Health and Safety

Health and Safety issues in ICT include taking care with:

- The use of the ICT suite
- Setting up and moving equipment
- Establishing appropriate working conditions including the correct height for chairs at workstations, and limited time spent in front of beam from data projectors
- General electrical safety
- Using the internet appropriately and safely also recognising the impact cyber bullying can have on an individual Teachers should be aware of the correct

connections between the various parts of their computer. The class teachers should report any problems they are unable to remedy via ‘turn it on.’

Artificial Intelligence (AI)

As AI technologies become increasingly integrated into education and the workplace, we recognise the importance of preparing our students to understand and use AI responsibly. Students will be introduced to the concepts, capabilities and limitations of AI through age-appropriate activities within the computing curriculum. This includes understanding how AI systems work, recognising potential bias in AI outputs, and developing critical thinking skills to evaluate AI-generated content. All use of AI tools in school follows the guidelines set out in our separate AI Policy, which ensures ethical, secure and responsible use across our whole school community. Staff will receive ongoing training to support students in becoming informed and responsible users of AI technology. Please see our AI policy.