



# **CLOUGHWOOD ACADEMY**

## **Computer Science & ICT Policy**

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## **1. Introduction**

Since recent changes to the National Curriculum, Cloughwood Academy has recognised the need to equip pupils with the necessary knowledge and skills needed to play an active role in the digital sector, rather than simply being consumers of digital content. As well as ensuring pupils have up-to-date digital literacy skills; Cloughwood Academy also ensures that pupils develop their digital creativity and programming skills. This ensures that pupils leave Cloughwood Academy with not only an understanding of how to use a range of digital applications, but also a knowledge of how technology works; becoming creators of programs as well as end-users.

## **2. Aims and objectives**

### **2.1 ICT has become part of the way in which we all work and entertain ourselves.**

Almost everything we do at school now involves the use of ICT:

- i. online lesson research, teaching plans and resource materials;
- ii. lesson delivery via interactive Smart Boards;
- iii. communication by e-mail;
- iv. use of online systems including arbor (Academy Database), CPOMS and Class Dojo;
- v. document distribution and storage;
- vi. analysis of assessment information;
- vii. production and editing of reports.

Thus, through teaching Computer Science and ICT, we equip children to participate in a world of rapidly changing technology. We enable them to find, explore, analyse, exchange and present information. We also help them to develop the necessary skills for using information in an objective and effective way, ultimately being able to recognise bias and reliability within the information source, with consideration of copyright and data misuse. This is a major part of enabling children to be confident, creative and independent learners.

### **2.2 Our objectives in the teaching of Computer Science ICT are:**

- i. to facilitate the finding, selection and use of information;
- ii. to teach the use of ICT for effective and appropriate communication;
- iii. to enable the monitoring and control of events, both real and modelled;
- iv. to apply ICT to pupil's learning across the curriculum;
- v. to explore the value of ICT to society;
- vi. to examine issues of security, personal safety, confidentiality and accuracy;
- vii. to develop the cross-curricular use of ICT in all subjects;
- viii. to develop pupils understanding of the technology behind software applications;
- ix. to enable pupils to understand the hardware needed for a device to function.

### **1.3 The school's Computer Science and ICT strategy will be guided by the following principles:**

All developments in Computer Science and ICT are to raise the attainment of pupils, to enrich their learning experience and to improve the quality of teaching.

- i. We will regularly evaluate the effectiveness of our ICT systems;
- ii. Investments in ICT resources will be linked to raising the achievement of pupils at Cloughwood Academy;
- iii. We will create solutions to ensure that the use and potential of ICT in school is enhanced;
- iv. ICT resources such as tablets will be deployed so as to provide the greatest amount of use to the greatest number of pupils.

#### 1.4 ICT for learning should:

- i. support inclusive and innovative approaches to learning;
- ii. encourage the personalising of the learning experience;
- iii. allow learners access so that they can study at anytime and anywhere, e.g. using a range of devices and/or wireless technology;
- iv. provide a safe environment, preventing access to unsuitable material and preventing inappropriate use of systems (through use of Empero software and firewalls);
- v. develop independent learning;
- vi. enable parents to engage with their child's learning (i.e. class dojo, emails, etc.).

#### 1.5 ICT for teaching should:

- i. enable teachers to access a wide range of multimedia and digital resources
- ii. enable teachers to create, use and adapt teaching resources
- iii. offer support and challenge to pupils of all abilities
- iv. increase the range and quality of learning experiences
- v. enable a culture of continuous development of ICT skills
- vi. ensure that all staff are motivated and skilled in the use of ICT
- vii. support the planning and monitoring of learning, for groups and individuals.

#### 1.6 The Importance of technology

“The increasing use of technology in all aspects of society makes confident, creative and productive use of ICT an essential skill for life. ICT capability encompasses not only the mastery of technical skills and techniques, but also the understanding to apply these skills purposefully, safely and responsibly in learning, everyday life and employment. ICT capability is fundamental to participation and engagement in modern society. ICT can be used to find, develop, analyse and present information, as well as to model situations and solve problems. ICT enables rapid access to ideas and experiences from a wide range of people, communities and cultures, and allows pupils to collaborate and exchange information on a wide scale. ICT acts as a powerful force for change in society and citizens should have an understanding of the social, ethical, legal and economic implications of its use, including how to use ICT safely and responsibly. Increased capability in the use of ICT supports initiative and independent learning, as pupils are able to make informed judgements about when and where to use ICT to enhance their learning and the quality of their work.” *Qualifications and Curriculum Development Agency*

## 2 Teaching and learning style

### 2.1 A key objective of teaching of Computer Science and ICT is to equip children with the technological skill to become independent learners.

In order to achieve this, the teaching style that we adopt is as active and practical as possible. While, at times, we do give children direct instruction on how to use hardware or software, the main emphasis of our teaching in Computer Science and ICT is for individuals or groups of children to use computers to help them to progress in whatever they are studying. So, for example, children might research a history topic by using role-play software that engages them in a highly visual way, or they might place themselves in a historical setting by manipulating a digital photograph, or investigate a particular issue on the Internet.

### 2.2 We recognise that all classes have children with a wide range of ICT abilities.

This is especially true when some children have access to ICT equipment at home, while others do not. We provide suitable learning opportunities for all children by matching the challenge of the task to the ability and experience of the child. We achieve this in a variety of ways:

- i. setting tasks which are open-ended and can have a variety of responses;
- ii. setting tasks of increasing difficulty (not all children complete all tasks);
- iii. grouping children by ability in the room, and setting different tasks for each ability group;
- iv. providing resources of different complexity that are matched to the ability of the child;
- v. using classroom assistants to support the work of individual children or groups of children.

### 3 Computer Science and ICT curriculum planning

#### 3.1 Computer Science and ICT is a foundation subject in the National Curriculum.

The school uses the National Curriculum for Computer Science and ICT as the basis for its curriculum planning. Key Skills are delivered through discrete weekly teaching sessions in order that these can be applied when required in all other aspects of the curriculum.

#### 3.2 The topics studied in Computer Science and ICT are planned to build on prior learning.

While we offer opportunities for children of all abilities to develop their skills and knowledge in each unit, we also plan progression into the scheme of work, so that the children are increasingly challenged as they move up through the school.

#### 3.4 Parents and carers are required to give signed authorisation before their child can use the Internet, either in guided or in independent school work.

Parents and carers are, however, assured that their child's use of the Internet at school is always supervised. A record of those children who do not have permission to use the Internet at school is held by each class teacher and by the school office.

### 4 The Foundation Stage and Secondary Stage

#### 4.1 We teach Computer Science and ICT in primary and secondary classes as an integral part of the topic work covered during the year.

Children have the opportunity to use the computers, digital cameras, headphones, interactive boards and other equipment. Then, during the year, they gain confidence and start using the computer to find out information and to communicate in a variety of ways.

### 5 The contribution of ICT to teaching in other curriculum areas

#### 5.1 The teaching of ICT contributes to teaching and learning in all curriculum areas.

It also offers ways of impacting on learning which are not possible with conventional methods. Teachers use software to present information visually, dynamically and interactively, so that children understand concepts more quickly. For example, graphics work links in closely with work in art, and work using binary and databases supports work in mathematics, while role-play simulations and the Internet prove very useful for research in humanities subjects. ICT enables children to present their information and conclusions in the most appropriate way. Much of the software we use is generic and can therefore be used in several curriculum areas.

#### 5.2 English

Computer Science and ICT is a major contributor to the teaching of English. Children's comprehension of texts is used to create animations along the theme of short stories, pupils

also have the opportunity to develop their language skills in making short movies; exploring the language required to persuade the audience. Pupils are also taught how to edit and revise text on a computer, using programme functions, such as the use of synonyms, to develop language skills. They have the opportunity to develop their writing skills by communicating with people via e-mail. Pupils also learn how to improve the presentation of their work by using desktop publishing software. Additionally the Academy subscribes to Reading Plus which targets specific reading and comprehension skills to enable rapid progress.

### **5.3 Mathematics**

Children use Computer Science and ICT in mathematics to collect data, make predictions, analyse results, and present information graphically. This is facilitated through programming language and Micro:Bits to enable data collect through sensors as well as through the use of spreadsheet models using formulas to predict outcomes. Pupils also learn binary and how to make binary additions and convert numbers for denary to binary and vice versa.

### **5.5 Personal, social and health education (PSHE) and citizenship**

Computer Science and ICT makes a contribution to the teaching of PSHE and citizenship. Pupils consider the impact of technology on the wider society and also develop a sense of global citizenship by using the Internet and e-mail. Learning to use the internet efficiently and safely is therefore a key component of Computer Science and ICT teaching. The scheme aims to develop a set of safe behaviours for pupils to adopt when using the Internet and other technologies and gives pupils the confidence to report any issues they may have. Through discussion of safety and other issues related to electronic communication, the children develop their own view about the use and misuse of technology, and they also gain an insight into the interdependence of technology users around the world.

## **6 Technology and inclusion**

### **6.1 At our school, we teach Computer Science and ICT to all children, whatever their ability and individual needs.**

Computer Science and ICT forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our teaching, we provide learning opportunities that enable all pupils to make good progress. We work hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents. Technology can make a significant contribution to the progress made by children with barriers to learning. For example: spelling checkers, thesaurus and dictionaries to support with learning.

### **6.2 When progress falls significantly outside the expected range, the child may have special educational needs.**

Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, and differentiation – so that we can take some additional or different action to enable the child to learn more effectively (e.g. a lot of software can be differently configured for different ability ranges).

Assessing progress against the National Curriculum levels of attainment allows us to evaluate each child's progress against expected levels. This ensures that our teaching is matched to the child's needs.

### **6.3 We enable pupils to have access to the full range of activities involved in learning Computer Science and ICT.**

We have a range of software which is designed to include all learners. Our hardware will accept a range of input devices catering to pupils with specific difficulties. Much of the software used within lessons is open-sourced and can be accessed for free outside of

school. Where children are to participate in activities outside the classroom, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

#### **6.4 Equal Opportunities**

All pupils have equal access to technology and all staff follow the equal opportunities policy. As with all resources, we ensure software is not gender or culturally biased.

#### **6.5 Spiritual Moral Social and Cultural**

Computer Science and ICT contribute to the pupils' SMSC development through:

- i. Raising awareness of the ways in which the worldwide web can be a medium of SMSC values.
- ii. Deepening awareness of the way in which technology affects our culture and society.
- iii. Preparing children for the challenge of living and learning in a technologically enriched, inter-connected world.
- iv. Making clear, guidelines about the moral and ethical use of the internet and other forms of e-communications.
- v. Establishing boundaries in society by considering what is acceptable use of technology.
- vi. Acknowledging advances in technology and appreciation for human achievement.
- vii. An awareness of the moral dilemmas created by technological advances.
- viii. Appreciating how different cultures have contributed to technology.
- ix. Understanding the differences in the use of technology between cultures and nations.
- x. Providing opportunities to work as a team, recognising other's achievements and sharing enjoyment.
- xi. Using technology for developing, planning, sharing and communicating ideas.

### **7 Assessment for learning**

#### **7.1 Teachers will assess children's work in Computer Science and ICT by making informal judgements during lessons.**

On completion of a piece of work or project, the teacher assesses the work, and uses this assessment to plan for future learning. Written or verbal feedback is given to the child to help guide his/her progress. Peer assessment is also used by displaying work via the smartboard. Older children are also encouraged to make judgements about how they can improve their own work independently.

Throughout lessons, pupils' understanding is assessed through open and closed questioning. Pupils are also regularly asked to provide demonstrations of how to complete tasks to their peers. This provides opportunities to build confidence in all learners, regardless of their starting points.

The Computer Science and ICT subject leader works with teachers to assess areas of need within their year group, whether its knowledge of the skill being taught or equipment/programs required to teach the skill effectively.

#### **7.2 The subject leader keeps samples of the children's work in a portfolio.**

This demonstrates the expected level of achievement in Computer Science and ICT for each age group in the school.

## 8 Resources

### 8.1 Our school has a growing range of ICT resources.

Each teacher has their own laptop and every subject has at least one tablet for use by pupils. Other subjects are able to access the ICT suite when not in use by the department, which is booked through the Computer Science and ICT teacher.

### 8.2 The Academy has a visit from a network manager

Once a week, the Academy is visited by a technician, who supports the IT infrastructure of the whole Academy. Support is also provided remotely when urgently required.

### 8.3 Keeping equipment virus-free

No software from home will be installed on Academy computers. Pupils bringing in work on portable storage disks must first have it scanned, but it is easier if the work is e-mailed to the teacher concerned. The Academy also has use of One Drive, where documents can be uploaded virus free without the need for portable storage.

## 9 Monitoring and review

### 9.1 The coordination and planning of the Computer Science and ICT curriculum are the responsibility of the subject leader, who also:

- i. supports colleagues in their teaching, by keeping informed about current developments in technology and by providing a strategic lead and direction for this subject;
- ii. gives the principal an annual summary report in which evaluations are made on; strengths and weaknesses in Computer Science and ICT and indicates areas for further improvement;
- iii. regularly attends subject and qualification training and events to enhance subject knowledge.

### 9.2 The quality of teaching and learning

- i. The subject leader has regular observations by the principal, vice principal and the subject Director, to assess the standard of teaching and learning.
- ii. Opportunities for development are also discussed during performance management reviews.

## 10 Literacy

Cloughwood Academy has embraced literacy as a major factor in raising standards across all subjects and equipping pupils with the skills and knowledge they need for life beyond school. The Computer Science and ICT department has a duty to ensure that each pupil is able to access the curriculum. The department also recognises that we have a vital role to play in ensuring that effective Literacy is provided to our students through a variety of technology.

All lessons are planned to enhance pupils' literacy skills using a range of effective techniques. Pupils are regularly encouraged to support their learning and understanding through paraphrasing work during theory lessons. They also develop their language skills by incorporating text into all their projects using different language styles (persuasive, formal, informal, etc.).

### **10.1 The Computer Science and ICT department will work along the following principles:**

- i. Our understanding of literacy incorporates talking, listening, reading and writing. These elements of language are interdependent and integral to all learning. Literacy should therefore be promoted holistically.
- ii. Literacy is fundamental to personal and social development and to lifelong learning.
- iii. Literacy takes many forms – our understanding extends beyond basic decoding to critical reflection and, understanding how language works.
- iv. All staff share responsibility for pupil literacy.
- v. All elements of the literacy policy should be reflected across the Computer Science and ICT curriculum.
- vi. Literacy in every parental tongue is to be valued.
- vii. The literacy policy will reflect the needs of every pupil.

The framework identifies three main areas for development:

- i. Learning through talk.
- ii. Learning from text.
- iii. Learning through writing/e-mail.

The framework is based on the following assumptions:

- i. Literacy skills need to be taught systematically and consistently.
- ii. Pupils should be given regular opportunities to consolidate their literacy skills by using them purposefully in order to learn.
- iii. All teachers in the Academy must share the responsibility for developing literacy and learning 'hand in hand'.
- iv. Certain subject areas are better placed to develop specific literacy skills than others

### **10.2 Literacy Strategies Reading and Visual Literacy**

Across the department teachers will provide activities for students to:

- i. read and follow written instructions
- ii. read to develop understanding and explore ideas
- iii. learn how to sift, select and take notes from the text
- iv. read and understand still and moving visual imagery

### **10.3 Writing**

Across the KS3 and KS4 curriculum teachers will provide activities for pupils to:

- i. use writing to plan and organise
- ii. plan, draft, discuss and reflect on their writing, using technology where appropriate
- iii. write for a range of purposes and audiences
- iv. present their work in a way which is legible and accessible.

### **10.4 We aim to**

- i. provide good models of particular kinds of writing
- ii. provide dictionaries, glossaries and lists of appropriate subject vocabulary, and encourage pupils to use them
- iii. treat pupils' writing with respect and interest
- iv. support pupils in the presentation of their work

### **10.5 Speaking & Listening**

Teachers will provide activities for students to:

- i. listen to and carry out instructions

- ii. explore and develop ideas with others through discussion
- iii. ask intellectual questions as well as answer them.

**10.6 Students should learn to:**

- i. value speaking and listening as an essential means of learning
- ii. appreciate the difference between standard and nonstandard forms of English
- iii. choose appropriate forms and registers to suit particular purposes and audiences.

**10.7 Pupils should have opportunities to:**

- i. take part in structured activities in which speaking and listening are essential components i.e. debates and verbal presentation of work
- ii. talk with working partners and in small groups

**11 Professional Development**

The school will provide all members of staff with the opportunity to develop their appreciation of Computer Science and ICT and its relevance to their school role, through appropriate school-based or other professional development.