Curriculum Purpose Statement – Computing and Information Technology

WHO

Hanley Castle Computing and Information Technology Department intends to guide learners through a journey which will embrace many aspects of technology.

The curriculum teaches key knowledge about how computers and computer systems work, and how they are designed and programmed. Learners will have the opportunity to gain an understanding of computational systems of all kinds.

WHAT

Hanley Castle High School's Computing and IT Department aims to develop the capability of its students to be digitally literate, safe and capable users of information technology. The Computing umbrella at covers three important principles:

1. **Computer Science**
   - Encompassing data, hardware of computers, networks, the internet and programming
2. **Information Technology**
   - Be able to use computer systems and software to store, retrieve and send information
3. **Digital Literacy**
   - Being able to evaluate digital content and use technology safely and respectfully

The objectives within each strand support the development of learning across the key stages, ensuring a solid grounding for future learning and beyond.

WHY

Technology permeates every part of our society. Everything from mobile phones to banks, and theme parks to education, relies on the power of computing. All students need to be prepared for a world dominated by digital technology and a broad and rich Computing Curriculum is an opportunity for students to prepare them for life in a digital world.our aim is to provide a high-quality computing education which equips learners to use computational thinking and creativity to understand and change the world.

WHICH (CONTENT):

@KeyStage3	@KeyStage4	@KeyStage5

By the time they move onto Key Stage 4, learners will have gained key knowledge and skills in the three main areas of the computing curriculum:
 	
COMPUTER SCIENCE
 	
Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems
 	
Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching];
 	
Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems
 	
Understand the hardware and software components that make up computer systems, and how they communicate with one another
 	
Understand how instructions are stored and executed within a computer system
	Those who follow a Computer Science Pathway will:
	
	Computer Programming
	• Develop high-level computational thinking skills.
	• Learn the complex underpinning theory to programming and, for those for whom logic and problem-solving come naturally;
	• Develop critical thinking skills, which can be transferred to other subjects (especially mathematics and science).
	
	Academic Theory
	
	• Develop an understanding of current and emerging technologies,
	• Understand how they work and applying this knowledge and understanding in a range of contexts
	• Use knowledge and understanding of computer technology to become independent and discerning users of IT, able to make informed decisions
	• Evaluate the effectiveness of computer programs/solutions
	• Investigate the impact of, and issues related to, the use of computer technology in society
	
	Computational Thinking
	Students wholly understand the underpinning
		Those pursuing a Computer Science Pathway will:
		• apply the academic principles learned in the classroom to real-world systems.
		• look at the natural world through a digital prism.
		The aims of this pathway are to enable learners to develop:
		• An understanding and ability to apply the fundamental principles and concepts of computer science, including: abstraction, decomposition, logic, algorithms and data representation
		• The ability to analyse problems in computational terms through practical experience of solving such problems, including writing programs to do so
		• The capacity to think creatively, innovatively, analytically, logically and critically
		• The capacity to see relationships between different aspects of Computer Science
		• Mathematical and logical skills.
		
		Those who pursue an IT Pathway will:
		• Be able use social media to support business.
		   o How business use Social Media
		   o Risk Management
		   o Developing an online community
		• Understand the impact of Information Technology Systems

INFORMATION TECHNOLOGY

Understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits

Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users

Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability

DIGITAL LITERACY

Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their

logic that is so important to the study of computer science.

- acquire and apply a knowledge of technical skills
- show an understanding of the use of algorithms in computer programs to solve problems using programming
- gain and apply creative and technical skills, knowledge and understanding of IT in a range of contexts
- develop computer programs to solve problems

Those follow an IT Pathway will:

Cover a wide range of topics and skills to help prepare students for how IT and Digital Media might support a number of environments. Challenges all learners, including high attainers, by introducing them to techniques; encouraging independence and creativity.

They will:

1. Be discerning user of Information Technology
2. Be able to use technology to embed knowledge and understanding of Pre-Production Techniques
3. Use of IT to create a range of digital products
4. Develop higher level project management Skills
5. Be able to effectively test and review products and improve based on feedback

- o Digital Devices
- o Security
- o Computer Software
- o Emerging Technology
- o Networks
- Use IT to Manage Information
  - o Database design
  - o Implementing software solutions
  - o System testing and Evaluation
- Understand how computer are used to model data
  - o Using data models to support decisions
  - o Design computer models
  - o Developing computer model
  - o
  - o Be able to build a website for a specific purpose:
  - o Understand principles of website products
  - o Common tools and techniques
  - o Designing and building websites

online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns		