Iceni Academy's
Computing and Computer Science
End of Key Stage Non Negotiables

Key Stage One Expectations – ages 5-7 (Years 1-2)

- I know that algorithms are used by computers.
- I know that algorithms give computers and devices exact instructions on what to do.
- I can create and debug simple programs/algorithms.
- I can use logical reasoning to predict the behaviour of simple programs.
- I can use technology and software purposefully to:
  - Create digital documents
  - Organise data
  - Store documents and presentations
  - Manipulate pictures and text, and
  - Retrieve documents and files.
- I can recognise common uses of information technology beyond school.
- I can use technology safely and respectfully.
- I know I must keep personal information private.
- I can identify where to go for help and support if I have a concern about the content of a webpage or website.
- I know about the 'report' button on games and websites.

Key Stage Two Expectations – ages 7-11 (Years 3-6)

- I can design, write and debug programs that:
  - accomplish specific goals
  - solve problems, and
  - control and simulate physical systems (robot).
- I can decompose a program into smaller parts.
- I can use sequence, selection and repetition in programs.
- I can work with variables and various forms of input and output.
- I can use logical reasoning to explain how some simple algorithms work.
- I can detect and correct errors in simple algorithms and programs.
- I understand about computer networks, including the internet, particularly:
  - how they can provide multiple services such as the world wide web, and
  - the opportunities they offer for communication and collaboration.
- I can use search technologies effectively.
- I can appreciate how results are selected and ranked in search engines.

- I can be discerning in evaluating digital content (and that it can sometimes be untrue).
- I can 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.
- I can accomplish given goals including:
  o collecting data and information
  o analysing data and information
  o evaluating data and information, and
  o presenting data and information.
- I can use technology safely and respectfully.
- I can recognise acceptable and unacceptable online behaviour.
- I can identify a range of ways to report online concerns about content and contact.

Key Stage Three Expectations – ages 11-13 (Years 7-8)
- I know which software is used based on the document I need to create.
- I can use technology safely.
- I understand how to keep my computer safe and can recognise dangerous websites/links.
  o Phishing
  o Pharming
- I can use a spreadsheet efficiently.
- I know how computers have developed over time.
- I understand that technology is part of our future.
- I know the laws and acts related to technology:
  o Computer misuse
  o Data protection
  o Copyright
  o Regulatory and investigatory powers
- I can use decomposition, abstraction and algorithms to solve problems.
- I can use selection, iteration and assignment to create complex programmes to solve a problem.
- I know the difference between graphic based programming languages and text based programming languages.
- I am able to create a program from a project outline.
- I am able to debug my programs.
- I can read binary and can convert to denary.
- I can use the internet effectively for research.
- I know how to interpret a client brief.
- I understand issues surrounding the internet.

- I can create pre-production documents
- I can create an infographic using different tools
- I can combine a range of tools and types of content to present well-structured slides
- I can use a range of tools to layout my report in a suitable way

Key Stage Four Expectations – ages 14-16 (Years 10-11)

Creative iMedia
- Understand the purpose and content of pre-production.
- Be able to plan pre-production.
- Be able to produce pre-production documents
- Be able to review pre-production documents
- Understand the purpose and properties of digital graphics
- Be able to plan the creation of a digital graphic
- Be able to create a digital graphic
- Be able to review a digital graphic
- Understand the uses and properties of interactive multimedia
- Products
- Be able to plan interactive multimedia products
- Be able to create interactive multimedia products
- Be able to review interactive multimedia products
- Understand digital game types and platforms
- Be able to plan a digital game concept
- Be able to design a digital game proposal
- Be able to review a digital game proposal

Computer Science
- I understand the fundamentals of algorithms
  - Representing algorithms
  - Efficiency of algorithms
  - Searching and sorting algorithms
- I understand and am able to program
- I know the fundamentals of data representation
  - Number bases and conversions
  - Units of information
  - Binary arithmetic
  - Character encoding
  - Representing images
  - Representing sound

- o Data compression
- I understand computer systems
  - o Hardware and software
  - o Boolean logic
  - o Software classification
  - o Classification of programming languages and translators
  - o Systems architecture
  - o Fundamentals of computer networks
- I know about cybersecurity and what it entails
  - o Threats
  - o Social engineering
  - o Malware
  - o Methods to detect and prevent cyber security
- I understand relational databases and can use SQL
- I understand the ethical, legal, and environmental impacts of digital technology on wider society, including issues of privacy.