Computing at Queen Eleanor

Computing is about an analytical way of thinking: breaking down processes into steps, with each step and having a consequence for future steps. It is an approach to problem-solving that can be applied to computer science, maths, science and engineering.

Computing skills (Classification and retention)

Use software for communication, publishing or data analysis

Explain basic working components of computer hardware

Explain how a computer network provides multiple services

Analyse and debug a program

Challenge stereotypes about who uses IT and who is a programmer

Working like a programmer (Retention and application)

Decomposition – identify what is staying the same and what is changing

Logic – pattern recognition, result from cause and effect, continue pattern to check if decomposition was correct

Abstraction – formulate rule for the pattern

Algorithm design – use of language and symbols to describe the pattern

Data representation – use of statistics to present organise and information, use of hierarchical charts to organise information to show cause and effect

Elegance – Search for simplicity and elegance by performing a function in the fewest steps possible, or by re-using previous patterns

Ethics – responsible use of technology including e-safety

Sequencing content (Retention and connections)

Developmentally appropriate – KS1 NC focuses on physically seeing how logic produces cause and effect to produce instructions that can be acted out as a program. KS2 focuses on applying computational thinking to programming.

Links to PSHE – teaching e-safety

Links to maths – unitising in patterns and predicting results from generalised rule

Links to DT – building models of logic gates

Links to history – contributions of major thinkers such as Ada Lovelace, George Boole, Grace Hopper and Alan Turing

Media strand of curriculum aligned to researching and presenting knowledge for foundation subjects

Success for all

Learning with the brain in mind – use large tracks to model moving through logic gates

Use assistive technology to differentiate for physical needs

Oracy – articulate knowledge of software and hardware. Use technology as an aid to oral and written communication.

Assessment and progress

Application –create and debug programs (physical instructions in KS1, coding in KS2)

Application – use technology to gain new knowledge

Application – concisely and accurately present knowledge gained in foundation subjects