Year 7 Computing
Age Related Expectations

All children are assessed against the Age Related Expectations (ARE) within the different curriculum subjects. The ARE's are taken from the National Curriculum but are consolidated to reflect what *we* expect of a child. For example, three or four national curriculum targets might be summarised in one ARE. Judgements are generally based on a variety of different sources but will generally be a combination of on-going formative assessment in class, book work and formal summative testing.

A high-quality computing education equips pupils 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 pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Buildings on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils 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.

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<tr><th></th><th>Key Performance Indicators</th><th>Age Related Expectations</th></tr>
<tr><td>Computer Science</td><td>- Understands a recursive solution to a problem repeatedly applies the same solution to smaller instances of the problem.
- Recognises that some problems share the same characteristics and use the same algorithm to solve both (generalisation).
- Understands the notion of performance for algorithms and appreciates that some algorithms have different performance characteristics for the same task.
- Uses nested selection statements.
- Understands and uses negation with operators.
- Has practical experience of a high-level textual language, including using standard libraries when programming.
- Detects and corrects syntactical errors.
- Understands how numbers, images, sounds and character sets use the same bit patterns. Performs simple operations using bit patterns e.g. binary addition.</td><td rowspan="3">By the end of year 7 a child can confidently:
- Use technologies and online services securely, and knows how to identify and report inappropriate conduct
- Combine and use multiple digital devices, Internet services and application software to achieve given goals.

They can also clearly
- Identify the individual role of the key hardware elements of standard network architecture.
- Compare the bit patterns used in a range of scenarios.

In addition they can design, write, debug and then code algorithms, that:
- Apply the computational thinking techniques e.g. decomposition and computer science techniques e.g. selection to more than one programming language.
- Use a range of more complex techniques, to produce more efficient and effective coding solutions.
- Identify the issues associated with coding techniques and performance.</td></tr>
<tr><td>Information Technology</td><td>- Knows the names of hardware e.g. hubs, routers, switches, associated with networking computer systems.</td></tr>
<tr><td>Digital Literacy</td><td>- Uses technologies and online services securely, and knows how to identify and report inappropriate conduct.
- Identifies and explains how the use of technology can impact on society.
- Designs criteria for users to evaluate the quality of solutions, uses the feedback from the users to identify improvements and can make appropriate refinements to the solution.</td></tr>
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