

# Curriculum Overview

Subject: Computing

Year Group: 9



Students extend their text based programming skills using the PRIMM methodology and by programming portable devices. They investigate and explore the changing world of work and the impact of computer technology on this aspect of life. They also explore the technologies that make up the internet and World Wide Web and build a functioning website. In term 3, students will discover how professionals create digital games using the industry-standard software package, Construct 3 and then complete a final project to create a product to a client specification, working in groups and following the systems life cycle. Students are encouraged to articulate and record specialist terms to develop their understanding of the subject.

TERM 1	TERM 2	TERM 3
<b>KNOWLEDGE/SKILLS</b> <ul style="list-style-type: none"> <li>• Write programs that use device components to interact with the physical world.</li> <li>• Build a physical computing project.</li> <li>• Use independent and paired investigation to improve programming skills with PRIMM.</li> </ul>	<b>KNOWLEDGE/SKILLS</b> <ul style="list-style-type: none"> <li>• Investigate the changing working world and the impact of technology.</li> <li>• Understand the meaning of social engineering and have an awareness of methods to protect ourselves and our networks against these attacks.</li> </ul>	<b>KNOWLEDGE/SKILLS</b> <ul style="list-style-type: none"> <li>• Develop an idea for a digital game.</li> <li>• Understand the programming constructs in digital game making.</li> <li>• Build a 2D digital game.</li> </ul>
<b>KEY ASSESSMENTS</b> Half term 1: Programming assessment  Half term 2: Physical computing summative assessment	<b>KEY ASSESSMENTS</b> Half term 1: The world of work summative assessment  Half term 2: Cybersecurity summative assessment	<b>KEY ASSESSMENTS</b> Half term 1: Game design summative assessment  Half term 2: Construct 3 summative assessment

Extended reading suggestions and external resources:

BBC Bitesize Key Stage 3 Computer Science <https://www.bbc.co.uk/bitesize/subjects/zvc9q6f>

# Computing Year 9 Assessment Criteria

	<b>Bronze</b> 	<b>Silver</b> 	<b>Gold</b> 	<b>Platinum</b> 
<b>Terminology</b>	I need support to use the correct terminology.	I sometimes use the correct terminology.	I often use the correct terminology.	I always use the correct terminology.
<b>Feedback</b>	<b>I need support to act upon feedback and improve my work.</b>	<b>I sometimes act upon feedback, and improve my work.</b>	<b>I usually act upon feedback, and improve my work.</b>	<b>I independently act upon feedback and improve and version my work accordingly.</b>
<b>Presentation of work</b>	I always present my book work according to the school presentation policy. <b>I sometimes include a suitable header, footer and page numbers on my printed work.</b>	I always present my book work according to the school presentation policy. <b>I usually include a suitable header, footer and page numbers on my printed work.</b>	I always present my book work according to the school presentation policy. <b>I always include a suitable header, footer and page numbers on my printed work.</b>	I always present my book work according to the school presentation policy. <b>I always include a suitable header, footer and page numbers on my printed work.</b>
<b>E-Safety</b>	I can show use of computers safely and responsibly, knowing a range of ways to report unacceptable content and contact when online.	I know what is acceptable and unacceptable behaviour when using technologies and online services.	I can show responsible use of technologies and online services, and I know a range of ways to report concerns.	I can use technologies and online services securely, and I know how to identify and report inappropriate conduct.
<b>Folder structure</b>	<b>I need support to set up and name a basic folder structure.</b>	<b>I can set up a basic folder structure with suitable names.</b>	<b>I can set up a suitable folder structure with suitable names.</b>	<b>I can set up a suitable folder structure with subfolders and suitable names.</b>
<b>Saving work</b>	I need support to save my work in the correct folders with a suitable file name.	I can save most of my work in the correct folders with suitable file names.	I can save all of my work in the correct folders and subfolders with suitable file names.	I can save all of my work in the correct folders and subfolders with suitable file names and version numbers.
<b>Email</b>	<b>I need support to access my email.</b>	<b>I can access my email independently and some of the advanced email features.</b>	<b>I can access my email independently and use most of the advanced email features.</b>	<b>I can access my email independently and use most of the advanced email features.</b>

<p><b>Computer Science</b></p>	<p>I can identify which algorithm is the best to use for a given scenario.  <b>I can independently solve a simple (3-4 lines of code) computational problem.</b>  I can use some programming techniques in a written language such as Python, including selection.  <b>I can explain how several algorithms such as algorithms for sorting and searching work.</b>  I can explain how algorithms, such as searching algorithms work and I have some understanding of what sorting algorithms do.</p>	<p>I can evaluate the performance of two different algorithms that are designed to complete the same task.  <b>I can independently solve a basic computational problem.</b>  I have a good understanding programming techniques in a written language such as Python, using both selection and repetition  <b>I can give a good explanation of how my program works.</b>  I have tested for basic functionality.</p>	<p>I can code efficient algorithms for a given problem.  <b>I can solve a fairly complex (GCSE Computing CA programming task) computational problem.</b>  I can create a modularised program in a written programming language.  <b>I can thoroughly explain how my program works using technical terminology.</b>  I have tested and reviewed my code, identifying improvements.</p>	<p>I can code and fully justify the use of efficient algorithms for varied problems.  <b>I can solve complex computational problems by breaking it into smaller ones.</b>  I can design and complete efficient modularised programs using a variety of complex techniques.  <b>I can expertly explain how my program works using technical terminology.</b>  I can evaluate and explain my code using comprehensive test plans and regular reviews.</p>
<p><b>Creative Computing</b></p>	<p><b>I have developed the specified outcomes using some appropriate content and/or features.</b>  I have created/re-purposed digital artefacts that show some awareness of audience, purpose and usability.  <b>I have reviewed my work and made some changes, some of which my teacher thinks are effective</b>  I have produced and commented on a rough design that gives some indication of what the finished work will look like.</p>	<p><b>I have developed the specified outcomes using appropriate content and features.</b>  I have created/re-purposed digital artefacts that show a good awareness of audience, purpose and usability.  <b>I have reviewed my work and made some changes, some of which my teacher thinks are effective.</b>  I have used IT to produce designs that gives an indication of what the finished work will look like and how the different components are linked, commenting on the important decisions I have made</p>	<p><b>I have developed the specified outcomes using appropriate content and features, some of which are effective.</b>  I have created/re-purposed digital artefacts that show a sound awareness of audience, purpose and usability.  <b>I have reviewed my work more than once and used feedback to inform the improvements I have made.</b>  I have used IT to produce a detailed design that clearly shows what my finished work will look like and how the different components are linked with important design decisions justified.</p>	<p><b>I have developed the specified outcomes using effective content and features.</b>  I have created/re-purposed digital artefacts that show astute awareness of audience purpose and usability.  <b>I have reviewed my work throughout its development and used feedback to inform the improvements I have made.</b>  I have used IT to produce a detailed design that clearly shows what my finished work will look like and the pathways through the finished product.</p>

<p><b>Information Technology</b></p>	<p><b>I can create a spreadsheet or database model that generates meaningful information and is based on a real-world problem or physical system.</b>  I have some understanding of the hardware and software components that make up computer systems exploring how they interact.  <b>I understand how computers can communicate with each other.</b>  I have some understanding of personal digital devices and the impacts they have on everyday life.</p>	<p><b>I can create a spreadsheet or database model that uses some complex functions appropriately and that is relevant to a real world situation or physical system.</b>  I have a good understanding of the hardware and software components that make up computer systems exploring how they interact.  <b>I understand how computers communicate with one another and with other systems.</b>  I have a good understanding of personal digital devices and the impacts they have on everyday life.</p>	<p><b>I can create a spreadsheet or database model that uses a number of complex to generate reliable and meaningful information.</b>  I have a thorough understanding of the hardware and software components that make up computer systems and I can explain in detail how they interact.  <b>I have a thorough understanding of how computers and other systems communicate, exploring the advantages and disadvantages of various methods.</b>  I have a thorough understanding of personal digital devices and I can evaluate the impacts they have on everyday life.</p>	<p><b>I can create a fully functioning complex spreadsheet or database.</b>  I have an expert understanding of hardware and software components in a variety of devices.  <b>I can make informed decisions, based on expert knowledge on the best computer systems, networks and communications setup for a given situation.</b>  I have an expert understanding of personal digital devices and with evidence can evaluate the impacts they have on everyday life.</p>
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