

Computing & ICT Year 8 Curriculum overview for teachers

The below is intended to provide a simple overview of Year 8 Computing & ICT, the scheme of learning will provide the detailed exposition including literacy, SMSC, assessment, homework, learning activities and resources

Learning Focus	Assessments
<p>TOPIC 1 - Understanding Computers</p> <p>Learning enquiries: 1.) Establish how computers use binary to store information 2.) Model how computers use ASCII to represent text 3.) Theorise how computers represent bitmap images 4.) Discover how computers represent sound waves 5.) Examine how computers use binary to run programs 6.) Complete assessment on data representation</p> <p>Key Assessment objectives / skills: “Illustrate how digital computers use binary to represent all data”, “Illustrate how bit patterns represent numbers, images and sound”, “Classify different types of data (text, number) and understands how these are used in different situations”, “Demonstrate how filters or single criteria searches can find information”</p>	<p>Assessment One: Any of the learning enquiries can be used as an interim assessment opportunities. Homework sheets and tasks supplement lesson content and allow for assessment at the start of each session. Pupil progress diary allows for literacy development in keywords and extended writing opportunities Homework sheets available for each lesson.</p> <p>Final Assessment: Summative assessment based on unit content (Socrative)</p>
<p>TOPIC 2 - Networks from semaphores to the Internet</p> <p>Learning enquiries: 1.) What is a computer network is and how data is transmitted between computers across networks? 2.) What is a protocol? 3.) What is the hardware necessary for connecting devices to networks? 4.) What is the difference between wired and wireless networks? 5.) What is bandwidth? 6.) What is the internet? 7.) How does data travel between computers across the internet? 8.) What is the difference between the internet, its services, and the World Wide Web? 9.) How can internet-connected devices can affect me? 10.) What are components on the internet (servers, browsers, pages, HTTP and HTTPS protocols, etc.) and how do they work together?</p> <p>Key Assessment objectives / skills: “Demonstrate data transmission between digital computers over networks, including the internet i.e. IP addresses and packet switching”, “Construct static web pages using HTML”, “Examine the importance of network security including simple security techniques such as strong passwords”.</p>	<p>Assessment One: Any of the learning enquiries can be used as an interim assessment opportunities. Homework sheets and tasks supplement lesson content and allow for assessment at the start of each session.</p> <p>Final Assessment: Socrative based assessment with differentiated options.</p>
<p>TOPIC 3 - Data Protection and Cybersecurity</p> <p>Learning enquiries: 1.)What is the difference between data and information? 2.) What data do companies collect on you? 3.) How that data might be valuable to cybercriminals? 4.) How are you protected? 5.) How can human errors pose security risks to data? 6.) What strategies can we implement to minimise the risk of data being compromised through human error? 7.) What is hacking and how is it done, what prevention methods are there? 8.) What are the common malware threats? 9.) How can different types of malware causes problems for computer systems? 10.) How might how malicious bots have an impact on societal issues? 11.) How can networks be protected from common security threats? 12.) What are the most effective methods to prevent cyberattacks?</p> <p>Key Assessment objectives / skills: “Understand a range of ways to use technology safely, respectfully, responsibly, and securely, including protecting their online identity and privacy; recognise inappropriate content, contact, and conduct, and know how to report concerns”</p>	<p>Assessment One: Any of the learning enquiries can be used as an interim assessment opportunities. Homework sheets and tasks supplement lesson content and allow for assessment at the start of each session.</p> <p>Final Assessment: Final summative assessment on unit content carried out on Socrative.</p>

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TOPIC 4 - Vector Graphics	
<p><u>Learning enquiries:</u> 1.) Draw basic shapes (rectangle, ellipse, polygon, star) with different properties (fill and stroke, shape-specific attributes) 2.) Manipulate individual objects (select, move, resize, rotate, duplicate, flip, z-order) 3.) Combine paths by applying operations (union, difference, intersection) 4.) Convert objects to paths 5.) Edit path nodes 6.) Combine multiple tools and techniques to create a vector graphic design 7.) Explain what vector graphics are 8.) Provide examples where using vector graphics would be appropriate</p> <p><u>Key Assessment objectives / skills:</u> “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, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability”</p>	<p><u>Assessment One:</u> Any of the learning enquiries can be used as an interim assessment opportunities. Homework sheets and tasks supplement lesson content and allow for assessment at the start of each session.</p> <p><u>Final Assessment:</u> Final summative assessment where students create their own set of vector based icons based on a real world scenario.</p>