

## Welland Park Academy Assessment criteria: Computing/ICT Key Stage 3

AF1: Computation

AF2: Information technology

AF3: Digital literacy

<b>6</b>	<p><b>Recognise patterns, common features and differences by:</b></p> <ul style="list-style-type: none"> <li>designing, using and evaluating computational abstractions that model the state and behaviour of real-world problems and physical systems</li> <li>designing and developing modular programs that use procedures or functions</li> </ul> <p><b>Represent ideas, relationships and processes in general terms by:</b></p> <ul style="list-style-type: none"> <li>designing data structures such as lists, tables or arrays</li> <li>using simple Boolean logic to determine which parts of a program are executed and show in a flowchart or UML diagram</li> </ul> <p><b>Produce algorithms by:</b></p> <ul style="list-style-type: none"> <li>understanding key algorithms that reflect computational thinking such as sorting and searching</li> <li>using logical reasoning to compare alternative algorithms for the same problem</li> <li>use two or more programming languages, one of which is textual</li> <li>tracing code to identify and correct errors</li> </ul>	<p><b>Demonstrate a knowledge of computer systems and hardware by:</b></p> <ul style="list-style-type: none"> <li>explaining how instructions are stored and executed within a computer</li> <li>performing simple binary addition</li> <li>understanding how simple Boolean logic is used in circuits</li> <li>carrying out simple binary manipulations on logic gates through truth tables</li> </ul> <p><b>Know how networks work by:</b></p> <ul style="list-style-type: none"> <li>explaining how networks such as the internet work through addressing and the use of protocols and standards</li> <li>explaining the hardware components that make up networked computer systems</li> </ul> <p><b>Show an understanding of control by:</b></p> <ul style="list-style-type: none"> <li>understand how computers can monitor and control physical systems using sampling rates and analogue to digital conversion</li> <li>comparing the automation of recording manual methods in terms of reliability, safety and cost</li> </ul>	<p><b>Manage IT projects by:</b></p> <ul style="list-style-type: none"> <li>undertaking projects that involve selecting, using, and combining multiple applications, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users</li> <li>planning and developing solutions across a range of devices</li> </ul> <p><b>Show IT skills by:</b></p> <ul style="list-style-type: none"> <li>creating, reusing and repurposing digital artefacts for a given audience, with attention to trustworthiness, design and usability</li> </ul> <p><b>Demonstrate information literacy by:</b></p> <ul style="list-style-type: none"> <li>using complex lines of enquiry efficiently to interrogate information</li> <li>explaining how search engine results are selected and ranked</li> <li>describing the impact of ICT on people, communities and cultures</li> <li>explaining e-safety issues such as protecting their online identity and privacy; inappropriate content, contact and conduct and how to report concerns</li> </ul>
<b>5</b>	<p><b>Problem solve and model situations and processes by:</b></p> <ul style="list-style-type: none"> <li>tracing flowcharts, state machines and other diagrams to explain how a process or model works</li> <li>explaining the impact of changing variables and rules within a model</li> </ul> <p><b>Produce algorithms by:</b></p> <ul style="list-style-type: none"> <li>using logical and appropriate structures to organise and process data</li> <li>creating precise and accurate sequences of instructions</li> <li>tracing and explaining code in textual and diagrammatic languages</li> </ul>	<p><b>Demonstrate a knowledge of computer systems and hardware by:</b></p> <ul style="list-style-type: none"> <li>explaining the roles of the processor, memory, backing storage and peripherals in a typical desktop computer</li> <li>explaining how various types of data can be represented the form of binary digits including numbers, text, sounds and pictures</li> <li>converting binary to decimal</li> </ul> <p><b>Knowing how networks work such as:</b></p> <ul style="list-style-type: none"> <li>describing the types of services offered over LANs and WANs such as email, www, ftp, H.323, print and authentication</li> </ul> <p><b>Show an understanding of control by:</b></p> <ul style="list-style-type: none"> <li>specifying the configuration of computer systems to meet resilience and operational requirements</li> </ul>	<p><b>Manage IT projects by:</b></p> <ul style="list-style-type: none"> <li>working on projects within a systems or development life-cycle</li> </ul> <p><b>Show IT skills by:</b></p> <ul style="list-style-type: none"> <li>presenting information in a range of forms for familiar audiences</li> </ul> <p><b>Demonstrate information literacy by:</b></p> <ul style="list-style-type: none"> <li>take account of accuracy and potential bias when searching for and selecting information</li> <li>being aware on their online identity and managing conduct and contact appropriately and safely</li> </ul>
<b>4</b>	<p><b>Analyse and tackle problems by:</b></p> <ul style="list-style-type: none"> <li>decomposing them into smaller parts</li> <li>identifying appropriate inputs and predicting outputs to test programs</li> <li>using models and simulations to test</li> <li>using logical reasoning to explain simple algorithms</li> </ul> <p><b>Develop solutions to problems by:</b></p> <ul style="list-style-type: none"> <li>designing, writing and debugging procedures that accomplish specific goals</li> <li>using sequences, selection and repetition to implement algorithms</li> <li>working with variables and simple data types for input and output</li> </ul>	<p><b>Describe computer hardware by:</b></p> <ul style="list-style-type: none"> <li>identifying the main components of an IT system such as input, output processing and storage devices</li> <li>creating procedures control physical systems</li> </ul> <p><b>Understand computer networks including the internet such as:</b></p> <ul style="list-style-type: none"> <li>how they can provide multiple services such as the world-wide web</li> <li>using search technology and explaining how results are ranked</li> <li>discussing opportunities for communication and collaboration online</li> </ul>	<p><b>Show digital literacy skills by</b></p> <ul style="list-style-type: none"> <li>selecting, using and combining a variety of software and internet services on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information</li> <li>evaluating the quality and success of their solutions</li> <li>using technology safely, respectfully and responsibly and knowing a range of ways to report concerns and inappropriate behaviour</li> </ul>
<b>3</b>	<p><b>Demonstrate computational thinking &amp; problem solving by:</b></p> <ul style="list-style-type: none"> <li>use logical reasoning to explain how a simple algorithm works and to detect and correct errors in algorithms and programs</li> <li>use sequence, selection, and repetition in programs</li> </ul>	<p><b>Demonstrate a knowledge of computer systems and hardware by:</b></p> <ul style="list-style-type: none"> <li>describing input and output devices used in day-to-day life</li> <li>using search engines effectively</li> </ul>	<p><b>Show digital literacy skills by</b></p> <ul style="list-style-type: none"> <li>being discerning in evaluating digital content; respect individuals and intellectual property</li> <li>Identifying ways to keep safe when online</li> <li>Identifying and selecting appropriate information using straightforward lines of enquiry</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</li> <li>create and debug simple programs</li> <li>use logical reasoning to predict the behaviour of simple programs</li> </ul>	<ul style="list-style-type: none"> <li>understand the use of folders and be able to organise work logically including appropriate file and folder names</li> <li>recognise common uses of information technology beyond school.</li> </ul>	<ul style="list-style-type: none"> <li>use technology to purposefully organise, store, manipulate and retrieve digital content</li> <li>use technology safely and respectfully, keeping personal information private; know where to go for help and support when they have concerns about material on the internet</li> </ul>
<b>1</b>	<ul style="list-style-type: none"> <li>experiment with using ICT to solve a problem</li> <li>give simple instructions to everyday devices to make things happen and understand that this is called an algorithm</li> <li>make choices to control a simple simulation</li> </ul>	<ul style="list-style-type: none"> <li>talk about how and when they use ICT in their own lives</li> </ul>	<ul style="list-style-type: none"> <li>know that there are e-safety rules to be followed when online                             <ul style="list-style-type: none"> <li>explore information from a range of sources</li> <li>show an awareness of information in different formats</li> </ul> </li> </ul>