

Department:	Computing
Scheme of Learning Number:	4
Scheme of Learning Title:	Algorithms, networking and flow charts
Key Learning:	<p>Students will begin the project by writing instructions for a basic task. They will work with one another to realise the importance of clarity, detail and use of language. Students will develop skills to be able to convert their instructions into a flowchart, recognising and using the different symbols needed to define the different flowchart components, e.g. decisions, start/stop, input/output. Students will then learn how to use flowcharts to solve problems.</p> <p>Students learn what a computer network is and how it works based on a variety of environments. Students will explore the advantages and disadvantages of using networks. Students will learn what a network topology is and each layout as well as why each topology is used. Students will learn about servers; what both Peer to Peer and Client-Server Models are.</p>
Assessment:	Students will be given a formal online assessment at the end of the project which will include multiple choice questions, scenarios and comparisons at the end of the scheme of learning. Students will be assessed throughout the project, through marking, peer assessment and self-assessment.
Key Words:	<p><b>Algorithm:</b> a self-contained step-by-step set of operations/instructions to be performed.</p> <p><b>Decision:</b> the action or process of deciding something or of resolving a question.</p> <p><b>Instructions:</b> a statement that describes how to do something/ an order or command</p> <p><b>Input:</b> put (data) into a computer.</p> <p><b>Output:</b> the information produced by a computer</p> <p><b>Flow-chart:</b> a type of diagram that represents an algorithm, workflow or process, showing the steps as boxes of various kinds, and their order by connecting them with arrows.</p> <p><b>Computer Network</b> - set of computers connected together for the purpose of sharing resources. The most common resource shared today is connection to the Internet. Other shared resources can include a printer or a file server.</p> <p><b>Topology</b> - Network topology is the arrangement of the various elements (links, nodes, etc.) of a computer network.</p> <p><b>Server</b> A server is a computer program or a machine that waits for requests from other machines or software and responds to them. A server typically processes data. The purpose of a server is to share data or hardware and software resources among clients.</p>
Useful Websites:	<p><a href="http://www.bbc.co.uk/bitesize/ks3/ict/software_applications/control_sequencing/revision/3/">http://www.bbc.co.uk/bitesize/ks3/ict/software_applications/control_sequencing/revision/3/</a></p> <p><a href="http://www.cimt.plymouth.ac.uk/projects/mepres/book8/bk8i1/bk8_1i3.htm">http://www.cimt.plymouth.ac.uk/projects/mepres/book8/bk8i1/bk8_1i3.htm</a></p> <p><a href="http://www.safekidsonline.co.uk/learn/what-is-a-computer-network/">http://www.safekidsonline.co.uk/learn/what-is-a-computer-network/</a></p> <p><a href="http://www.bbc.co.uk/schools/gcsebitesize/ict/datacomm/2networksrev1.shtml">http://www.bbc.co.uk/schools/gcsebitesize/ict/datacomm/2networksrev1.shtml</a></p>
Ways to Support Your Child at Home:	<p>Give your child a daily task; see if they can write instructions on how to do it. Follow those instructions exactly, see if there's anything they've missed or not given you enough detail on.</p> <p>Do you have more than one computer/device at home or at work? Discuss how they are linked and why.</p>