Eastlea
COMMUNITY SCHOOL

Grade Descriptors For Computer Science

Assessment Outcomes Covered in the GCSE:

Grade	In order to be awarded this grade you must demonstrate that…
WA 9	• **You can <u>remember</u>, <u>recall</u>, <u>organise</u> and use key information in a clear and well developed line of reasoning. Relevant and substantiated information is presented with a logical structure to support your <u>justification</u> of an answer, an <u>evaluation</u> of a system for a given purpose or for a <u>discussion</u> about a given topic.** • You can write **<u>complete</u> <u>descriptions</u>** of key physical hardware and you can draw on a broad range of examples to **<u>compare</u>** and **<u>evaluate</u>** the usefulness of a range of hardware for a given purpose. • You can write **<u>complete</u> <u>descriptions</u>** of key types of software and you can draw on a broad range of examples to **<u>compare</u>** and **<u>evaluate</u>** the usefulness of a range of software for a given purpose. • You can **<u>convert</u>** between binary, hexadecimal and denary reliably and proficiently. • You have **memorised** and are able to **<u>show</u>** how computers use binary to represent a wide range of data types, you can **<u>compare</u>** how data **quality** is affected, you can **<u>compare</u>** the effects of **lossy** and **lossless** compression on data, you can give highly detailed **<u>explanations</u>** of why compression is required and you are aware of the limitations of certain types of data. • You can independently and accurately **<u>add</u>** binary numbers, **<u>calculate</u>** bit shifts and give detailed **<u>explanations</u>** of their effects. • **You can <u>write</u> and <u>rewrite</u> efficient algorithms and programs with an excellent level of independence.** • You can **<u>create</u>** an algorithm for a given problem and can independently represent it by **<u>drawing</u>** flowcharts that include variables, decisions and **nested** loops. • You can independently **<u>create</u>** an efficient algorithm for a given problem and structure python commands based on your algorithm that make use of nested loops and if statements. • You can **<u>annotate</u>** or add detailed comments to a flowchart or to Python code that demonstrate an excellent level of understanding. • You can **<u>show</u>** how searching and sorting algorithms work and can accurately demonstrate that you understand a wide range of these algorithms by demonstrating how they work using a trace table. • You can **<u>compare</u>** and **<u>evaluate</u>** the effectiveness of different searching and sorting algorithms for different purposes. • You can give highly detailed **<u>explanations</u>** of a wide range of digital threats to individuals, organisations and systems and you can **<u>compare</u>** and **<u>evaluate</u>** methods of countering these threats. • You can **<u>show</u>** how data is transferred in different network topologies and can **<u>evaluate</u>** each type of topology. • You can **<u>explain</u>** the purposes of a wide range of different types of networking hardware. • You can provide highly detailed **<u>explanations</u>** of **network layers** and how Local Area and Wide Area Networks are used and you can give highly detailed **<u>descriptions</u>** of a wide range of key protocols.
WA 8,	• **You can <u>remember</u>, <u>recall</u>, <u>organise</u> and use key information in a clear and developed line of reasoning. Relevant information is presented with a logical structure to support your <u>justification</u> of an answer, an <u>evaluation</u> of a system for a given purpose or for a <u>discussion</u> about a given topic.** • You can write **<u>complete</u> <u>descriptions</u>** of key physical hardware and you can draw on a broad range of examples to **<u>compare</u>** and **<u>evaluate</u>** the usefulness of a range of hardware for a given purpose. • You can write **<u>complete</u> <u>descriptions</u>** of key types of software and you can draw on a broad range of examples to **<u>compare</u>** and **<u>evaluate</u>** the usefulness of a range of software for a given purpose. • You can **<u>convert</u>** between binary, hexadecimal and denary reliably and proficiently. • You have **memorised** and are able to **<u>show</u>** how computers use binary to represent a wide range of data types, you can **<u>compare</u>** how data **quality** is affected, you can **<u>compare</u>** the effects of **lossy** and **lossless** compression on data, you can give highly detailed **<u>explanations</u>** of why compression is required and you are aware of the limitations of certain types of data. • You can independently and accurately **<u>add</u>** binary numbers, **<u>calculate</u>** bit shifts and give detailed **<u>explanations</u>** of their effects. • **You can <u>write</u> and <u>rewrite</u> algorithms and programs with an excellent level of independence.** • You can **<u>create</u>** an algorithm for a given problem and can independently represent it by **<u>drawing</u>** flowcharts that include variables, decisions and **nested** loops. • You can independently **<u>create</u>** an efficient algorithm for a given problem and structure python commands based on your algorithm that make use of nested loops and if statements. • You can **<u>annotate</u>** or add detailed comments to a flowchart or to Python code that demonstrate an excellent level of understanding. • You can **<u>show</u>** how searching and sorting algorithms work, you can accurately demonstrate that you understand a wide range of these algorithms by demonstrating how they work using a trace table and you can **<u>compare</u>** the effectiveness of these algorithms when used in different circumstances. • You can give highly detailed **<u>explanations</u>** of a wide range of digital threats to individuals, organisations and systems and you can **<u>compare</u>** and **<u>evaluate</u>** methods of countering these threats. • You can **<u>show</u>** how data is transferred in different network topologies and can **<u>evaluate</u>** each type of topology. • You can **<u>explain</u>** the purposes of a wide range of different types of networking hardware. • You can provide highly detailed **<u>explanations</u>** of **network layers** and how Local Area and Wide Area Networks are used and you can give highly detailed **<u>descriptions</u>** of a wide range of key protocols.

WA 7,	• **You can remember, recall, organise and use key information in a developed line of reasoning. Relevant information is presented with structure to support your justification of an answer, an evaluation of a system for a given purpose or for a discussion about a given topic.** • You can write **complete descriptions** of key physical hardware and you can draw on a broad range of examples to **compare** and **evaluate** the usefulness of a range of hardware for a given purpose. • You can write **complete descriptions** of key types of software and you can draw on a broad range of examples to **compare** and **evaluate** the usefulness of a range of software for a given purpose. • You can **convert** between binary, hexadecimal and denary reliably and proficiently. • You are able to **show** how computers use binary to represent a wide range of data types, how data **quality** is affected, you can **compare** the effects of **lossy** and **lossless** compression on data and you are aware of the limitations of certain types of data. • You can independently and accurately **add** binary numbers, **calculate** bit shifts and give detailed **explanations** of their effects. • **You can write and rewrite algorithms and programs with a very good level of independence.** • You can **create** an algorithm for a given problem and can independently represent it by **drawing** flowcharts that include variables, decisions and **nested** loops. • You can **create** an algorithm for a given problem and structure python commands based on your algorithm that make use of nested loops and if statements. • You can **annotate** or add detailed comments to a flowchart or to Python code that demonstrate a very good level of understanding. • You can **show** how searching and sorting algorithms work and can accurately demonstrate that you understand a wide range of these algorithms by demonstrating how they work using a trace table. • You can give highly detailed **explanations** of a wide range of digital threats to individuals, organisations and systems and you can **compare** and **evaluate** methods of counteracting these threats. • You can **show** how data is transferred in different network topologies and can **evaluate** each type of topology. • You can **explain** the purposes of a wide range of different types of networking hardware. • You can provide highly detailed **explanations** of how Local Area and Wide Area Networks are used and you can give highly detailed **descriptions** of a wide range of key protocols.
WA 6,	• **You can remember, recall, organise and use key information in a line of reasoning with structure to support your justification of an answer, an evaluation of a system for a given purpose or for a discussion about a given topic.** • You can write **complete descriptions** of key physical hardware and you can draw on a broad range of examples to **compare** and **evaluate** the usefulness of a range of hardware for a given purpose. • You can write **complete descriptions** of key types of software and you can draw on a broad range of examples to **compare** and **evaluate** the usefulness of a range of software for a given purpose. • You can **convert** between binary, hexadecimal and denary reliably and proficiently. • You are able to **show** how computers use binary to represent a wide range of data types, how data **quality** is affected and you can **compare** the effects of **lossy** and **lossless** compression on data. • You can independently and accurately **add** binary numbers, **calculate** bit shifts and give detailed **explanations** of their effects. • **You can write and rewrite algorithms and programs with a good level of independence.** • You can **draw** flowcharts for complex given processes that include variables, decisions and **nested** loops. • You can structure python commands based on a flowchart that make use of nested loops and if statements to solve given problems. • You can **annotate** or add detailed comments to a flowchart or Python code that demonstrate a good level of understanding. • You can **show** how searching and sorting algorithms work and can accurately demonstrate that you understand a range of these algorithms by demonstrating how they work using a trace table. • You can give detailed **explanations** of a wide range of digital threats to individuals, organisations and systems and you can **compare** and **evaluate** methods of counteracting these threats. • You can **show** how data is transferred in different network topologies and can **evaluate** each type of topology. • You can **explain** the purposes of a wide range of different types of networking hardware. • You can provide detailed **explanations** of how Local Area and Wide Area Networks are used and you can give detailed **descriptions** of key protocols.
WA 5,	• **You can remember, recall, organise and use key information to use in a line of reasoning with some structure to to support your justification of an answer, an evaluation of a system for a given purpose or for a discussion about a given topic.** • You can provide a very good level of detail in your **descriptions** of key physical hardware and you can draw on a broad range of examples when you **explain** why certain hardware would be the most appropriate for a given purpose. • You can provide a very good level of detail in your **descriptions** of key types of software and you can use a broad range of examples when you **explain** why certain software would be the most appropriate for a given purpose. • You can **convert** between binary, hexadecimal and denary reliably and proficiently. • You are able to **explain** how computers use binary to represent a wide range of data types and you can give detailed **descriptions** of how lossy and lossless compression is used. • You can independently and accurately **add** binary numbers, **calculate** bit shifts and give detailed **explanations** of their effects. • **You can write and rewrite algorithms and programs with independence.** • You can **draw** flowcharts for complex given processes that include variables, decisions and **nested** loops. • You can structure python commands based on a flowchart that make use of nested loops and if statements to solve given problems. • You can **annotate** or add detailed comments to a flowchart or Python code that demonstrate some understanding. • You can provide highly detailed **descriptions** of how searching and sorting algorithms work and can accurately demonstrate that you understand a range of these algorithms by demonstrating how they work using a trace table. • You can give to individuals, organisations and systems and you can give detailed **descriptions** of how these threats can be countered. • You can give a detailed **description** of how data is transferred in different network topologies and can **explain** why each topology has advantages and disadvantages that make them appropriate for different purposes. • You can **explain** the purposes of a range of different types of networking hardware. • You can provide a good **explanation** of how Local Area and Wide Area Networks are used and you can give good **descriptions** of key protocols.

WA 4,	• **You can <u>remember</u>, <u>recall</u>, <u>organise</u> and use key information and are beginning to be able to use this to support your <u>justification</u> of an answer, an <u>evaluation</u> of a system for a given purpose or for a <u>discussion</u>.** • You can provide a good level of detail in your **<u>descriptions</u>** of key physical hardware and you can use a range of examples when you **<u>explain</u>** why certain hardware would be the most appropriate for a given purpose. • You can provide a good level of detail in your **<u>descriptions</u>** of key types of software and you can use a range of examples when you **<u>explain</u>** why certain software would be the most appropriate for a given purpose. • You can **<u>convert</u>** between binary, hexadecimal and denary proficiently. • You are able to **<u>explain</u>** how computers use binary to represent a range of data types and you can **<u>describe</u>** how lossy and lossless compression is used. • You can independently and accurately **<u>add</u>** binary numbers, **<u>calculate</u>** bit shifts and **<u>explain</u>** their effects. • **You are beginning to be able to <u>write</u> and <u>rewrite</u> algorithms and programs with some independence.** • You can **<u>draw</u>** flowcharts for more complex given processes that include variables, decisions and **nested** loops. • You can structure python commands based on a flowchart that make use of nested loops and if statements to solve given problems. • You can **<u>annotate</u>** or add comments to a flowchart or Python code to explain how it works. • You can provide detailed **<u>descriptions</u>** of how searching and sorting algorithms work and can accurately demonstrate their method in a trace table. • You can **<u>explain</u>** a wide range of digital threats to individuals, organisations and systems and you can give detailed **<u>descriptions</u>** of how these threats can be countered. • You can give a detailed **<u>description</u>** of how data is transferred in different network topologies and can **<u>explain</u>** why each topology has advantages and disadvantages that make them appropriate for different purposes. • You can provide a good **<u>explanation</u>** of how Local Area and Wide Area Networks are used and you can give detailed **<u>descriptions</u>** of key protocols.
WA 3,	• **You can <u>remember, recall and understand</u> key information about a given topic.** • You can **<u>describe</u>** the characteristics of key physical hardware and you can **<u>explain</u>** why certain hardware would be most appropriate for a particular given purpose. • You can **<u>describe</u>** the characteristics of key types of software and you can **<u>explain</u>** why certain kinds of software would be most appropriate for a particular given purpose. • You can correctly identify, label and describe key components of computer systems such as the CPU. • You can independently **<u>convert</u>** between binary, hexadecimal and denary with a good level of accuracy. • You can **<u>explain</u>** how computers are able to represent data using bit patterns and how *lossy* and *lossless* compression can be applied to them. • You can independently **<u>add</u>** binary numbers, **<u>calculate</u>** bit shifts and **<u>explain</u>** their effects. • You can **<u>draw</u>** flowcharts for more complex given processes that include variables, decisions and loops. • You can structure python commands based on a flowchart that make use of selection and repetition to solve given problems. • You can **<u>annotate</u>** or add comments to a flowchart or Python code to explain how it works. • <mark>You are able to structure Python commands to solve a given problem and you can independently fix errors.</mark> • You can **<u>describe</u>** how searching and sorting algorithms work and can demonstrate their method in a trace table. • You can **<u>explain</u>** a range of digital threats to individuals, organisations and systems and you can **<u>describe</u>** how these threats can be countered. • You can **<u>describe</u>** how data is transferred in different network topologies as well as their advantages and disadvantages. • You can **<u>explain</u>** how Local Area and Wide Area Networks are used and you can **<u>describe</u>** key protocols.
WA 2,	• **You are able to <u>remember and recollect</u> important information about a given topic.** • You can **<u>identify</u>** and define key physical hardware and you can suggest what type of hardware would be most appropriate for a particular given purpose. • You can **<u>identify</u>** different types of software and their functionality and you can suggest what software would be best used for a particular given purpose. • You can correctly identify and label key components of computer systems such as the CPU. • You have begun to develop proficiency in **<u>conversion</u>** between different number bases (denary, binary and hexadecimal) • You **<u>remember</u>** some of the ways that computers represent data with binary. • You are beginning to be able to draw *flowchart diagrams* for simple, given processes. • <mark>You are able to structure some Python commands to solve a given problem and you can independently fix some errors.</mark> • You can **<u>list</u>** the steps required to carry out one or more or more searching and sorting algorithms. • You can **<u>recall</u>** some of the digital threats that exist for individuals and for computer systems and you can **<u>outline</u>** some of the actions that can be taken to counter these threats. • You can **<u>identify</u>** network topologies and **<u>list</u>** the advantages and disadvantages of different types of network topologies. • You can **<u>state</u>** the role of a *client* and a *server* is in a wide area network such as the internet, you can give definitions of some network protocols and **<u>state</u>** their purposes.
WA 1,	• **You are starting to <u>remember and recollect</u> some important information about a given topic.** • You can independently **<u>identify</u>** and **<u>give</u>** definitions of some of the key physical hardware components that make up a computer system. • You can **<u>identify</u>** different types of software and you can **<u>recollect</u>** the functionality they provide. • You can **<u>give</u>** a reason that computer systems need to use binary. • You can **<u>identify</u>** where to use an input, output, process and a decision in a flow-chart. • You are beginning to be able to apply the principles of abstraction and decomposition to solving problems by thinking algorithmically. • <mark>You can **<u>identify</u>** some appropriate Python instructions to use for a given purpose.</mark> • You can **<u>recall</u>** some searching and sorting algorithms. • You are able to **<u>state</u>** some of the digital threats that exist both to individuals and to computer systems and you can **<u>recollect</u>** actions that may be taken to counter these threats. • You can **<u>identify</u>** different types of network topologies. • You can **<u>identify</u>** the c*lient* and a *server* is in a wide area network such as the internet and you can **<u>select</u>** some appropriate network protocols for a given purpose.