

Computing @ SJB

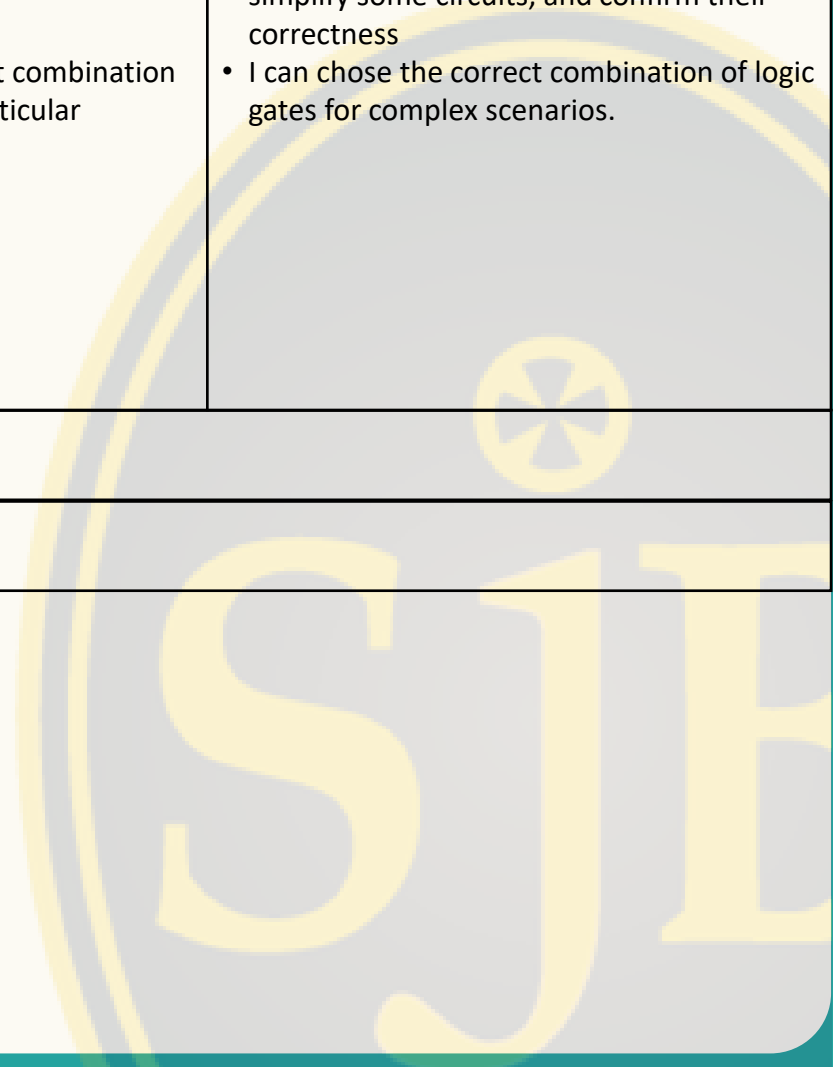
EMERGING	SECURE	DEEPENING	MASTERY
<ul style="list-style-type: none"> • I understand binary only uses 0's and 1's • I know that numbers are made up of individual digits arranged in columns • I understand I need to use Place Values to convert between binary and decimal • I know that one bit is a single one or zero • I know that adding binary numbers will give a number that only has 1's and 0's in it • I understand we cannot call Binary fractions "Decimals" 	<ul style="list-style-type: none"> • I understand 1's and 0's are useful in representing on/off or true/false • I recognise that each place value column represents how many of that column are in the overall number • I know that adding up the binary number place values with a 1 in will give me the decimal number • I understand that the word bit in computing is short for binary digit • I can add a one bit number to another one bit number • I know that the first two Binary fraction place values represent 0.5 and then 0.25 	<ul style="list-style-type: none"> • I know that binary is the basis of all modern computing as they are designed using logic gates • I understand that we can add a new place value column once we have reached the end of the counting numbers in a place value column • I can convert 4 bit binary numbers into decimal • I know that 8 bits make up a byte • I know the 4 binary additions we need to perform binary column addition • I know we multiply by two when moving left in the place value columns, and dividing by two when moving right in the place value columns 	<ul style="list-style-type: none"> • I could write a short paragraph explaining why we use binary in computing • I can work out the first 8 place values columns of the Binary number base • I can convert 8 bit binary numbers to decimal • I know that the maximum value of a byte is 256 • I can add up two 8 bit binary numbers • I can convert decimal fractions to binary fractions
WWW :			
EBI :			

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EMERGING	SECURE	DEEPENING	MASTERY
<ul style="list-style-type: none"> • I can recognise the three logic gates AND, OR and NOT. • I can explain the output of these logic gates for different inputs. • I can build truth tables for AND, OR and NOT 	<ul style="list-style-type: none"> • I understand that logic gates are the building blocks of all computing devices • I can create logic circuits with AND, OR and NOT. • I can chose the correct logic gate for a particular scenario. 	<ul style="list-style-type: none"> • I can create and produce truth tables for logic circuits using AND, OR and NOT. • I can chose the correct combination of logic gates for a particular scenario. 	<ul style="list-style-type: none"> • I can create and produce truth tables for logic circuits using AND, OR and NOT and simplify some circuits, and confirm their correctness • I can chose the correct combination of logic gates for complex scenarios.

WWW :

EBI :



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EMERGING	SECURE	DEEPENING	MASTERY
<ul style="list-style-type: none"> • Explain the difference between data and information • Explain the need for the Data Protection Act and Computer Misuse Act • Recognise how human errors pose security risks to data • Be able to explain the term social engineering • I know what hacking is in regard to cybersecurity • I know there are security threats that impact on organisations 	<ul style="list-style-type: none"> • Identify what happens to data entered online • Compare security threats against their probability and potential impact on organisations • Explain how networks can be protected from common security threats • I know the different types of social engineering • I can name the different methods that hackers use to disrupt network resources • I can name the different methods that hackers use to disrupt network resources • I can name several ways in which networks can be protected 	<ul style="list-style-type: none"> • Critique online services in relation to data privacy • Define hacking in the context of Cybersecurity • Identify strategies to reduce the chance of a brute force attack being successful • Question how malicious bots can have an impact on societal issues • Examine how different types of malware cause problems for computer systems • Know how to protect myself against social engineering • I can identify strategies to reduce the chance of a brute force attack being successful • I know can name and explain what methods can be used to secure a network from security threats 	<ul style="list-style-type: none"> • Implement strategies to minimise the risk of data being compromised through human error • Explain how a DDoS attack can impact users of online services • Identify the most effective methods to prevent cyberattacks • I can explain how I could be targeted regarding social engineering and what processes to put in place • I can explain how a DDoS attack can impact users of online services • Given a scenario I can discuss the relevant strategies required to protect a network
<p>WWW :</p>			
<p>EBI :</p>			

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EMERGING	SECURE	DEEPENING	MASTERY
<ul style="list-style-type: none"> • Be able to explain the term machine learning • Be able to give an example of qualitative and quantitative data • Be able to define the term and design a basic algorithm • Be able to give reasons for filtering data • Be able to name several charts that can be used in data visualization • Know that data sets can identify trends 	<ul style="list-style-type: none"> • Be able to give real-world examples of machine learning • Be able to discuss the advantages and disadvantages of both qualitative and quantitative data • Be able to name the key searching and sorting algorithms • Be able to explain how data filtering works and apply simple filters to a data set • Be able to list common trends that might be seen in datasets 	<ul style="list-style-type: none"> • Be able to describe the key searching and sorting algorithms • Be able to apply data filtering to a complex filters to a data set • Be able to use data visualisation software to create a basic visualisation • Be able to analyse data sets to interpret trends 	<ul style="list-style-type: none"> • Be able to discuss ethical challenges of using machine learning • Be able to evaluate the key searching and sorting algorithms • Be able to examine and evaluate a data set following data filtering • Be able to explain the value of data visualisation in enabling understanding and analysis of data • Be able to define positive and negative correlation and explain how they relate to causation

WWW :

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EMERGING	SECURE	DEEPENING	MASTERY
<ul style="list-style-type: none"> • I can, with guidance, construct a digital artefact from a range of sources and identify the changes that need to be made to each part. • I can, with guidance, apply techniques to create and manipulate images. • I can, with guidance, identify and use the appropriate tool in bitmap and vector graphics editing software. 	<ul style="list-style-type: none"> • I can, with some guidance, construct a digital artefact from a range of sources and identify the changes that need to be made to each part. • I can, with guidance, apply techniques to create and manipulate images. • I can, with some guidance, identify and use the appropriate tool in bitmap and vector graphics editing software. 	<ul style="list-style-type: none"> • I can, mostly independently, construct a digital artefact from a range of sources and identify the changes that need to be made to each part. • I can, mostly independently, apply compound techniques to create and manipulate images. • I can, mostly independently, identify and use the appropriate tool in bitmap and vector graphics editing software. 	<ul style="list-style-type: none"> • I can independently construct a digital artefact from a range of sources and identify the changes that need to be made to each part. • I can independently apply compound techniques to create and manipulate images. • I can independently identify and use the appropriate tool in bitmap and vector graphics editing software.

WWW :

EBI :

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EMERGING	SECURE	DEEPENING	MASTERY
<ul style="list-style-type: none"> • I can create a variable and assign a value • I can create a variable of a specified data type • I can use + / - * in assigning variables • I can use > < >= <= == != in comparing variables and values 	<ul style="list-style-type: none"> • I can create and change a variable and trace it in a simple program • I can create the appropriate data types for a scenario • I can do calculations using MOD, DIV and exponent • I can use the operators to arrive at a given Boolean value 	<ul style="list-style-type: none"> • I can create variables with the correct data type • I can alter the data type for a variable when necessary • I know how to assign variables using MOD, DIV and exponent • I can predict whether the Boolean value will be True or False 	<ul style="list-style-type: none"> • I can identify which variables are needed to solve a problem • I can name and use variables appropriately with all data types • I know how to use MOD, DIV and exponent in a given scenario • I can predict whether the Boolean value will be True or False in complex problems
WWW :			
EBI :			

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EMERGING	SECURE	DEEPENING	MASTERY
<ul style="list-style-type: none"> I can write step by step instructions to solve a simple problem I can create questions which give True or False answers I understand questions can have more than two True or False answers 	<ul style="list-style-type: none"> I can create a python program to solve a simple problem I can write an IF statement in Python which checks a condition I can write an IF...ELIF...ELSE statement in Python which checks conditions 	<ul style="list-style-type: none"> Given variables and values I can write a Python sequence to achieve a goal Given variables and values, I can write an IF statement to check a condition Given variables and values, I can write multi branch selections to check 	<ul style="list-style-type: none"> I can build a program using sequences in Python implement an algorithm I can interpret a given scenario and build a selection program in Python using IF..ELSE I can interpret a given scenario and build a multi branch selection program
WWW :			
EBI :			