



PUTTING THE FUN BACK
INTO LEARNING!

Dear Parents and Guardians,

Welcome to the ICT and Computing March Curriculum Guide. Our aim is to make all students computer literate and to do this we provide a curriculum which is challenging, progressive and relevant. Our high-quality computing education equips our students with computational thinking and creativity to understand and change the world.

The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. By continually building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that our students become digitally literate at a level suitable for the future workplace and as active participants in a digital world.

KS2 and KS3 –

Grade 5, 6, 7 and 8 are attending a double lesson every week. In each lesson, students are learning theory topics along with practical skills.

KS4 –

All Grade 9 students are doing ICT as a double lesson each week. Students in Grade 10 who have not chosen Physics continue to study ICT for a double lesson a week. Those KS4 students who have selected Computer Science at grade 9 and 10 as an optional subject are attending an additional 5 lessons a week to cover the Computing course.

The Core Topics:

This term

Grade 5:

Students will cover the topic of programming using Scratch to learn basic computational thinking skills. Students will create their own games using visual programming to create different types of programs such as games.

Grade 6

Students will cover the topics on visual based programming, students will be using Kodu game lab to learn how to code games. Students will learn how to design game background, create characters and program the character to carry out different actions.

Grade 7

Students will learn how to use multiple tools in Photoshop to edit images to create a portfolio of images to be used in their digital multimedia portfolio. Students will be making new animals and billboard poster.

Grade 8

Students will learn how to use multiple tools in Photoshop to edit images to create a portfolio of images to be used in their digital multimedia portfolio. Students will be making new animals and billboard poster.

Grade 9

In ICT lessons Grade 9 students will be starting their practical exam skills sessions where they will be learning how to use a range of software according to the paper 2 exam requirements. Students will start with spreadsheet software and will learn how to format a spreadsheet, calculate data using formula and displaying the data using a variety of graphs.

In Computer Science lessons Grade 9 students who have chosen this option will be covering data structures; arrays and databases. They will also be doing practical work on programming concepts, designing and writing programs in Python using the online Python editor at Codecademy. This is to ensure that students are able to learn independently in class and at home.

Grade 10

In ICT lessons Grade 10 students will be learning about computers and other digital devices. They need to understand how each type of device is used but not the technology behind their operation. Students will also be learning features of digital devices: portability, performance, storage, user interface, connectivity, media support, energy consumption, expansion capability, security features.

In computer science lessons Grade 10 students who have chosen this option will be covering problem solving and design and pseudocode and flowcharts. They will also be doing practical work on programming concepts, designing and writing programs in Python in order to prepare for the Paper 2 Exam.

How Can You Help? Encourage your child to enjoy working on their skills developed by practicing at home using the websites recommended below.

Homework: All assigned homework will be either paper based or electronic. Students will require USB to backup work and take electronic copies of homework when required.

Useful Website:

Grade 5: <https://scratch.mit.edu/>

Grade 6: <https://codecombat.com/>

Grade 7: www.bbc.co.uk/education/subjects/zvc9q6f

Grade 8: www.bbc.co.uk/education/subjects/z8mtsbk

Grade 9 (ICT): <http://www.bbc.co.uk/education/subjects/zqmtsbk>

Grade 9 (Computing): <http://www.bbc.co.uk/education/subjects/z34k7ty>

Grade 10 (ICT): <http://www.bbc.co.uk/education/subjects/zqmtsbk>

Grade 10 (Computing): <http://www.bbc.co.uk/education/subjects/z34k7ty>

Curriculum Content for Oct 2017:

Grade 5: Scratch - programming

Session Name	Description	Learning Intention
Programming Skills	Project 1: Balloon game	<ul style="list-style-type: none">• Students will learn about variables to program different conditions• To learn about events and different control structures.• To apply techniques learned in different assigned projects.
	Project 2: Pac man game	

Grade 6: Computer Networks and security

Session Name	Description	Learning Intention
Kodu Game Lab	Interacting with different objects in the game	<ul style="list-style-type: none">• Understand how a character can interact with different objects in a game world.• To be design a new world background.• To create a game which has a counting score feature.
	Designing a new world background	
	Creating a counting score game	

Grade 7: Digital Multimedia

Session Name	Description	Learning Intention
Creating a New Animal	Students will learn how to clone different features of different layers to create a new animal	<ul style="list-style-type: none"> • Understand how to combine layers to create new images • Be able to merge images together using the clone tool in Photoshop • To be able to create a magazine cover for a movie by combining multiple Photoshop tools
Designing a Movie Magazine Cover	Students create their own magazine cover for their movie	
Create a billboard poster	Students will create a billboard poster for their movie	

Grade 8: Digital Multimedia

Session Name	Description	Learning Intention
Creating a New Animal	Students will learn how to clone different features of different layers to create a new animal	<ul style="list-style-type: none"> • Understand how to combine layers to create new images • Be able to merge images together using the clone tool in Photoshop • To be able to create a magazine cover for a movie by combining multiple Photoshop tools
Designing a Movie Magazine Cover	Students create their own magazine cover for their movie	
Create a billboard poster	Students will create a billboard poster for their movie	

Grade 9 ICT:

Session Name	Description	Learning Intention
Practical skills for paper 2 exam.	Students need to use a range of software features and will complete specific tasks for the paper 2 practical exam	<ul style="list-style-type: none"> • Be able to select and use interface features and system facilities effectively to meet needs • Be able to manage files and folder structures to enable efficient information retrieval • Be able to select and use software applications to meet needs and solve problems • Be able to enter, organize, develop, refine and format information, applying editing techniques to meet needs • Be able to use appropriate page layout

Grade 10 ICT:

Session Name	Learning Intention	Description
What computers and other digital devices are available	Students need to know about computers and other digital devices.	<ul style="list-style-type: none">• Be aware that mainframe computers are used for complex processing tasks and microprocessors are embedded in products such as washing machines.• Understand that laptop and desktop computers are types of personal computers. Some laptops are used as desktop replacements• Know about types of mobile phones; smartphones and specialist phones and how they connect to the• networks - Know about tablet devices.• Be able to describe the purpose and use of other digital devices such as: • cameras and camcorders • games consoles • home entertainment systems • media players.• Know about navigation aids and how they are used.• Understand the terms 'multifunctional' (e.g. mobile phones that include a camera, have limited game playing functionality and GPS) and 'convergence' (e.g. functionality of smartphones and tablet devices becomes more similar) in the context of digital devices.
How are computers and other digital devices used	Students need to understand how each type of computer or device is used but not the technology behind their operation.	<ul style="list-style-type: none">• Understand features of digital devices: portability, performance, storage, user interface, connectivity, media support, energy consumption, expansion capability, security features.• Be able to discuss the features of identified digital devices.

Grade 9 Computing:

Topic	Description	Learning Intention
Programming	Programming concepts	<p>declare and use variables and constants</p> <ul style="list-style-type: none"> • understand and use basic data types: Integer, Real, Char, String and Boolean • understand and use the concepts of sequence, selection, repetition, totalling and counting • use predefined procedures/functions
Data	Data structures; arrays	<ul style="list-style-type: none"> • declare and use one-dimensional arrays, for example: A[1:n] • show understanding of the use of one-dimensional arrays, including the use of a variable as an index in an array • read or write values in an array using a FOR ... TO ... NEXT loop
Databases	Definition and queries	<ul style="list-style-type: none"> • define a single-table database from given data storage requirements • choose and specify suitable data types • choose a suitable primary key for a database table • perform a query-by-example from given search criteria.

Grade 10 Computing:

Session Name	Description	Learning Intention
System design	Problem-solving and design	<ul style="list-style-type: none"> • use top-down design, structure diagrams, flowcharts, pseudocode, library routines and subroutines show understanding that every computer system is made up of sub-systems, which in turn are made up of further sub-systems

		<ul style="list-style-type: none"> •work out the purpose of a given algorithm •explain standard methods of solution •suggest and apply suitable test data •understand the need for validation and verification checks to be made on input data (validation could include range checks, length checks, type checks and check digits) •use trace tables to find the value of variables at each step in an algorithm •identify errors in given algorithms and suggest ways of removing these errors •produce an algorithm for a given problem (either in the form of pseudocode or flowchart) •comment on the effectiveness of a given solution
Coding	Pseudocode and flowcharts	<ul style="list-style-type: none"> •understand and use pseudocode for assignment, using ← •understand and use pseudocode, using the following conditional statements: IF ... THEN ... ELSE ... ENDIF CASE ... OF ... OTHERWISE ... ENDCASE •understand and use pseudocode, using the following loop structures: FOR ... TO ... NEXT REPEAT ... UNTIL WHILE ... DO ... ENDWHILE •understand and use pseudocode, using the following commands and statements: INPUT and OUTPUT (e.g. READ and PRINT) totalling (e.g. Sum ← Sum + Number) counting (e.g. Count ← Count + 1) •understand and use standard flowchart symbols to represent the above statements, commands and structures

Best Regards,

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ICT & Computing Specialist Teachers