PUTTING THE FUN BACK INTO LEARNING!

Computing Curriculum Guide

September 2017

Dear Parents and Guardians,

Welcome to the ICT and Computing September Curriculum Guide. We aim 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.

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.

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.

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 scratch.

Grade 6

Students will cover the topics of E-safety, Security and Ethics. Students will design and create their own E-Safety websites using HTML codes.

Grade 7

Students will learn about Digital Literacy and Multimedia, this is to ensure students are confident using most common applications and are able to digitally edit images using different editing tools.

Grade 8

Students will learn about Digital Literacy and Multimedia, this is to ensure students are confident using most common applications and are able to digitally edit images using different editing tools. Student will be learning about advanced spreadsheets and databases.

Grade 9

In ICT lessons Grade 9 students will be learning the basics of ICT Systems and will also work on the impact of ICT Systems on society along with some project work on the basic components of a computer and generations of computers.

In computer science lessons Grade 9 students who have chosen this option will be covering theory topics on data representation in computers and practical topics like computational thinking and programming. Students will learn and apply the fundamental principles and concepts of computer science, including decomposition (breaking a problem into smaller components), abstraction (removing unnecessary details), logic building, algorithms (flowchart and Pseudocode) and data representation.

Grade 10

In ICT lessons Grade 10 students will be revising the topic on ICT Systems and will also work on the impact of ICT Systems on society during the term along with some project work on the basic components of a computer and generations of computers.

In computing lessons Grade 10 students will be revising the theory topics on data representation in computers and communication and internet technology. Students will learn and apply the fundamental principles and concepts of computer science, including decomposition (breaking a problem into smaller components), abstraction (removing unnecessary details), logic building, algorithms (flowchart and Pseudocode) and data representation.

How Can You Help? Encourage your child to enjoy working on their Scratch accounts to build their logic skills and their skill in programming.

Homework: All assigned homework will be available on the BRIC system as well as being explained to students in class.

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 Sep/Oct 2016:

Grade 5: Scratch - programming

Session Name	Description	Learning Intention
Programming Skills	Introducing Scratch	• To explain the interface of Scratch • To explain difference between bitmap image and vector image. • To explain using Sprites, applying backgrounds, adding and deleting sprites. • To learn and practice switching between costumes and customizing costumes. • To learn about events and different control structures. • To apply techniques learned in different assigned projects.
	Project 1: Monster's feeling	
	Project 2: Introduction to Story boards	
	Project 3: Side Scroller	
	Project 4: Parallax	

Grade 6: E-Safety

Session Name	Description	Learning Intention
E-safety, Security and Ethics	E-Safety	• To understand which kinds of websites have privacy policies, and why. • To practice checking websites they visit for privacy policies and privacy seals of approvals • To learn which information they should avoid sharing online because it is private. • To learn that they have a digital footprint and that information from it can be searched; copied and passed on; seen by a large, invisible audience, and can be persistent. • To recognize that people's online information can be helpful or harmful to their reputation and image.
	Secure Websites- How to check	
	Cyber Footprint	

	Cyber Ethics	• To consider their own digital footprints and what they want those footprints to be like in the future.

Grade 7: Computing

Session Name	Description	Learning Intention
Document Production	Students will learn about importance of document production, different software available, and its application	To learn and practice following skills: • Set page size, orientation, margins, gutter margins • Set number of columns in a page. • Set column width and spacing between columns • Defining the term widow and orphan • Explaining why it is necessary to use page, section and column break to adjust pagination and avoid widows and orphans • Set and remove page section and column break. • Set line spacing, paragraph indentation, hanging paragraphs • Formatting text: bold, italic, bulleted, lists • Inserting, formatting and editing a table structure • Mail merge a document with a data source.
Page Layout	Students will learn methods to create basic document and will learn difference between different layouts.	
Formatting documents	Students will learn different formatting techniques for document production	
Header/ Footer	Students will learn to insert automated header footer and benefits.	
Inserting and formatting Table	Students will learn to insert table, formatting the tables, applying design, merging cells and adding images in the table.	
Mail Merge	Students will learn mail merging a document with a data source.	

Grade 8: Document Production and Databases

Session Name	Description	Learning Intention
Document Production	Students will learn about importance of document production, different software available, and its application	To learn and practice following skills: • Set page size, orientation, margins, gutter margins • Set number of columns in a page. • Set column width and spacing between columns • Defining the term widow and orphan • Explaining why it is necessary to use page, section and column break to adjust
Page Layout	Students will learn methods to create basic document and will learn difference between different layouts.	

Formatting documents	Students will learn different formatting techniques for document production	pagination and avoid widows and orphans ● Set and remove page section and column break. ● Set line spacing, paragraph indentation, hanging paragraphs ● Formatting text: bold, italic, bulleted, lists ● Inserting, formatting and editing a table structure ● Mail merge a document with a data source. ● Creating database column ● Creating database rows ● Inserting data into the appropriate columns and rows
Header/ Footer	Students will learn to insert automated header footer and benefits.	
Inserting and formatting Table	Students will learn to insert table, formatting the tables, applying design, merging cells and adding images in the table.	
Mail Merge	Students will learn mail merging a document with a data source.	
Databases	Students will learn how to create a databses and input data.	

Grade 9&10 ICT:

Session Name	Description	Learning Intention
ICT System	Know about different types of ICT systems and be able to give examples of where and how they are used.	**Types of ICT systems:** -PCs, laptops and other portable devices, main frame and super computers, embedded computers, games consoles. **Uses:** -retail, banking, administration, manufacturing, education, entertainment, communication, number crunching, simulations, modelling, stock control, logistics.

	Understand that an ICT system is made up hardware and software	**Hardware:** - Input devices: for example keyboard, mouse, tracker ball, joystick, graphics tablet, scanner, digital camera, webcam, microphone, touch screen, OMR, OCR, bar code scanner, biometric scanner, magnetic stripe reader, chip and pin, sensors -Processing: processor, memory, ROM, RAM -Storage: for example hard disks, optical discs, flash memory, magnetic tape -Output devices: for example monitor, printer, plotter, data projector, speakers, control devices **Software Systems:** -software: for example operating system, system software tools. -Applications software: for example office productivity tools, web authoring, image and sound editing, presentation software, control software, project management software.

Grade 9&10 Computing: Data and Data Representation:

Session Name	Description	Learning Intention
Data and data representation	Data and Information	● To define the terms bit, nibble, byte, kilobyte, megabyte, gigabyte, terabyte ● To understand that data needs to be converted into a binary format to be processed by a computer. ● To be able to explain why data is represented in computer systems in binary form. ● To learn converting data from denary to binary and from binary to denary. ● To learn converting data from denary to hexadecimal and from hexadecimal to denary. ● To learn converting data from hexadecimal to binary and from binary to hexadecimal. ● To learn about how images, audio and video files are being encoded.
	Why Binary in Computers?	
	Converting between Binary and Denary Data	
	Hexadecimal Conversions	
	Encoding Images, Audio and Video Files	

Best Regards,

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