



PUTTING THE FUN BACK
INTO LEARNING!

Science Curriculum Guide

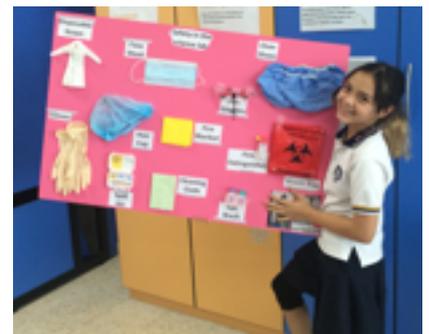
October 2016

Dear Parents and Guardians,

I would like to welcome you to the Science Department's monthly curriculum guide. On behalf of the Science team, we would like to wish all students a warm welcome back to school. We are excited for students to embark on a journey where we explore fundamental concepts within Science.

What have we been up to in Science?

At the start of this academic year, we focussed on 'How Science Works' and 'Investigative Practical Skills' with Grades 6-9, where students carried out and assessed the safety precautions of various practical works. This culminated in project based learning, where students presented their understanding through several creative ways. Here are some photos:



In addition to this, here is a fantastic work the students have been doing with Ms Rabeya:

sneak peak of the

Meet professor Bones!

Ms Rabeya would like to say a massive well done to her pupils across grades 6 to 9, who had a fantastic first few weeks back, with some great projects handed back in. The first week of lessons focussed on 'How Science works'. The week comprised of students familiarising themselves with lab equipment to be used across the year, taking part in various practical experiments to gain lab experience, and finishing off by writing a lab report. Students were set a project to use their imagination and initiative to complete a 'safety in a Science laboratory' project. Needless to say, Ms Rabeya is highly impressed with the level of effort and quality of work conducted by the pupils.

Here are some great examples of the students work, including a very nice fitting lab 'safety' jacket for our class skeleton. Well done everyone. Keep up the excellent work. Ms Rabeya Khanom



Curriculum Content

Grade 6:

Topics	Keywords
Comparing plant and animal cells. Describing cells (specialised).	Nucleus, cytoplasm, cell membrane, mitochondria, cell wall, vacuole, chloroplast. Nerve cell, muscle cell, sperm cell, egg cell, root hair cell, microscope.
Understanding diffusion. Understanding organisation in multicellular organisms.	Glucose, diffusion, surface area, volume. Tissue, organ, organ system.
Comparing flowering plants. Knowing how pollination leads to fertilisation. Understanding the challenges facing pollinators.	Anther, filament, pollen, ovary, style, stigma. Fertilisation, pollen tube. Pesticide, insecticide.
Exploring a healthy diet, Testing foods, Exploring obesity and starvation.	Carbohydrates, protein, fats, minerals, vitamins, fibre, water, nutrient, balanced diet. Starch, sugar, protein, fat, risk. Obesity, starvation, malnutrition.
Understanding deficiency diseases. Understanding the human digestive system, Investigating the start of digestion, Understanding the roles of the digestive organs.	Deficiency disease, vitamin, scurvy, rickets, anaemia. Digestion, digestive system, Physical and chemical digestion, enzyme, saliva, oesophagus, stomach, pancreas, small intestine, large intestine, faeces.

Grade 7:

Topics	Keywords
Comparing plant and animal cells. Describing cells (specialised).	Nucleus, cytoplasm, cell membrane, mitochondria, cell wall, vacuole, chloroplast. Nerve cell, muscle cell, sperm cell, egg cell, root hair cell.
Understanding diffusion. Understanding organisation in multicellular organisms.	Glucose, diffusion, surface area, volume. Tissue, organ, organ system.
Looking at the periodic Table of elements, Understanding elements and atoms, Understanding metals.	Periodic Table, Period, Group, atomic number, atom, atomic number, atomic mass, compound, ductile, malleable, sonorous, conductor.
Understanding non-metals, Identifying metalloids. Combining elements. Using models to understand chemistry.	Metalloid, semi metal, semi conductor, model, ratio, formula, atom, element, compound, ratio.
Understanding what happens when an element burns. Observing how elements react in different ways, Investigating Carbonates.	Reaction, equation, reactant, product, atom. Reaction, equation, reactant, product, atom. Fuel, burning, acid, product, base. Carbonate, stable, thermal decomposition, limewater.
Exploring energy Transfers, Understanding potential energy and kinetic energy.	Joule, energy transfer diagram, sanky diagram, gravity, gravitational energy, kinetic energy.

Grade 8:

Topic	Keywords
Chromosomes & DNA and Mitosis	Microscopy, Cell, nucleus, chromosome, gene, mitochondria, ribosome, cytoplasm, vacuole, differentiated, specialise, embryo, mitosis, genetic, duplicate.
STEM Cells and Diffusion	STEM, embryonic, undifferentiated, diffusion, concentration.
Osmosis and Practical	Permeable membrane, osmosis.
Digestion	Absorption, stomach, enzymes, gullet, pancreas, large intestine, small intestine.
Heart and Heart Disease	Heart, artery, vein, lungs, valves, coronary heart disease, transplants.
Health Issues and Plant Systems	Diet, photosynthesis, palisade, stomata.

Grade 9:

Grade 9 have now started Edexcel iGCSE curriculum, where they will be sitting their iGCSE exams by the end of the next academic year in 2018. The mid term assessment will be happening on the 30th of October. All keywords in the grade 9 curriculum can be found in the specification document, which is referenced at the end the newsletter. The topics they will be covering this month are:

- Characteristics of living organisms
- Variety of living organisms
- Levels of organisation
- Cell Structure
- Biological Molecules
- Movement of substances into and out of cells
- Nutrition
- Respiration
- Gas Exchange
- Transport
- Excretion
- Coordination and Response

How Can You Help?

You can help your children by assisting them in learning the meanings and spellings of the keywords they learn in class, getting them to create posters and spider diagrams, and helping them to answer exam style questions, which can be found in the resources listed below. Please remind your child to revise what they have learnt in lesson every day at home to remain confident.

Here are some useful websites:

Grades 6 – 8 (KS3)

BBC KS3 Bitesize <http://www.bbc.co.uk/bitesize/ks3/science/>

Skool.co.uk <http://inteleducationresources.intel.co.uk/parents.aspx?id=321>

Grade 9 (KS4)

BBC KS4 Biteize <http://www.bbc.co.uk/education/levels/z98jmp3>

Specification and Past Paper Material: <http://qualifications.pearson.com/en/qualifications/edexcel-international-gcses-and-edexcel-certificates/international-gcse-science-2011.coursematerials.html#filterQuery=Pearson-UK:Category%2FExam-materials>

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Thank you in advance for your support in the education and learning of your child. The Science team look forward to an exciting year of Science with everyone!

Miss Deega