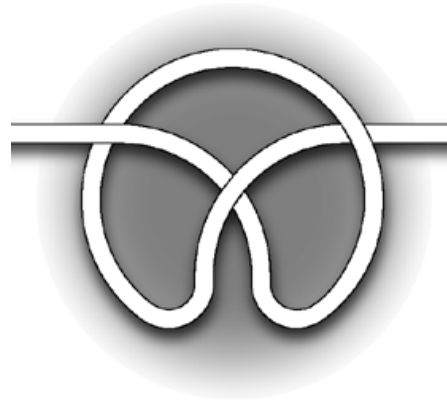


# Denbigh School



## STEM Lecture Programme 2009-2010

Dear STEM Student,

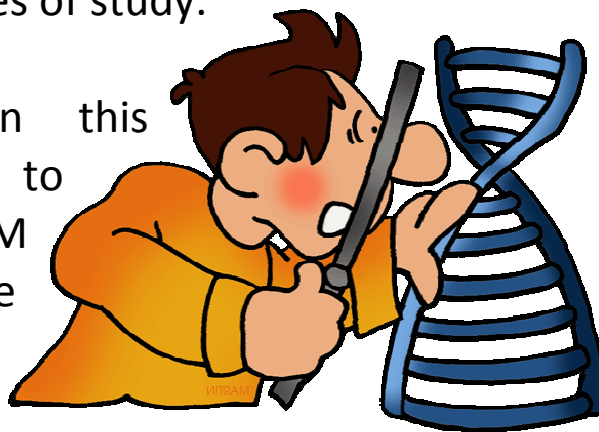


You have been invited to attend a series of lectures based on current Science, Technology Engineering and Maths “Hot Topics”. These will be delivered by Top Academics from around the country, including Bristol, Cambridge, Leicester, Oxford, The Open University, De Montfort, UCL and Cranfield Universities.

They will be explaining how STEM subjects affect all our lives and what the current trends in research are.

All the lecture topics have been chosen carefully so that they build on, and extend elements of the GCSE and A Level programmes of study.

Don't miss out on this fabulous opportunity to hear about STEM developments at the cutting edge.



Lectures take place in the Meeting Hall on Thursdays at 3:15pm, with three lectures at 6:00pm. They will last approximately 45 minutes with some time for questions at the end.

All those attending will receive a certificate at the end of the course.

	Date	Speaker		Notes
1	5th November 2009	Dr. Robin Catchpole Cambridge University - Physics -	3:15	<b>"What's new in the Solar System?"</b> <i>With probes currently either on their way to Mercury, Venus, Mars and Saturn and sending back amazing images of rocks, ice and lakes of methane, we will review what we know about our Solar System and its origin and ultimate fate.</i>
2	12th November 2009	Prof. Pericles Pilidis Cranfield University - Engineering -	3:15	<b>"Gas Turbine Engines for aviation and Energy"</b> <i>With its light weight, efficiency and environment friendliness The gas turbine is the main propulsion system for civil aircraft. Its use has become very widespread in the energy sector. What is the knowledge underpinning this success?</i>
3	19th November 2009	Dr. Michael Sargent National Institute for Medical Research - Biology -	3:15	<b>"Why do we age and can we stop it?"</b> <i>The ageing process is one of the most mysterious problems in biology. Scientists think of it as a decline in a maintenance system that is trying with limited success to keep us as we were in our pristine youth. My lecture is a panoramic view of how and why organisms age, illustrated by examples from the natural world and human experience.</i>
4	26th November 2009	Prof. Steve Jones University College London - Biology -	6:00	<b>"Is Human Evolution Over?"</b> <i>Many people feel that human evolution is speeding up - and often in a direction that they do not like - but I will argue that we now know so much about the past evolution of our own species that, for the first time, we can make some fairly firm predictions about the future. In my view, at least for the time being, and at least in the developed world, human evolution has stopped.</i>
5	10 <sup>th</sup> December 2009	David Gregory Meteorologist	3:15	<b>"From Saucepans to Satellites - Cooking up the Weather"</b> <i>You can learn a lot about the weather from what you find in the kitchen - a saucepan, a wooden spoon and a bit of heat. And just as your recipe may not turn out right all the time, so the weather forecast doesn't either. So what ingredients do you need to make the perfect forecast? And why does it some times end up in a chaotic mess?</i>
6	17th December 2009	Prof. Chris Binns University of Leicester - Physics -	3:15	<b>"Nanotechnology - tiny structures big ideas and grey goo"</b> <i>The lecture will present the development of nanotechnology through various levels of sophistication from simple assemblies of novel nanoparticles through to nano-robots. The talk will also explain how nanotechnology is helping to probe some of the most fundamental mysteries about the Universe.</i>
<b>CHRISTMAS HOLIDAYS</b>				
7	7th January 2010	Prof. Michael Wilkinson The Open University - Mathematics -	3:15	<b>"The Puzzle of Planet Formation"</b> <i>Since 1995 hundreds of planets have been detected orbiting around other stars. Many of these are very different from the planets which orbit our own Sun. In this talk I describe the discovery of these extra-solar planets and what these discoveries might tell us about how planets are formed.</i>
8	14th January 2010	Dr David Robinson The Open University - Biology -	3:15	<b>"Who do you think you are?"</b> <i>The emergence of humans – how we know who our ancestors were and where they came from.</i>
9	21st January 2010	Prof. Ken Peach Oxford University - Physics -	3:15	<b>"Physicist Heal Thyself - curing cancer with accelerators"</b> <i>Ionising radiation (from x-rays, gamma rays, electrons, protons, ions...) can cause cancer. But these same ionising radiations can also be used to treat cancer successfully .I will compare these different treatments, and discuss the physics behind them, and how the technology can be further improved.</i>
10	11 <sup>th</sup> February 2010	Prof. David Cliff University of Bristol - Computing -	6:00	<b>"Computer Whizz – the best is yet to come"</b> <i>The last 50 years has seen a massive explosion in computer science but the next 50 years looks set to be a period of even more astonishing progress. Join Dave Cliff for a rapid and light-hearted journey from the first processors that filled a room, through iPods and the World Wide Web, to the computers of the future that we hardly dare dream of.</i>
<b>½ TERM HOLIDAYS</b>				
11	25th February 2010	Dr Audrey Matthews De Montfort University - Biology -	3:15	<b>"The Science of Chocolate"</b> <i>Chocolate cravings may be a symptom of addiction. Research suggests chocolate may have health benefits. Chocolate contains the same 'happy' chemicals found in some recreational drugs.</i>

12	4th March 2010	Dr. Keith Davies Rothamsted Research Limited - Biology -	3:15	<b>"GM crops and their role in future food security"</b> <i>Over the last decade or so there has been a large movement against the use of genetically modified (GM) crops. However, in the context of climate change there has been a renewed debate about food security and the issues surrounding GM crops has again entered the political arena. The talk will focus on some of the issues around GM crops, from safety and technical issues to the yuk factor, and argue that although they are not an overall panacea, they have a role to play in helping to increase food security.</i>
13	18th March 2010	Dr. Kevin Hughes Cranfield University - Engineering -	3:15	<b>"Crashworthiness – automotive &amp; aerospace"</b> <i>This lecture will provide a general overview of crashworthiness (focussing on automotive, regulations, EuroNCAP, etc) and how the energy in a crash is absorbed by a structure and how protection can be provided to the occupants to minimise injuries.</i>
14	1st April 2010	Dr Mary Morrell Imperial College London - Biology -	3:15	<b>"Silent Night"</b> <i>Every night we go to sleep and every morning we wake up, which is amazing! In this talk we will look at what happens to your body while you are asleep.</i>
15	29th April 2010	Dr Stephen Hobbs Cranfield University Engineering	3:15	<b>"Space Challenges for the Next Generation"</b> <i>Life is the common theme for challenges emerging for the international space industry. Life in and beyond our Solar System; taking human life into space; providing new services to improve life on Earth; and perhaps most important of all, helping our transition to living sustainably on Earth.</i>
16	6th May 2010	Prof Martin Barstow University of Leicester - Physics -	3:15	<b>"Extra Terrestrial Roadshow (life in the universe)"</b> <i>The Extraterrestrial Roadshow talks about the real science behind the search for extra-terrestrial life and looks at the prospects for finding life in our solar system and beyond.</i>
17	13th May 2010	Dr Kate Lancaster STFC Rutherford Appleton Laboratory - Physics -	6:00	<b>"How to build a miniature star with humongous lasers"</b> <i>This fascinating lecture will lead us into the world of fusion, how it was responsible for life on Earth and how scientists plan to harness the incredible power of the stars as a future energy source here on Earth</i>
18	20th May 2010	Professor Bill Jones Cambridge University - Chemistry -	3:15	<b>"Medicines to Market and Materials Chemistry".</b> <i>I will address how materials chemistry addresses the issue of how a new drug is developed into a form suitable for delivery to the patient. The most common way of drug delivery is via tablets - rather a simple looking delivery system. There are frequent major challenges that need to be overcome however, and my talk will touch on some of them.</i>

# Thursdays

3:15pm

&

6:00pm

# Meeting Hall

