

<b>Department:</b> Science		<b>G&amp;T Coordinator:</b> Mrs S Shiradski
<p><b>Key Stage 3 (years 7-8) extra reading:</b></p> <p>All These Worlds Are Yours: The Scientific Search for Alien Life by Jon Willis</p> <p>Being a Dog: Following the Dog Into a World of Smell by Alexandra Horowitz,</p> <p>Lab Girl by Hope Jahren,</p> <p>Caesar's Last Breath: Decoding the Secrets of the Air Around Us by Sam Kean,</p> <p>Darwin's Backyard: How Small Experiments Led to a Big Theory by James T. Costa,</p> <p>How to Tame a Fox (And Build a Dog): Visionary Scientists and a Siberian Tale of Jump-Started Evolution by Lee Alan Dugatkin and Lyudmila Trut,</p> <p>The Soul of an Octopus: A Surprising Exploration into the World of</p>	<p><b>Key Stage 4 (years 9-11) wider reading:</b></p> <p>The disappearing spoon, Sam Kean.</p> <p>Napoleon's Button: How 17 Molecules Changed History, Penny Le Couteur.</p> <p>Island on Fire, By Alexandra Witze and Jeff Kanipe.</p> <p>The New Wild: Why Invasive Species Will be Nature's Salvation, by Fred Pearce.</p> <p>What If? Serious Scientific Answers to Absurd Hypothetical Questions, by Randall Munroe.</p> <p>Your Atomic Self: The Invisible Elements That Connect You to Everything Else in the Universe, by Curt Stager.</p> <p>DragonFlies: Magnificent Creatures of Water, Air, and Land, by Pieter van Dokkum.</p> <p>The Elephant Don: The Politics of a Pachyderm Posse, by Caitlin O'Connell.</p> <p>Eureka: Discovering Your</p>	<p><b>Key Stage 5 (year 12-13) wider reading:</b></p> <p><b>Biology A Level</b></p> <p>The immortal Life of Henrietta Lacks by Rebecca Skloot</p> <p>Genome by Matt Ridley</p> <p>Nature via Nurture by Matt Ridley</p> <p>Bad Science by Ben Goldacre</p> <p>Genomics by Nessa Carey</p> <p>Junk DNA by Nessa Carey</p> <p><b>Chemistry A Level</b></p> <p>Uncle Tungsten - by Oliver Sacks</p> <p>The Disappearing Spoon: And Other True Tales of Madness, Love, and the History of the World from the Periodic Table of the Elements - by Sam Kean</p> <p>A Short History of Nearly Everything - by Bill Bryson</p> <p><b>Physics A Level</b></p>

<p>Consciousness, by Sy Montgomery.</p> <p>The Triumph of Seeds: How Grains, Nuts, Kernels, Pulses, and Pips Conquered the Plant Kingdom and Shaped Human History, by Thor Hanson.</p> <p>The Big Ratchet: How Humanity Thrives in the Face of Natural Crisis, by Ruth DeFries.</p> <p>Cosmographics, by Michael Benson.</p> <p>The House of Owls, by Tony Angell.</p>	<p>Inner Scientist , by Chad Orzel.</p> <p>Headstrong: 52 Women Who Changed Science and the World, by Rachel Swaby.</p> <p>The House of Owls, by Tony Angell.</p> <p>The Innovators: How a Group of Hackers, Geniuses, and Geeks Created the Digital Revolution, by Walter Isaacson.</p> <p><u>Documentaries:</u></p> <p>Six Experiments that Changed the World: Marie Curie's Radium (2000)</p> <p>The Extraordinary Nature of Water (2000)</p>	<p>QED: The Strange Theory of Light and Matter by Richard Feynman</p> <p>Was Einstein Right? Putting General Relativity to the Test by Clifford M. Will</p> <p>The Faber Book of Science by John Carey (not physics exactly but a fine anthology of high quality science writing - perfect for anyone who enjoys both literature and science)</p>
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**Suggested extra-curricular opportunities outside of school (holidays and weekends)**

**Museums to visit:**

- The Science Museum: <https://www.sciencemuseum.org.uk/>
- The Natural History Museum: <http://www.nhm.ac.uk/>
- The Bayfordbury Observatory open evenings- (near Hertford) : <http://www.herts.ac.uk/bayfordbury/bayfordbury-observatory/visit-bayfordbury-observatory>
- The Florence nightingale museum: <http://www.florence-nightingale.co.uk/?v=7516fd43adaa>
- The Wellcome Collection: <https://wellcomecollection.org/whats-on>
- Lectures on a wide range of topics, watch past lectures and attend in person <https://www.gresham.ac.uk/attend/?subject=science>
- <https://wellcomecollection.org/young-people-aged-14-19-sign>
- Mill hill observatory, free public visits, places fill up very quickly <http://www.ulo.ucl.ac.uk/public/>

## External Opportunities:

### KS5

- Technion University - Technion SciTech Summer Research Program (Year 12 and 13 students)  
[http://www.noar.technion.ac.il/index.php?option=com\\_content&view=article&id=227&Itemid=196](http://www.noar.technion.ac.il/index.php?option=com_content&view=article&id=227&Itemid=196)
- Weizmann University - Bessie Lawrence International Summer Science Institute <https://www.weizmann-usa.org/about/education/bessie-lawrence-international-summer-science-institute>
- Two week summer STEM placements aimed at Year 12 students from a disadvantaged background <http://in2scienceuk.org/students/>
- Discover Chemistry Taster Days – King's College  
<https://www.kcl.ac.uk/nms/newsrecords/NMS-Christmas-Lectures-2016.aspx>  
<https://www.kcl.ac.uk/nms/newsrecords/Festive-science-for-local-schools-at-Christmas-Lectures-2017.aspx>
- Imperial College: Year 12 Sutton Trust Summer School:  
[http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/administration/outreach/eventsummary/event\\_21-12-2015-18-27-42](http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/administration/outreach/eventsummary/event_21-12-2015-18-27-42)
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### Programmes to watch:

- Ted-Ed video series- <https://www.ted.com/watch/ted-ed>  
Also found on youtube
- Planet Earth- All series
- Blue Planet II- On BBC iPlayer
- UCL recorded lunch lectures (can search for science)  
<https://www.youtube.com/user/UCLLHL/>

## Activities for AG+T pupils at school within department over the year

### KS3

- Science Ambassadors Programme- A small group of students in Years 8-10 get trained in Science communication by the Institute of Physics to become Science ambassadors for primary school children
- Science Week Activities. In 2017 we investigated the Physics behind bottle flipping.
- Biology Challenge: Year 9
- MiSAC competition – give your entries to Mrs Shiradski and they will be sent off <http://www.misac.org.uk/competition.html>

### KS4

- Science Ambassadors Programme- A small group of students in Years 8-10 get trained in Science communication by the Institute of Physics to become Science ambassadors for primary school children

- The Creative Corner STEM event at Imperial college
- Collins Connect Online resource with extra activities and quizzes.
- Imperial College: Y10 Insights into Science and Engineering Summer School: [http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/administration/outreach/eventsummary/event\\_18-12-2012-13-51-41](http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/administration/outreach/eventsummary/event_18-12-2012-13-51-41)
- Imperial College: Year 11 Project STEM Summer School [http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/administration/outreach/eventsummary/event\\_12-12-2014-16-32-48](http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/administration/outreach/eventsummary/event_12-12-2014-16-32-48)
- MiSAC competition – give your entries to Mrs Shiradski and they will be sent off <http://www.misac.org.uk/competition.html>

### **KS5**

- The Creative Corner STEM event at Imperial College- November 2017
- Yavlab mentoring: A level students mentor Year 11 students in their GCSE courses
- Headstart Courses available on: <http://www.etrust.org.uk/headstart-inspire-ris>