



# **SCIENCE**









# **SUPER-CURRICULUM**

## The Super-Curriculum

Super curricular activities are those that take your regular curriculum *further*. They take the subjects you study in the classroom *beyond* that which your teacher has taught you or what you've completed for homework. For example, you may go into more depth on something you picked up in the classroom, or learn about a new topic altogether.

These activities are normally in the form of extra reading but they can take many other forms, like watching videos online, downloading podcasts, attending lectures, visiting museums or entering academic competitions.

Activity Key:

	Reading Task
	Writing Task
	Listening Task
	Watching Task
	Research Task
	Trip / Visit
	CreativeTask
	Student Led Task


















Engaging in super curricular activities will help you develop a love for your favourite subject or subjects. In this booklet, there are a range of activities, suggested by your teachers. They are by no means exhaustive lists but should get you started. We would encourage you to share ideas and opportunities you come across with your teachers so that, over time, the recommended activities in this booklet can grow.

In the future, employers or universities will be interested to hear about what super curricular activities you have engaged in; they will be interested in what you have learnt and impressed by your efforts.




















We wish you well in your pursuit of super curricular activities!

Team Science





## Super curriculum – Year 7, 8 & 9

<p> <b>Why don't penguins feet freeze?</b> New Scientist</p> <p>There are lots of books in this series</p>	<p> <b>Women in Science: 50 Fearless Pioneers Who Changed the World</b>, Rachel Ignatofsky</p>	<p> <b>100 Things to know about Space</b>, Alex Frith, Alice James and Jerome Martin</p>
<p> <b>Incredible Medicine: Dr Weston's Casebook.</b> Extraordinary cases that are bringing new discoveries about the human body. <a href="https://goo.gl/V82X5t">https://goo.gl/V82X5t</a></p> 	<p> <b>Cool Science Experiments</b> on YouTube.</p>	<p> <b>Crash course kids videos</b> <a href="https://www.youtube.com/user/crashcoursekids">https://www.youtube.com/user/crashcoursekids</a></p> 
<p> Create a song to remember the names of the first 20 elements</p>	<p> Create a Steve Spanglerstyle video of a science experiment you have done at home <a href="https://www.stevespanglerscience.com/">https://www.stevespanglerscience.com/</a></p>	<p> Make your own Quizizz on a topic of your choice and ask your Science teacher to share it with the class</p>
<p> Create your own worm world or ant farm</p>	<p> Download an app on the stars and constellations then go outside at night to identify them</p>	<p> Write a <b>news report</b> about what you think is the most important scientific discovery</p>
<p> Natural History Museum, London</p>	<p> Science Museum, London</p>	<p> London Zoo</p>

## Super curriculum – GCSE Science

<p> <b>Why don't penguins feet freeze?</b> New Scientist</p> <p>There are lots of books in this series</p>	<p> <b>Perfect People</b>, Peter James</p>	<p> <b>Bad Science: Quacks, Hacks and Big Pharma Flacks</b>, Ben Goldacre</p>
<p> <b>Incredible Medicine: Dr Weston's Casebook.</b> Extraordinary cases that are bringing new discoveries about the human body. <a href="https://goo.gl/V82X5t">https://goo.gl/V82X5t</a></p> 	<p> <b>Inside Nature's Giants</b> video series <a href="https://www.youtube.com/watch?v=PFLSLyzGYK8">https://www.youtube.com/watch?v=PFLSLyzGYK8</a></p> 	<p> <b>Crash course videos (Biology, Chemistry &amp; Physics playlists)</b> <a href="https://www.youtube.com/user/crashcourse/playlists?shelf_id=0&amp;view=1&amp;sort=dd">https://www.youtube.com/user/crashcourse/playlists?shelf_id=0&amp;view=1&amp;sort=dd</a></p> 
<p> Make a <b>genetic sequence bracelet</b> (your genome) <a href="http://www.yourgenome.org/activities/sequence-bracelets">http://www.yourgenome.org/activities/sequence-bracelets</a></p>	<p> Create your own quiz on Educake.</p>	<p> Watch a <b>My GCSE Science</b> video. <a href="https://www.mygcscscience.com">https://www.mygcscscience.com</a></p> 
<p> Saturday Studio opportunities at the Wellcome collection. Try out creative activities inspired by Wellcome Collection (14-19)</p>	<p> Get involved with <b>RAWMINDS A</b> Wellcome Collection youth engagement initiative for teenagers 14-19 to experiment with art and science, get creative and learn new skills.</p>	<p> Write a <b>news report</b> about what you think is the most important scientific discovery</p>
<p> Natural History Museum, London</p>	<p> Science Museum, London</p>	<p> London Zoo</p>

## Super curriculum – Post 16 Biology/Applied Science

<p>📖 <b>The immortal life of Henrietta Lacks</b> by Rebecca Skloot. About HeLa cells and the ethics behind it.</p>	<p>📖 <b>'The ancestors tale'</b> by Richard Dawkins. You don't need to read it cover to cover, just dip into the chapters that interest you.</p>	<p>📖 <b>The Tale of the Dueling Neurosurgeons</b>, by Sam Kean</p>
<p>👁️ <b>Secret Universe, The Hidden Life of a Cell</b>  <a href="https://vimeo.com/144634673">https://vimeo.com/144634673</a></p> 	<p>👁️ <b>Growing New Organs</b>  <a href="http://www.ted.com/talks/anthony_atala_growing_organs_engineering_tissue?language=en">http://www.ted.com/talks/anthony_atala_growing_organs_engineering_tissue?language=en</a></p> 	<p>👁️ <b>Crash course videos</b>  <a href="https://www.youtube.com/playlist?list=PL3EED4C1D684D3AD">https://www.youtube.com/playlist?list=PL3EED4C1D684D3AD</a></p> 
<p>✂️ Get involved with <b>Saturday Studio</b> opportunities at the <b>Wellcome collection</b>. Try out creative activities inspired by Wellcome Collection (14-19)</p>	<p>✂️ Create a <b>twitter account</b>, follow 10 relevant Biology organisations e.g. Royal Society of Biology, New Scientist, Nature, BBC Science News ect.</p>	<p>✂️ Your own <b>brine shrimp</b> ecosystem  <a href="http://www.seamonkeys.com/">http://www.seamonkeys.com/</a></p>
<p>👂 Download and listen to podcast <b>'The Infinite Monkey Cage'</b></p>	<p>👁️ <b>Incredible Medicine: Dr Weston's Casebook.</b>            Extraordinary cases that are bringing new discoveries about the human body.</p>  <p><a href="https://goo.gl/V82X5t">https://goo.gl/V82X5t</a></p>	<p>📍 <b>Oxford University Museum of Natural History</b></p>
<p>📍 <b>The Wellcome Collection</b>            permanent exhibitions Medicine now and Medicine Man</p>	<p>📍 <b>Kew Gardens London</b></p>	<p>📍 <b>Science Museum, London</b></p>

## Books:

- The Selfish Game – Richard Dawkins
- The Blind Watchmaker – Richard Dawkins
- The Ancestors Tale – Richard Dawkins
- Y: The Descent of Men – Steve Jones
- The Language of the Genes – Steve Jones
- Genome: The Autobiography of a Species in 23 Chapters – Matt Ridley
- Francis Crick: Discover the Genetic Code – Matt Ridley
- DNA: The Secret of Life – James Watson
- The Origin of Species – Charles Darwin
- Steve Pinker: The Language Instinct

## Magazines/journals:

- The Lancet
- Life
- Nature
- Annual Review of Physiology



















## Places of Interest – London:

- London Zoo
- Science Museum
- Natural History Museum

## Websites:

- [www.biomedcentral.com](http://www.biomedcentral.com)
- [www.nature.com](http://www.nature.com)
- [www.doodle.com](http://www.doodle.com)
- [www.oup.com](http://www.oup.com)
- [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)

## Super curriculum – Post 16 Chemistry/Applied Science

<p> <b>Periodic Tales, the Curious Lives of the Elements,</b> Hugh Aldersey Williams</p>	<p> <b>The Science of Everyday Life: Why Teapots Dribble, Toast Burns and Light Bulbs Shine,</b> Marty Jopson</p>	<p> <b>The Disappearing Spoon...and other true tales from the Periodic Table,</b> Sam Kean</p>
<p> <b>Fantastic Four movie</b> and then watch the clip where the science is explained <a href="http://nerdist.com/michio-kakuexplains-the-real-sciencebehind-fantastic-four/">http://nerdist.com/michio-kakuexplains-the-real-sciencebehind-fantastic-four/</a></p> 	<p> <b>10 weird and wonderful chemical reactions</b>  <a href="https://www.youtube.com/watch?v=0Bt6RPP2ANI">https://www.youtube.com/watch?v=0Bt6RPP2ANI</a></p> 	<p> <b>Crash course videos</b>  <a href="https://www.youtube.com/playlist?list=PL8dPuuaLjXtPHzzYuWy6fYEaX9mQQ8oGrr">https://www.youtube.com/playlist?list=PL8dPuuaLjXtPHzzYuWy6fYEaX9mQQ8oGrr</a></p> 
<p> Learn to sing the <b>Elements Song</b> by Tom Lehrer.</p>	<p> Create a <b>twitter account</b>, follow 10 relevant Chemistry organisations e.g Royal Society of Chemistry, New scientist, BBC Science news etc</p>	<p> <b>Make a 'silver' egg</b>  <a href="http://www.housingaforest.com/silver-egg-experiment/">http://www.housingaforest.com/silver-egg-experiment/</a></p>
<p> <b>To 5 podcasts of different elements</b> from the periodic table  <a href="http://www.rsc.org/periodictable/podcast">http://www.rsc.org/periodictable/podcast</a></p>	<p> To 1 podcast from the <b>Radiolab</b>  <a href="http://www.radiolab.org/">http://www.radiolab.org/</a></p>	<p> To 3 <b>Material World podcasts</b>  <a href="http://www.bbc.co.uk/programmes">http://www.bbc.co.uk/programmes</a></p>
<p> <b>Diamond Synchrotron</b> in Oxford</p>	<p> <b>Grow your own crystal</b> e.g. salt  <a href="http://www.sciencekids.co.nz/projects/saltcrystals.html">http://www.sciencekids.co.nz/projects/saltcrystals.html</a></p>	<p> <b>Research an experiment</b> that is safe to do with kitchen chemicals and carry it out.</p>

## Books:

- The Pleasure of Finding Things Out – Richard Feynman
- Periodic Tales – Hugh Aldersey- Williams
- The Disappearing Spoon – Sam Kean
- Uncle Tungsten – Oliver Sachs
- The Shocking History of Phosphorous: A Biography of the Devil's Element – John Emsley

## Magazines/journals:

- Scientific American
- New Scientist
- The Mole

## Places of Interest – London:


















- Royal Society of Chemistry
- Science Museum
- Museum of the History of Science (Oxford)

## Websites

- [Periodic Table of Videos by Martyn Poliakoff \(youtube\)](#)
- [www.rsc.org.uk](http://www.rsc.org.uk)
- [www.icheme.org](http://www.icheme.org) (Institution of Chemical Engineers)
- [www.chemguide.co.uk](http://www.chemguide.co.uk)



## Super curriculum – Post 16 Physics/Applied Science

<p> <b>Surely You're Joking Mr Feynman: Adventures of a Curious Character</b>, Ralph Leighton</p>	<p> <b>A Short History of Nearly Everything</b>, Bill Bryson</p>	<p> <b>The Physics of Super Heroes</b>, James Kakalios</p>
<p> <b>Minute Physics</b>  <a href="https://www.youtube.com/user/minutephysics">https://www.youtube.com/user/minutephysics</a></p> 	<p> <b>NASA TV</b> (Online coverage of launches, missions and testing's)</p>	<p> <b>Crash course videos</b>  <a href="https://www.youtube.com/playlist?list=PL8dPuuaLjXtN0ge7yDk_UA0ldZJdhwkoV">https://www.youtube.com/playlist?list=PL8dPuuaLjXtN0ge7yDk_UA0ldZJdhwkoV</a></p> 
<p> Learn to sing the <b>Elements Song</b> by Tom Lehrer</p>	<p> Create a <b>twitter account</b>, follow 10 relevant Physics organisations or Physicists</p>	<p> Make your own <b>fruit cell</b> at home  <a href="https://explorable.com/fruitbattery-experiment">https://explorable.com/fruitbattery-experiment</a></p>
<p> Download and listen to the <b>'Physics World'</b> podcasts (new podcast released every 48 days)</p>	<p> <b>Join the Institute of Physics</b> as a student member</p>	<p> Attend <b>FREE Physics lectures at the Institute of Physics in London</b> (see their website for regular updates of what's on)</p>
<p> <b>Science Museum</b> in London</p>	<p> <b>The Royal Observatory</b> in Greenwich</p>	<p> <b>The Royal Institution</b> in London</p>

## Books:

- A short History of Nearly Everything – Bill Bryson
- Why don't penguins' feet freeze? – New Scientist
- The Grand Design – Stephen Hawkin and Leonard Mlodinow
- Newton – Peter Ackroyd
- The Quantum Universe: Everything that can happen does happen – Brian Cox and Jeff Forshaw

## Magazines/journals:

- Physics World
- Scientific American
- New Scientist

## Places of Interest – London:

- Science Museum
- Imperial War Museum
- The Planetarium
- Greenwich observatory

## Websites:

- [www.iop.org](http://www.iop.org)
- [www.sixtrysymbols.com](http://www.sixtrysymbols.com)
- [www.physicsworld.com](http://www.physicsworld.com)

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