



**Science**

# **The 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 done for home learning. 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.

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. I 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.

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

Dr Caroline Creaby  
Deputy Headteacher: Curriculum

## Super Curriculum - Year 7, 8 & 9

### Subject: 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>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>Watch; The hunter and the hunted</b></p> <p><a href="https://www.bbc.co.uk/iplayer/episode/b01qry6h/life-on-earth-11-the-hunters-and-the-hunted">https://www.bbc.co.uk/iplayer/episode/b01qry6h/life-on-earth-11-the-hunters-and-the-hunted</a></p>	<p> <b>Cool Science Experiments</b> on YouTube.</p> <p><a href="https://www.youtube.com/watch?v=D2j8qIsbLOU">https://www.youtube.com/watch?v=D2j8qIsbLOU</a></p> <p><a href="https://www.youtube.com/watch?v=4MHn9Q5NtdY">https://www.youtube.com/watch?v=4MHn9Q5NtdY</a></p>	<p> <b>Crash course kids videos</b></p> <p><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 Spangler-style video of a science experiment you have done at home</p> <p><a href="https://www.youtube.com/user/TheSpanglerEffect">https://www.youtube.com/user/TheSpanglerEffect</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> London Planetarium, Greenwich</p>	<p> Science Museum, London</p>	<p> London Zoo</p>



Reading task



Writing task



Listening task



Watching task



Research task



Trip or visit



Creative task



Student-led task

## Super Curriculum - Year 10 & 11

### Subject: 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>Netflix Documentaries:</b></p> <p>Pandemic Bill Nye: Science Guy Planet Earth Life</p>	<p> <b>Inside Nature's Giants</b> video series</p> <p><a href="https://drive.google.com/drive/folders/1CPHOXAErw14toANpoScLAd_TTIZTr5G_a">https://drive.google.com/drive/folders/1CPHOXAErw14toANpoScLAd_TTIZTr5G_a</a></p>	<p> <b>Crash course videos (Biology, Chemistry &amp; Physics playlists)</b></p> <p><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)</p> <p><a href="http://www.yourgenome.org/activities/sequence-bracelets">http://www.yourgenome.org/activities/sequence-bracelets</a></p>	<p> <b>NileRed</b> YouTube video series. Interesting and unusual chemistry experiments.</p> <p><a href="https://www.youtube.com/user/TheRedNile/videos">https://www.youtube.com/user/TheRedNile/videos</a></p>	<p> Watch The Potential of Regenerative Medicine – Alan Russell</p> <p><a href="https://www.ted.com/talks/alan_russell_the_potential_of_regenerative_medicine/transcript?language=en#t-4903">https://www.ted.com/talks/alan_russell_the_potential_of_regenerative_medicine/transcript?language=en#t-4903</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</b> A Wellcome Collection youth engagement initiative for teenagers 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>



Reading task



Listening task



Research task



Creative task



Writing task



Watching task



Trip or visit



Student-led task

## Super Curriculum - Year 12 & 13

### Subject: SCIENCE – BIOLOGY

 <b>The immortal life of Henrietta Lacks</b> by Rebecca Skloot. About HeLa cells and the ethics behind it.	 <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.	 <b>The Tale of the Dueling Neurosurgeons</b> , by Sam Kean
 <b>Secret Universe, The Hidden Life of a Cell</b>  <a href="https://www.dailymotion.com/video/x6agslv">https://www.dailymotion.com/video/x6agslv</a>	 <b>Cambridge Science Festival</b>  <a href="https://www.sciencefestival.cam.ac.uk/">https://www.sciencefestival.cam.ac.uk/</a>	 <b>'Silent Spring'</b> – Rachel Carson
 Get involved with <b>Saturday Studio</b> opportunities at the <b>Wellcome collection</b> . Try out creative activities inspired by Wellcome Collection (14-19)	 Create a <b>twitter account</b> , follow 10 relevant Biology organisations e.g. Royal Society of Biology, New Scientist, Nature, BBC Science News ect.	 Use <b>New Scientist</b> or <b>Biological Science Review</b> to research an area of Biology not covered by the specification.
 Download and listen to podcast <b>'The Infinite Monkey Cage'</b>	 <b>Incredible Medicine: Dr Weston's Casebook.</b> Extraordinary cases that are bringing new discoveries about the human body.  <a href="https://www.bbc.co.uk/programmes/b08ghp29">https://www.bbc.co.uk/programmes/b08ghp29</a>	 <b>Oxford University Museum of Natural History</b>
 <b>The Wellcome Collection</b> permanent exhibitions Medicine now and Medicine Man	 <b>Kew Gardens London</b>	 <b>Science Museum, London</b>

- |   |   |
|---|---|
| <p> Reading task</p> <p> Listening task</p> <p> Research task</p> <p> Creative task</p> | <p> Writing task</p> <p> Watching task</p> <p> Trip or visit</p> <p> Student-led task</p> |
|---|---|

## Super Curriculum - Year 12 & 13

### Subject: SCIENCE - CHEMISTRY

 <b>Ted Talk on Chemistry of Smartphones</b>  <a href="https://www.ted.com/talks/cathy_mulzer_the_incredible_chemistry_powering_your_smartphone">https://www.ted.com/talks/cathy_mulzer_the_incredible_chemistry_powering_your_smartphone</a>	 <b>The Science of Everyday Life: Why Teapots Dribble, Toast Burns and Light Bulbs Shine</b> , Marty Jopson	 <b>The Disappearing Spoon...and other true tales from the Periodic Table</b> , Sam Kean
 <b>Fantastic Four movie</b> and then watch the clip where the science is explained  <a href="https://archive.nerdist.com/michio-kaku-explains-the-real-science-behind-fantastic-four/">https://archive.nerdist.com/michio-kaku-explains-the-real-science-behind-fantastic-four/</a>	 <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>	 <b>Crash course videos</b>  <a href="https://www.youtube.com/playlist?list=PL8dPuuaLjXtPHzzYuWy6fYEaX9mQQ8oGr">https://www.youtube.com/playlist?list=PL8dPuuaLjXtPHzzYuWy6fYEaX9mQQ8oGr</a>
 Learn to sing the <b>Elements Song</b> by Tom Lehrer.	 Create a <b>twitter account</b> , follow 10 relevant Chemistry organisations e.g Royal Society of Chemistry, New scientist, BBC Science news etc	 <b>Make a 'silver' egg</b>  <a href="http://www.housingaforest.com/silver-egg-experiment/">http://www.housingaforest.com/silver-egg-experiment/</a>
 <b>To 5 podcasts of different elements</b> from the periodic table  <a href="http://www.rsc.org/periodic-table/podcast">http://www.rsc.org/periodic-table/podcast</a>	 To 1 podcast from the <b>Radiolab</b>  <a href="http://www.radiolab.org/">http://www.radiolab.org/</a>	 <b>Read Chemistry Review magazine</b>  <a href="https://my.dynamic-learning.co.uk/MyDynamicLearning.aspx">https://my.dynamic-learning.co.uk/MyDynamicLearning.aspx</a>
 <b>Diamond Synchrotron</b> in Oxford <a href="https://www.diamond.ac.uk/Public/VisitUs.html">https://www.diamond.ac.uk/Public/VisitUs.html</a>	 <b>Podcasts on a range of Chemistry topics</b> <a href="https://www.chemistryworld.com/podcasts">https://www.chemistryworld.com/podcasts</a>	 Attend a lecture at the Royal Institution <a href="https://www.rigb.org/">https://www.rigb.org/</a>



Reading task



Listening task



Research task



Creative task



Writing task



Watching task



Trip or visit



Student-led task

## Super Curriculum - Year 12 & 13

### Subject: SCIENCE - PHYSICS

 <b>The order of time</b> , Carlo Rovelli	 <b>A Short History of Nearly Everything</b> , Bill Bryson	 <b>Feynman Lectures</b> , Feynman (available to borrow from Physics Dept)
 <b>Minute Physics</b> <a href="https://www.youtube.com/user/minutephysics">https://www.youtube.com/user/minutephysics</a>	 <b>Oxford Physics Public Lectures</b> <a href="https://podcasts.ox.ac.uk/series/oxford-physics-public-lectures">https://podcasts.ox.ac.uk/series/oxford-physics-public-lectures</a>	 <b>Crash course videos</b> <a href="https://www.youtube.com/playlist?list=PL8dPuuaLjXtN0ge7yDk_UA0ldZJdhwkoV">https://www.youtube.com/playlist?list=PL8dPuuaLjXtN0ge7yDk_UA0ldZJdhwkoV</a>
 Listen to the ' <b>Infinite Monkey Cage</b> ' BBC Radio 4 Podcast (new podcast released every month)	 Create a <b>twitter account</b> , follow 10 relevant Physic organisations or Physicists	 Look up how to make your own diffraction grating at home and use it to observe different types of light.
 Download and listen to the ' <b>Physics World</b> ' podcasts (new podcast released every 48 days)	 <b>Join the Institute of Physics</b> as a student member	 Attend <b>FREE Physics lectures at the Institute of Physics in London</b> <a href="https://events.iop.org/?_ga=2199401068.339765927.15816.80420-2128037870.1581680420">https://events.iop.org/?_ga=2199401068.339765927.15816.80420-2128037870.1581680420</a> or FREE Cambridge Physics Centre Sixth Form Lectures <a href="https://outreach.phy.cam.ac.uk/programme/cpc">https://outreach.phy.cam.ac.uk/programme/cpc</a>
 <b>Bayfordbury Observatory</b> , Hertfordshire University	 <b>The Royal Observatory</b> in Greenwich	 <b>The Royal Institution</b> in London



Reading task



Writing task



Listening task



Watching task



Research task



Trip or visit



Creative task



Student-led task



# **Sandringham** School

*'Everybody can be Somebody'*