

## University of Manchester WP Schools STEM Activity Update September 2016

Please find below details of University of Manchester STEM activities for WP Target schools for the 2016/17 academic year. Each activity specifies the target age group, stated in the left-hand column. There one section for pre-16 events, post-16 events and another outlining additional events/resources available to you. For more information – please contact [schoolsandcolleges@manchester.ac.uk](mailto:schoolsandcolleges@manchester.ac.uk)

### Pre 16 Activities:

Target Year Group(s)	Event Date(s)	Event Title	Detail	Booking information
All	Wednesday 28 September 2016	<b>Antibiotic Resistance and You!</b>	Antibiotic resistance affects you, but do you know how? - You may have seen this topic on the news and scattered on the media last week, let's build on that and discuss how we can work together daily to combat antibiotic resistance.	Register your free place here - <a href="http://antibioticguardian.com/meetings-events/register-for-antibiotic-resistance-and-you-september-2016/">http://antibioticguardian.com/meetings-events/register-for-antibiotic-resistance-and-you-september-2016/</a> Name: Emily Davies, Event Co-ordinator Tel: + 44 (0) 121 236 1988 Website: <a href="http://www.bsac.org.uk/">http://www.bsac.org.uk/</a>
GCSE and above	5 <sup>th</sup> October 2016 – 6pm	<b>Relatively Simple</b>	'Relatively Simply' is a free science lecture that thinks big, in which Dr Heather Williams and Dr Nate Adams explore Einstein's radical ideas about special relativity and how they changed our understanding of, well, pretty much everything we measure in physics. Featuring demonstrations (including the 600,000mph physics laboratory) which bring Einstein's most famous thought experiment to life... also features terrible jokes, mild peril, and the occasional bit of maths. Best suited to those aged 14 and over.  See <a href="http://www.ogdentrust.com/about-us/news/post/1402-relatively-simple">http://www.ogdentrust.com/about-us/news/post/1402-relatively-simple</a> for a review of the talk when it was delivered at a Liverpool sixth form.	Register online at <a href="http://tinyurl.com/rel-simple">http://tinyurl.com/rel-simple</a> , or email <a href="mailto:emma.nichols@manchester.ac.uk">emma.nichols@manchester.ac.uk</a> with any questions.

KS3	<i>December – dates tbc</i>	<b>RSC Christmas Lectures</b>	<p>The RSC John Salthouse Memorial Christmas Lecture - The University of Manchester, 2.15-3.15pm. Lecturer &amp; date tbc. Expect spectacle, excitement and explosions at ‘The Christmas Flash Bang Show’.</p> <p>Also, at The Bolton School – the RSC Ernest Worthington Lecture, same title, am and pm.</p>	For tickets and further details see other communications or contact <a href="mailto:outreach.chemistry@manchester.ac.uk">outreach.chemistry@manchester.ac.uk</a>
Year 8 & 9	DEADLINE 31 <sup>st</sup> January 2017	<b>Step into the NHS</b>	Competition for students in Years 8 & 9. See <a href="https://www.stepintothens.nhs.uk/schools/competition-downloads">https://www.stepintothens.nhs.uk/schools/competition-downloads</a>	<a href="https://www.stepintothens.nhs.uk/application/files/9514/6779/6420/Teacher_booklet.pdf">https://www.stepintothens.nhs.uk/application/files/9514/6779/6420/Teacher_booklet.pdf</a>
Year 8	1 <sup>st</sup> or 8 <sup>th</sup> February 2017	<b>IET Faraday Challenge Days</b>	Opportunity to send a team of 6 pupils (2 each from science, D&T, maths) from Year 8 in your school and a teacher to an IET ( <b>Institution of Engineering and Technology</b> ) Faraday Challenge Day hosted at the University on either 1 or 8 February 2017. IET Faraday Challenge Days give students the opportunity to research, design and make prototype solutions to genuinely tough engineering problems. The specific topic will be unveiled on the day. At each event teams compete to win a prize for themselves and a trophy for their school. The event is set up and run by the IET’s team of STEM professionals. The top three teams from across the UK get an all-expenses paid trip to the National Final in June each year to compete for a cash prize of up to £1,000 for their school. Last year Failsworth School from Oldham won the University of Manchester Faraday Challenge and were ranked equal 14 <sup>th</sup> out of 38 teams taking part nationally	Please register your interest by emailing <a href="mailto:julie.johnson@manchester.ac.uk">julie.johnson@manchester.ac.uk</a>
Year 8/9 Girls	16 <sup>th</sup> OR 17 <sup>th</sup> February 2017	<b>Dragonfly Day: Girls into STEM</b>	<p>This day will see your pupils working with female scientists, engineers and mathematicians; find out more about studying and working in STEM and discover why it’s not just for boys! The programme will include an introduction to STEM, a speed networking activity, two short, interactive workshops and is finished off with a short guest lecture from a female academic.</p> <p>Feedback from last year was incredibly positive, with <b>85% of attendees more interested in finding careers in STEM and 100% of the students who attended feel inspired to go to university</b>. When asked what they’d learned on the day – girls gave many varied answers, some highlights below.</p>	<p>Groups of 15 female pupils. Free.</p> <p>If you would like to book a place for your school, please email <a href="mailto:schoolsandcolleges@manchester.ac.uk">schoolsandcolleges@manchester.ac.uk</a> quoting “Dragonfly” in the subject line.</p> <p><i>Please note: if popular; these events will also run on 13<sup>th</sup> and 14<sup>th</sup> May 2017.</i></p>

			<ul style="list-style-type: none"> <li>• There are lots of jobs available to do with STEM</li> <li>• Women can do anything that men can do</li> </ul>	
Year 7, 8 and 9	14 <sup>th</sup> , 15 <sup>th</sup> , 16 <sup>th</sup> OR 17 <sup>th</sup> March 2016	<b>British Science Week: Science Extravaganza</b>	<p>From Tuesday 14<sup>th</sup> – Friday 17<sup>th</sup> March 2017 we once again running our popular Science Extravaganza days packed with interactive workshops, demonstrations and lectures aimed at pupils in Years 7 to 9. Each school can bring up to 25 pupils. There is no charge for this event which runs from 10am to 2.30pm. Pupils will need to bring a packed lunch.</p> <p><i>This is a very popular event and gets booked up quickly.</i></p>	<p>If you have any further queries about this event or would like to reserve a space for your pupils from your school, please email <a href="mailto:schoolsandcolleges@manchester.ac.uk">schoolsandcolleges@manchester.ac.uk</a> quoting “NSEW 2017” in the subject line.</p>
Year 10 and 11	<i>In your school; date negotiable.</i>	<b>Guest Academic Lecture Series</b>	<p>The University of Manchester is home to experts in a wide range of academic fields. In order to share this expertise and enrich the curriculum, <b>we offer subject-specific lectures to schools and colleges in a range of academic disciplines.</b> A list of lectures is available online, see the link to the right. The majority of lectures will take place in your school or college. You can arrange a date and time that are mutually convenient for you and the academic. Lectures last for approximately 60 minutes, and all lectures are free of charge.</p>	<p>Book online at <a href="http://www.manchester.ac.uk/sixth-form-lectures">www.manchester.ac.uk/sixth-form-lectures</a></p> <p><b>Geographic range:</b> Schools and colleges must be based within approximately one hour’s travelling distance of The University of Manchester. <b>Group size:</b> Minimum 20 students.</p>
Date by arrangement.	<i>In your school, date negotiable.</i>	<b>“Why study...” presentation and optional workshops</b>	<p>The ‘<b>Why Study?</b>’ series provides up-to-date IAG to young people so that they are able to make informed decisions about their future. This suite of presentations is delivered in schools, and raises awareness of, and aspiration to, some of the most competitive and demanding subject areas. The presentations are flexible and may last from 30 to 45 minutes. Presentations can be combined with an interactive workshop should your timetable allow. Workshops have been designed by postgraduate students at the University. They aim to give learners a hands-on, interactive taster of the subject area. This may last 60-75 minutes, depending on the time available. The featured subject areas provide an introduction to learners in subjects they may not have encountered yet but are interested in pursuing post-16. Subjects currently on offer include Chemistry, Engineering, Environmental Sciences, Mathematics and Physics – and others are in development.</p>	<p>If you are interested in making an enquiry about a ‘Why Study?’ talk, please complete the <a href="#">Why Study? booking form</a>.</p> <p><i>Please note that as the “Why Study...?” activities takes place at the host school or college, they is only available to institutions based within approximately one hour’s travelling distance of The University of Manchester.</i></p>

Year 11 (triple science)	<i>In your school, date negotiable</i>	<b>Spectroscopy in a Suitcase</b>	<p>A Royal Society of Chemistry fully funded scheme that allows schools in NW to have access to Fourier Transform Infrared Spectrometer (ATR-FTIR) free of charge. We can visit your school or you can borrow the IR spectrometer after training. 1 visit per school per year with a min 10 students and maximum of 30 per session (2 sessions max. per day). The workshop we deliver is:</p> <ul style="list-style-type: none"> <li>• Paracetamol synthesis: This is suited to triple science year 11 and higher. This activity combines a short synthesis task with characterisation using infrared spectroscopy and TLC of the product to fit within a double lesson (approx. 1.5-2h)</li> </ul>	<p>If you have any further queries about this activity please email <a href="mailto:katayune.presland@manchester.ac.uk">katayune.presland@manchester.ac.uk</a> and To book please visit <a href="http://www.rsc.org/sias">www.rsc.org/sias</a></p>
Year 9	<i>In your school, date negotiable</i>	<b>Flash-Bang Show</b>	<p>The University of Manchester Chemistry 'Flash-Bang' show can come to your school, date negotiable. This spectacular show is designed to inject excitement and wonder into the science syllabus. It takes a great deal of preparation to do safely, so there are strict conditions, but if you have a suitable venue (with blackout possible), isolatable smoke alarms, and a large enough audience in the target age-range (year 9 is ideal, but any age can enjoy the spectacle &amp; commentary can be varied to suit) then get your expression of interest in fast.</p>	<p>Please email <a href="mailto:outreach.chemistry@manchester.ac.uk">outreach.chemistry@manchester.ac.uk</a> quoting "Flash-Bang Show" in the subject line.</p>
Year 5 – Year 7	<i>In your school, date negotiable</i>	<b>Solids Liquids and Gases</b>	<p>The Solids, Liquids Gases show has been entertaining and educating senior primary children around Manchester for the last few years and highlighting challenging areas of the syllabus at the same time.</p> <p>Topics we tackle include forces, gases around us, solids and liquids, and changing materials (melting, freezing, boiling, condensing) along with a series of demonstrations involving dry ice or carbon dioxide, oxygen, and liquid nitrogen. As well as turning solids and liquids into gases, we also turn gases into liquids, and have lots of fun with balloons, bangs and bottle-rockets, all of which grabs the attention of learners.</p>	<p>Please email <a href="mailto:outreach.chemistry@manchester.ac.uk">outreach.chemistry@manchester.ac.uk</a> quoting "Solids, Liquids and Gases Show" in the subject line.</p>

Year 10 and 11	Ad hoc requests	<b>Antibiotic Resistance Awareness Activities for High Schools</b>	<p>Would you like your class or year group to learn more about antibiotic resistance and what we can all do to help this rapidly growing problem? Of course you do!</p> <p>Then look no further.</p> <p>Undergraduate students from Manchester Pharmacy School offer you the unique opportunity to have either a 10-15min Prezi-style year assembly or for single classes, a 60-90min hands-on workshop. The latter could also include an introduction to pharmacy as a potential career option if you wished. The content is most suitable for years10-11.</p>	<p>For further details or to register you interest in either or both of these two activities, please contact:</p> <p>Dr David Allison, Manchester Pharmacy School, The University of Manchester, Stopford Building, Oxford Road, Manchester M13 9PT Tel: +44 (0) 161 275 2359 (<a href="mailto:david.allison@manchester.ac.uk">david.allison@manchester.ac.uk</a>)</p>
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## Post 16 Activities:

Target Year Group	Event Date(s)	Event Title	Detail	Booking information
All	Wednesday 28 September 2016	<b>Antibiotic Resistance and You!</b>	Antibiotic resistance affects you, but do you know how? - You may have seen this topic on the news and scattered on the media last week, let's build on that and discuss how we can work together daily to combat antibiotic resistance.	Register your free place here - <a href="http://antibioticguardian.com/meetings-events/register-for-antibiotic-resistance-and-you-september-2016/">http://antibioticguardian.com/meetings-events/register-for-antibiotic-resistance-and-you-september-2016/</a> Name: Emily Davies, Event Co-ordinator Tel: + 44 (0) 121 236 1988 Website: <a href="http://www.bsac.org.uk/">http://www.bsac.org.uk/</a>
Year 12 or 13	<b>Thursday 13th October 2016</b>	<b>Dr. Hannah Fry will be presenting at the 2016 Kathleen Ollerenshaw Lecture.</b>	<p>The School of Mathematics is pleased announce that Dr. Hannah Fry will be presenting at the 2016 Kathleen Ollerenshaw Lecture.</p> <p>The annual lecture, open to students, staff and the public, takes place on <b>Thursday 13th October 2016, 6.30-7.30pm</b> (with coffee and registration from 6pm) in <b>Lecture Theatre B, University Place.</b></p> <p><i>We all like to think of ourselves as strong, independent and single-minded individuals. But despite our illusion of free will, despite the seemingly random sets of circumstances that bring about our decisions, our behaviour as humans is surprisingly easy to predict.</i></p> <p><i>The more we use technology, the more we leave behind a data footprint of our actions in almost everything that we do. These traces of human behaviour are captured in the numbers and reveal surprisingly simple mathematical patterns that unite us all. Patterns that can predict our behaviour and have the potential to shape the way we view our societies and cities.</i></p> <p><i>But new, big data also comes with new, big problems and there's a reason why – despite the data deluge - we seem as ill-informed as ever.</i></p> <p>Join <a href="#">Dr. Hannah Fry</a>, Lecturer in the Mathematics of Cities at the Centre for Advanced Spatial Analysis at University College London and regular on <a href="#">TV</a> and <a href="#">YouTube</a>, as she charts the highs and lows of our relationship with data, revealing the delightful insights the numbers can offer and demonstrating how often they can be downright misleading!</p>	You can <a href="#">find out more about the lecture and Dr. Fry</a> , or just <a href="#">register straight away!</a>

Year 12/13	<b>6th December 2016 4-6pm</b>	Faculty of Biology Medicine and Health Irene Manton Lecture 2016: <b>'On you, inside you: the amazing and horrible world of parasites'</b>	In partnership with the Linnean Society, Dr Sheena Cruickshank, (Senior Lecturer in Immunology, and scientist behind the Worm Wagon) will highlight the amazing and successful world of parasites, as well as share her experiences of working in science.  This public lecture, in memory of Irene Manton, the first female president of the Linnean Society will celebrate the significant contribution of women to Natural Sciences and will be attended by Society Fellows, University staff and students.	We warmly invite A-level students interested and talented in the Natural Sciences (priority: state schools and families with no history of HE participation) to attend this highly prestigious lecture. Spaces are limited to 4 students/school, with option of accompanying teacher. Please book by Friday 4th November to avoid disappointment at: <a href="https://www.eventbrite.co.uk/e/linnean-society-irene-manton-lecture-2016-tickets-27122132027">https://www.eventbrite.co.uk/e/linnean-society-irene-manton-lecture-2016-tickets-27122132027</a>
Y12/13	<i>In your school, date negotiable</i>	<b>Spectroscopy in a Suitcase</b>	If it's a struggle to get your pupils out of school then why not try booking a <b>free</b> visit from our Spectroscopy in a Suitcase team for your <b>chemistry</b> class. We have 2 workshops on offer:  • <b>Paracetamol workshop</b> – students will synthesis paracetamol and analyse their samples using a thin layer chromatography and IR spectroscopy on our portable IR spectrometer. • <b>NMR/IR workshop</b> - using our portable NMR & IR spectrometers along with elemental compositions students will identify unknown organic compounds.  Paracetamol workshop – aimed at Yr12/13 (A-level and BTEC) NMR & IR workshop – aimed at Yr13 (A-level only)  Alternatively you can borrow our portable IR spectrometer yourself to use in classes for up to a week. You must be able to collect and return it to The University of Manchester.	<b>Name:</b> Dr Katayune Presland <b>Tel:</b> 0161 306 0563 <b>Email:</b> <a href="mailto:katayune.presland@manchester.ac.uk">katayune.presland@manchester.ac.uk</a>  <b>Website:</b> To book a visit or a loan please visit <a href="http://www.rsc.org/Education/SIAS/SIASBooking.asp">http://www.rsc.org/Education/SIAS/SIASBooking.asp</a>
Year 12	Autumn 2016	<b>Autumn Discover Days</b>	Discover Days are subject specific open days, where potential applicants can come onto campus and work with staff and students in the academic areas they're interested in, to get an insider taste of a course area before they apply. This Autumn, we will be running a number of STEM Discover Days including <b>Discover Engineering (on Friday 9<sup>th</sup> December)</b> , and <b>Discover Computer Science</b> on Wednesday 30 <sup>th</sup> November. Students can attend as part of a school group or individually. More information can be found here <a href="http://www.manchester.ac.uk/study/undergraduate/aspiring-students/discover-days/">http://www.manchester.ac.uk/study/undergraduate/aspiring-students/discover-days/</a>  If you would like to receive updates on the programme or to book places for your students, please email <a href="mailto:discover@manchester.ac.uk">discover@manchester.ac.uk</a>	

Year 12 and 13	<i>In your school; date negotiable.</i>	<b>Guest Academic Lecture Series</b>	<p>The University of Manchester is home to experts in a wide range of academic fields. In order to share this expertise and enrich the A-Level curriculum, <b>we offer subject-specific lectures to schools and colleges in a range of academic disciplines.</b> A list of lectures is available online, see the link to the right. The majority of lectures will take place in your school or college. You can arrange a date and time that are mutually convenient for you and the academic. Lectures last for approximately 60 minutes, and all lectures are free of charge.</p> <p>Book online at <a href="http://www.manchester.ac.uk/sixth-form-lectures">www.manchester.ac.uk/sixth-form-lectures</a></p> <p><b>Geographic range:</b> Schools and colleges must be based within approximately one hour's travelling distance of The University of Manchester. <b>Group size:</b> Minimum 20 students.</p>	
Year 12	<i>Summer 2017 – tbc June</i>	<b>Discover Chemistry</b>	<p>This event provides hands-on experience of Chemistry courses at The University of Manchester. It gives students the chance to see (and use) for themselves sophisticated scientific instrumentation.</p> <p>Attendees will synthesise diphenylmethanol from benzophenone, a reaction type studied at A-level, and follow the conversion of a carbon-oxygen double-bond to a single-bond by infrared spectroscopy as well as check on progress and purity by thin-layer chromatography. These processes are typical of how new medicines are discovered. After lunch, there is a tour of instrumental facilities in the department including nuclear magnetic resonance, mass spectrometry/gas chromatography and X-ray diffraction. Then, a brief career talk showing where a degree in chemistry might lead, will be followed by an entertaining demonstration lecture to round off the day with a bang! These sorts of demonstrations play a key role in lectures at Manchester.</p>	<p>If you would like to receive updates on the programme or to book places for your students, please email <a href="mailto:discover@manchester.ac.uk">discover@manchester.ac.uk</a></p>
Year 12	<i>Late June/early July</i>	<b>Synthesis, Spectroscopy, Chromatography</b>	<p>A synthesis task accompanied by use of TLC and IR to characterize product, followed by tours of NMR, Mass Spec and X-ray diffraction</p>	<p>If you have any further queries about this exciting programme of activities or would like to reserve a space for your school, please email <a href="mailto:outreach.chemistry@manchester.ac.uk">outreach.chemistry@manchester.ac.uk</a> quoting "Spectroscopy Day" in the subject line.</p>



## And finally...

Title	More information.
<b>'Droso4schools' project</b>	A novel and creative approach capitalising on the fruit fly <i>Drosophila</i> to teach curriculum-relevant topics in biology lessons. For an overview please read our SSR article and our recent blog. For further details regarding our current and up and coming lessons, pricing list and school visits or to be put on our mailing list please contact <a href="mailto:carol.fan@manchester.ac.uk">carol.fan@manchester.ac.uk</a>
<b>SUPI Teacher-Researcher Networking Event</b>  <b>Year 7 -13</b>  <b>Wednesday 9<sup>th</sup> November</b>	<p>The School-University Partnership Initiative (SUPI) is designed to create structured and strategic mechanisms for universities and researchers to work in partnership with secondary schools and FE colleges.</p> <p>In line with this, the SUPI team are once again holding our annual Teacher-Researcher networking event at The University of Manchester on Wednesday 9 November from 4pm – 6:30pm to provide a space for researchers to meet with teachers interested in fostering links, and hosting research-led activities with their students.</p> <p>The event will include an overview of the SUPI project, with specific reference to collaborative projects between teachers and researchers, and with the main focus being a networking session. The expectation is that teachers and researchers will gain new contacts at the event, and come away with ideas for developing collaborative, engaging, school-based projects together.</p> <p><b>To sign up for this event please follow the link below</b>  <a href="http://bit.ly/SUPINetworkingTeacher">http://bit.ly/SUPINetworkingTeacher</a></p> <p><b>Alternatively, for more information, please contact SUPI Project Intern, Ed Trotman at:</b>  <a href="mailto:edward.trotman@manchester.ac.uk">edward.trotman@manchester.ac.uk</a></p> <p><b>SUPI website:</b> <a href="http://www.supi.manchester.ac.uk/">http://www.supi.manchester.ac.uk/</a></p>
<b>Manchester Science Festival</b>	From 20 <sup>th</sup> – 30 <sup>th</sup> October – 1 <sup>st</sup> November, Manchester will be a-buzz with a huge variety of science events as part of the festival, Many events are free check out <a href="http://www.manchestersciencefestival.com/">http://www.manchestersciencefestival.com/</a> to see if there's anything of interest to your pupils.
<b>Science Spectacular</b>	<p>Calling all budding scientists! Come and take part in a range of challenging science quests. With more than 40 interactive experiments and demonstrations you don't want to miss out on our annual family science fun day. Look out for Science buskers and walking tours exploring the Science of Oxford Road, linking the Science Extravaganza and Science Spectacular events down the Manchester corridor.</p> <p><b>Where:</b> Whitworth Hall and Manchester Museum</p> <p><b>When:</b> Saturday 29<sup>th</sup> October 2016, from 10am – 4pm</p> <p><b>More information:</b> See <a href="http://www.engagement.manchester.ac.uk/highlights/manchester_science_festival/science_spectacular/">http://www.engagement.manchester.ac.uk/highlights/manchester_science_festival/science_spectacular/</a></p>

	<p><i>We'd really appreciate you promoting this fun and free event to pupils and parents; it's had fantastic feedback in the past and there really is something for everyone. If you would like a stack of event flyers to distribute in school, please e-mail <a href="mailto:emma.lewis@manchester.ac.uk">emma.lewis@manchester.ac.uk</a> with an amount you'd like and a postal address.</i></p>
<b>Animation17</b>	<p><b>Animation17 - the 10th Annual UK Schools Computer Animation Competition run by the School of Computer Science at The University of Manchester, has launched!</b> The competition is open to all UK school students aged 7-19.</p> <p>Teacher registration is FREE and carries no obligation to submit any entries. See <a href="http://animation17.cs.manchester.ac.uk/">http://animation17.cs.manchester.ac.uk/</a></p> <p>There are great prizes for the winners, and trophies for schools. Winners will be announced in May 2017.</p> <p>Key dates:  *Entries open Monday 12<sup>th</sup> September  * Deadline for entries is Friday 31<sup>st</sup> March 2017</p> <p>Key contacts:  * Website: <a href="http://animation.cs.manchester.ac.uk">http://animation.cs.manchester.ac.uk</a>  * Twitter: @AnimationComp #Animation17</p>
<b>ChemNet Events for learners in Yr 9-Yr13</b>	<p>A mix of industry tours, career events, revision days and university lab days. These are all free to attend if your students are members of ChemNet. ChemNet is free to join for anyone aged 14-18 years old! Join here: <a href="http://chemnet.rsc.org/home">http://chemnet.rsc.org/home</a></p>