

TEACHERS' GENETICS NETWORK NEWSLETTER

CARDIFF UNIVERSITY
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Wales GENE PARK | PARC GENETEG CYMRU

SUMMER 2018

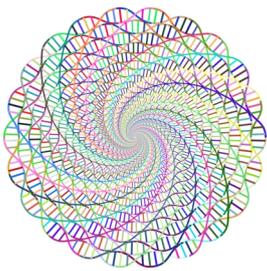
ISSUE 36

Welcome to the Teachers' Genetics Network (TGN) newsletter from Wales Gene Park. Members receive a termly e-newsletter providing details of genetics-related news and information, educational resources and events from Wales Gene Park. Membership is free and is open to teachers across Wales and the bordering counties of England with an interest in genetics.

To unsubscribe from this newsletter please email: walesgenepark@cardiff.ac.uk

Wales Gene Park Sixth Form Genetics Conference

Tuesday 20th November 2018, William Aston Hall, Wrexham
Wednesday 28th November 2018 St David's Hall, Cardiff



Join us at this **free event** for year 12 and 13 students to hear about the latest advances in genetics & genomics from expert speakers.

Further details and booking form to follow in the autumn edition of this newsletter and via our website (www.walesgenepark.cardiff.ac.uk) or Twitter @WalesGenePark

To register your interest in attending email: walesgenepark@cardiff.ac.uk

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Cutting Edge Biology: Genetics & Genomics CPD for Biology Teachers

9am to 3.30pm, 27th June 2018
Swansea University, Singleton Park, SA2 8PP

Join Wales Gene Park, Techniquest and Swansea University Medical School to learn more about the latest advances in the fast-moving field of genetics and genomics. Bring cutting-edge biology into your secondary classroom with expert talks and an interactive bioinformatics session.

We are running a one-day Genetics & Genomics CPD workshop for teachers. The day will include a series of talks from expert speakers on subjects relevant to the WJEC AS/A-level biology curriculum (topics include *genetics, cell division and cancer; current developments in crop biotechnology, including gene editing; genomics and antibiotic resistance; biodiversity and conservation; stem cells, clinical genetics*), followed by a hands-on bioinformatics session. There will also be a Swansea University Medical School Showcase.

Funding: this course is subsidised by STEM LEARNING Ltd as part of their RCUK programme. There is **NO COST** and **teachers will be eligible for a £180 ENTHUSE/RCUK bursary**. To apply go to: www.stem.org.uk/cpd/437560/cutting-edge-biology-genetics-and-genomics

Lunch and refreshments provided! For further information please contact



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Wales Gene Park on Twitter! [@WalesGenePark](https://twitter.com/WalesGenePark)

Get all the latest information from Wales Gene Park or tweet us with your news. It's great to hear from you!



Contact us

Wales Gene Park
Institute of Medical Genetics,
Cardiff University
Heath Park, Cardiff CF14 4XN
Tel. 02920 746940
walesgenepark@cf.ac.uk
www.walesgenepark.cardiff.ac.uk



Wales Gene Park is funded by Welsh Government through Health and Care Research Wales



Website of the term



The **GeneEd** website, developed by the National Library of Medicine and the National Human Genome Institute, National Institutes of Health, is an excellent genetics education resource for teachers and students aged 15 and upwards. The site allows users to explore topics such as:

[Cell Biology](#)

[DNA, Genes & Chromosomes](#)

[Heredity/Inheritance](#)

[Epigenetics/Inheritance & the Environment](#)

[Genetic Conditions](#)

[DNA Forensics](#)

[Biostatistics](#)

[Evolution](#)

[Biotechnology](#)

[Top Issues in Genetics](#)

The website also has sections on [Labs & Experiments](#) (virtual and hands-on experiments to teach genetics concepts), [Teacher Resources](#) (lesson plans, genetic educational materials, printable activity sheets, and other teaching resources for educators seeking to increase genetic and genomic literacy), [Careers in Genetics](#) (highlighting opportunities to use training in genetics and genomics in a range of fields, including in medicine, academic research, law, journalism, agriculture, commercial industries and education) and [Highlights](#) (providing the latest genetic and genomic news, media resources, and information of broad interest to students and educators).

Genetics in the news

Grammar schools have virtually no effect as genetics determines academic success, study finds

Grammar schools have virtually no effect because genetics determine academic success, a King's College London study has found. The full report can be read in [The Telegraph](#).

Researchers examined the genetic differences between students who attend selective and non-selective schools, then analysed their GCSE results. They found that children who attend grammar or private schools are more likely to do well in exams - but this is largely down to their genes, rather than their school environment. The study, published in the journal *npj Science of Learning*, suggests that the type of school a child goes to has little impact on their academic achievement by the age of 16.

Researchers analysed data of over 4,000 students in England and Wales which included the students' genotype, their family socio-economic status, academic ability and achievement at 11, school type and GCSE results. Researchers measured each child's "polygenic score", which is calculated by analysing the genes linked to educational achievement. There are thousands of genetic variants that are linked to educational achievement that have a tiny effect individually, but when added together can have an impact on a student's chances of doing well in exams, the study notes. The findings show that on average students in non-selective schools had lower polygenic scores for academic achievement compared to those in selective schools.

How Bacteria are Changing Your Mood

If anything makes us human it's our minds, thoughts and emotions. And yet a controversial new concept is emerging that claims gut bacteria are an invisible hand altering our brains, as reported by [BBC Health](#). Science is piecing together how the trillions of microbes that live on and in all of us - our microbiome - affect our physical health.

But even conditions including depression, autism and neurodegenerative disease are now being linked to these tiny creatures. Groups of researchers believe they are on the cusp of a revolution that uses "mood microbes" or "psychobiotics" to improve mental health. [The study](#) that ignited the whole concept took place in Japan. The researchers showed that "germ-free" mice - those that never came into contact with microbes - pumped out twice the amount of stress hormone when distressed than normal mice. The animals were identical except for their microbes. It was a strong hint that the difference was a result of their micro-organisms.

The microbiome - our second genome - is opening up an entirely new way of doing medicine and its role is being investigated in nearly every disease you can imagine including allergies, cancer and obesity.

Summer of Science: what's on near you?

With the summer term underway and school holidays approaching there are many science-related festivals, events and activities taking place in and around Wales over the coming weeks. Here are some ideas:

EINSTEIN'S GARDEN

Einstein's Garden Green Man Festival: 16th to 19th Aug, Nr. Crickhowell

Inspiring and unexpected encounters with science



bluedot festival: 19th to 22nd July, Jodrell Bank, Cheshire

Set against a backdrop of the iconic Lovell Telescope at Jodrell Bank, bluedot combines a truly stellar line-up of music with a ground-breaking programme of live science experiments, expert talks and immersive artworks.

National Eisteddfod of Wales: 3rd to 11th August 2018, Cardiff



The Science and Technology Pavilion has developed hugely over the years. Today, it is one of the most popular centres on the Maes and is a scientific and technological centre of international standard.

Between the Trees: 31st Aug to 2nd Sept, Bridgend



Between The Trees has a unique theme of music, natural science and art.

Soapbox Science: 23rd June, Swansea

SoapboxScience Soapbox Science is a novel public outreach platform for promoting women scientists and the science they do. The events transform public areas into an arena for public learning and scientific debate.

Skype a Scientist

[Skype a Scientist](#) matches scientists with classrooms around the world. Scientists will skype into the classroom for 30-60 minute Q and A sessions that can cover the scientist's expertise or what it's like to be a scientist. The aim is to give students the opportunity to get to know a "real scientist", and this programme allows scientists to reach students from all over the world without having to leave the lab.

Skype a Scientist

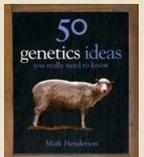
There are over 2150 scientists ready to chat, and teachers can select the type of scientist that will fit their classroom, choosing from 20 different categories. Skype a Scientist is intended to be a conversation rather than a lecture, so students are asked to prepare questions they'd like to have answered by a scientist ahead of time.



Skype sessions are at least 30 minutes long but can also be tailored to the class length. Teachers are matched with a scientist, and can then arrange a time and date for the session, along with any specific content they would like covered. The website also has [resources for teachers](#).

Win a copy of "50 genetics ideas you really need to know"

We're always interested in hearing from you and would like your recommendations on resources, websites, future sessions for students, CPD courses, topics for public talks or suggestions for newsletter features. **The winning contribution will receive a free book!**



To submit your contribution, please email: walesgenepark@cardiff.ac.uk