**10th**

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| ***HANDS-ON INSPIRING SCIENCE*** |

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| Organised by:**Soroptimist International****Weston-super-Mare** | **28 June 2018**at**Churchill Academy and Sixth Form** |

***Draft Programme***



**Timetable**

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| 9.30 – 9.45 | ***Arrival*** |
| 9.50 – 10.10 | ***Introduction*** |
| **Dr Ozak Esu, IET Young Woman Engineer of the Year**Ozak Esu moved to the UK in 2008 to study an Institution of Engineering and Technology accredited BEng in electronic and electrical engineering at Loughborough University.Graduating in 2011 with a first class honours degree, she was awarded a research studentship to undertake a PhD, again at Loughborough.Her research investigated the instrumentation of low-cost electronics for vibration-based condition monitoring of wind turbine blades.Ozak started work in 2014 as a graduate engineer for Cundall, a multidisciplinary engineering consultancy, whilst finishing her PhD in electronic and electrical engineering. Her current role, based in Birmingham, involves designing buildings’ electrical services. |
| 10.15 – 11.15 | ***Workshops – Slot 1*** |
| 11.15 – 11.20 | ***Change over*** |
| 11.20 – 12.20 | ***Workshops – Slot 2*** |
| 12.20 – 13.00 | ***Lunch (for girls)*** |
| 13.00 – 14.00 | ***Workshops - Slot 3*** |
| 14.05 prompt | ***Departure*** |

| *Workshop No.* | *Description* |
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| **A****Alvis Brothers Ltd**Lye Cross Farm logo 1 2015***T3*** | **“TICKLE THOSE TASTEBUDS”*****Carole Taylor and Dawn Guy***An introduction to Sensory Evaluation.  This workshop will show how the 5 senses affect the way we taste food and drink.  The workshop will involve tasting, smelling and visual evaluation.   |
| **B****Mobile Teaching Unit*****Car Park*** | **SEPARATING BLOOD!*****Hannah King, Samantha Moore and Ingeborg Hers***We will do an experiment focusing on two proteins in (fake!) blood using chromatography and consider the content of blood and its role in the human body. Students will also have a demonstration of the University’s ‘Virtual Microscope’ – a resource that our undergraduates use - to look at the histology of blood. We will then do a mini quiz, using ‘clickers’ and an opportunity to ask experts questions on their research on blood and what it is like to be a scientist. |
| **C****T7** | **SHARING MOLECULES – SOME CHEMISTRY YOU CAN TRY AT HOME*****Dr Natalie Fey***Interesting and intriguing chemical experiments can be found almost anywhere around us. In this hands-on workshop we will try out some of them, using things you can find at home. This will show how you can relate the structures of molecules to their colours, smells and reactions. |
| **D****Burohappold*A6*** | **PLANE CABIN DESIGN****Your Task – Design an A320 Cabin**As a design team, you must design a passenger cabin for one of our aircraft. |
| **E*****T6***Home | **HOLD BACK THE FLOOD!!*****Beth Bateman***Civil Engineering is about understanding what the public needs and wants – and then making it happen in an environmentally friendly way, from the design and construction of buildings and bridges, to the management of water resources and waste. This activity will look into the modern day problems civil engineers have to deal with due to climate change and the rise of natural disasters, from increased flooding, to earthquakes, and erupting volcanoes.Join our exciting activity where you will be designing and building your own homes to be resilient to these natural disasters – and be prepared to have your designs tested! |
| **F*****A7*** | **LEGO EV3 ROBOTICS*****Jason Hill*** Build, connect and control your own EV3 robot to complete in a series of competitive challenges. |
| **logoG*****T10*** | **Rolls-Royce RACING AIR ENGINES*****Joy Hyde and Kevin Spurgeon***Have you got what it takes to work as a team to build and complete a winning air engine? Find out how engines work and then create your own to power your vehicle across the finishing line. The winning team will win a small prize. |
| **H**Science and Technology Facilities Council (STFC)***T11*** | **MONITORING EARTH FROM SPACE** ***Poppy Townsend and Rosie Green***Come find out about space, satellites and all things infra-red! Using our thermal camera you’ll look at changes in temperature and how this can be applied to the real world. |
| **J**High Tech Bristol and Bath CIC***T9*** | **MY ROBOT PET*****Dr John Bradford***We use the Raspberry Pi to control a small robot to behave like a small pet - with unpredictable results! |
| **K*****T2*** | **GENES IN A BOTTLE*****Dr Caroline McKinnon***Your DNA makes you unique. As Biochemists, we study DNA at times to determine what goes wrong within the body and what can be done to rectify this. In this workshop we will learn about DNA and you will perform your very own DNA extraction to make a necklace that is as individual as you. |
| **L**Royal United Hospitals Bath NHS Foundation TrustNHS***T13*** | **A SCIENTIST’S VIEW OF DISEASE*****Nicola Hodges***This workshop puts you in the place of the scientists in pathology, you will have a look at a patient’s symptoms and pathology results and try to diagnose the patient’s disease. |
| **M**Institute of Civil Engineers***A8*** | **BUILDING BRIDGES*****Joanna Rothwell***Students are challenged to span a 25cm gap using only straws and sellotape. Bridges will then be tested to destruction with weights to see which designs are the strongest. |
| **N*****T1*** | **CRACKING THE GENETIC CODE TO BUILD A “PRO-BOT”*****Sophie Dando***Pupils work in teams to build Lego robots (or ‘pro-bots’) from the genetic code. The session focuses on mutations and differences in the “pro-bots”; in the process, they learn how genes influence processes within our cells and the importance of this in identifying and treating different diseases. This activity is supported by [The 100,000 Genomes Project](https://www.genomicsengland.co.uk/the-100000-genomes-project/) from Genomics England, who are working to identify new ways to aid diagnosis and advance medical knowledge. Prior knowledge of the genetic code is not necessary, although basic KS3 appreciation of the location and role of DNA would be useful. |
| **P*****T8*** | **WHAT IS THAT?*****Emma Liddle***Chemistry can make materials such as fragrances or polymers we used in everyday lives. We will look at some of these materials, how chemists tell these compounds apart and try some of the techniques chemists use every day. |

**HOSTED BY:**

**Churchill Academy and Sixth Form**

Committee:

Soroptimist International Weston-super-Mare

*Ruth Thomas, Melanie David, Anne Graham and Susan Long*

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