



Women in Chemistry: Making the Difference

Tackling life's big challenges through the chemical sciences

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Oxford Chemistry





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Overall Project Aim:

Increase the perception of chemistry as a discipline that impacts positively on society and one in which females thrive and contribute.



Women in Chemistry: Making the Difference

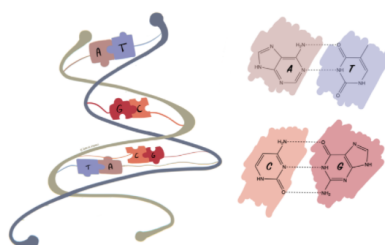
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✓ **Objective 1:** Develop monthly practical challenges suitable for girls aged approx. 10-14 yrs.

Sunlight is essential for all of our lives, but what is sunlight? In this month's challenge you will conduct experiments to investigate, and learn about, the different types of light all around us in our everyday lives!

Part I: Make your own Camera Obscura Part II: The "Thicker Effect" of Light Part III: DIY Diffraction Grating Part IV: Testing Sunscreens for UV absorption Let's discuss Celebrate!

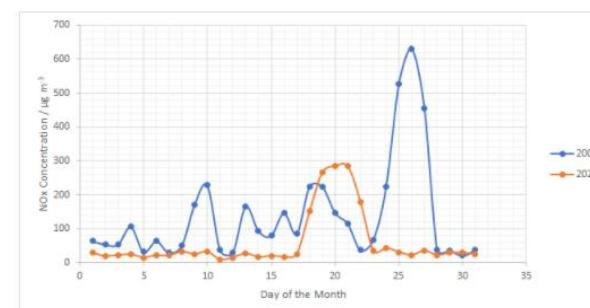
Part I: Introduction
Part II: Equipment List
Part III: Making your Camera Obscura
Part IV: Further investigations!



Here, we are going to give you one strand of DNA and **your challenge is to find the missing nucleobases in Strand #2!**

We did the first 6 letters to show you how to get started.

| | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|
| Strand #1 | CTT | GAC | AAA | GTT | GAG | GCT |
| Strand #2 | GAA | CTG | ??? | ??? | ??? | ??? |



Power UP!

Batteries play a vital role in our everyday lives. They convert chemical energy to electrical energy and provide the power needed to start or use our transport (e.g. cars, buses), as well as providing a backup source of electricity for our phones and communication devices and are essential in medical procedures.

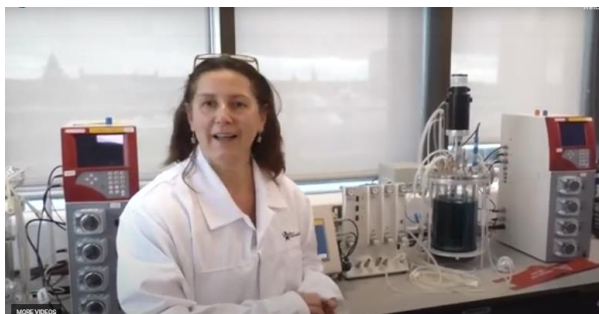
Part I: Making Batteries Part II: Testing Conductivity Part III: Modelling Particle Transfer Let's discuss Celebrate!

Part I: Introduction

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Objective 2: Construct suitable accompanying resources which highlight relevant research.



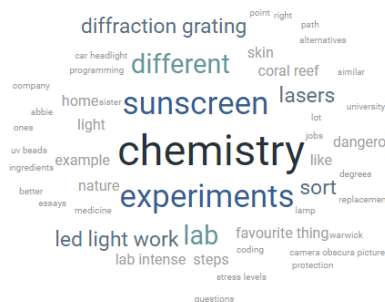
Women in Chemistry

BBC NEWS
Hawaii to ban certain sunscreens harmful to coral reefs

INDEPENDENT
Sunscreen could be poisoning marine life and polluting beaches, study finds

TIME
Why a Sunny Pacific Island Is Banning Sunscreen

Some sunscreens don't live up to their SPF claims



You might find these definitions helpful.

Polymer: large molecule consisting of many repeating units

Monomer: a molecule that forms the basic repeating unit of a polymer.

Gels: a 3D network of molecules within a liquid

Crosslinking: the process of joining two or more polymer chains together

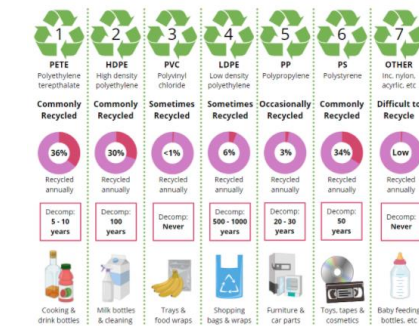
Drug delivery system: a strategy that increases the proportion of a drug that reaches the intended site of action.

Remember that if you have any questions about anything you have read on the research page, you can ask us at one of our live online events!

Women in Chemistry

Squishing liquids

Concentrated electrolytes in tiny pores





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Women in Chemistry

WARWICK
THE UNIVERSITY OF WARWICK



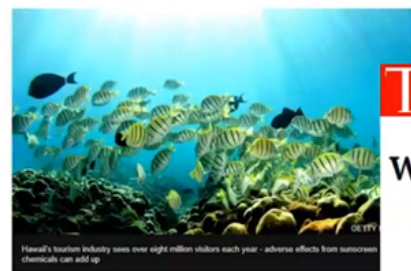
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US & Canada

Hawaii to ban certain sunscreens harmful to coral reefs

3 May 2018

Share



Hawaii's tourism industry sees over eight million visitors each year - adverse effects from sunscreen chemicals can add up

Hawaii has become the first US state to pass a bill banning the sale of any sunscreens that have chemicals known to harm coral reefs.



INDEPENDENT

Sunscreen could be poisoning marine life and polluting beaches, study finds

Scientists warn of accumulation of chemical in toxic concentrations but urge bathers to continue using appropriate protection regardless



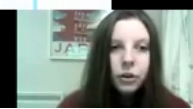
WORLD • PALAU

Why a Sunny Pacific Island Is Banning Sunscreen

Share



Some sunscreens don't live up to their SPF claims



Objective 3: Create career profiles for the females at the Higher Education Institutions supporting each challenge.

DEPARTMENT OF CHEMISTRY OXFORD

PROFESSOR CHARLOTTE WILLIAMS OBE
ECONIC

My research has the potential to make an impact on climate change the plastics problem.

I studied Chemistry because I like problem solving and wanted to make a difference to environmental problems

The best part of my research is creating completely new molecules and materials, and working with other scientists around the world.

In the future, I hope to change the way we make, use, recycle and dispose of plastics.

My science hero is Shohei Inoue – he was a true innovator in the area of carbon dioxide utilisation.

My advice to my 13-year old self would be to believe in yourself and maths will get easier!

- A-levels in Chemistry, Physics, Maths and Spanish
- BSc in Chemistry with a year in Spain, Imperial College London
- PhD in Organometallic Chemistry Imperial College London

I enjoy cycling, swimming and climbing mountains. At school, I enjoyed learning languages.

ROYAL SOCIETY OF CHEMISTRY

<https://makingthedifference.web.ox.ac.uk>

ROYAL SOCIETY OF CHEMISTRY

WARWICK

Women in Chemistry

1997

2001 Started primary school

2008 Started secondary school

2013 Started A-levels

2015 Started my Bachelors degree

2018 Started my Masters degree

2019 Started my PhD

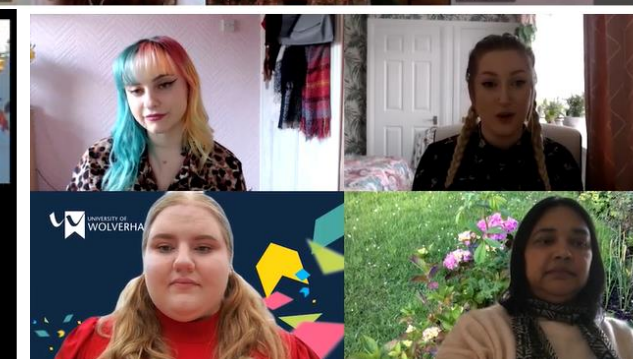
present

hard worse level clare lottie career dangerous
 busy favourite subject diamonds algae
 different versions bacteria medicine
 polymers difficult gel lab durham glue
 easier crystals difficult
 scary science chemistry experiments cool
 australia doctors fun hands
 air tight suit female chemists university environment
 lot jobs way try secondary school sick people
 sort soap different drug delivery pond
 bad pandora work crystallography
 humans climate change

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✓ **Objective 4:** Host online Q&A meetings throughout each challenge month.





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'My daughter was very excited to be involved and really enjoyed taking part in the YouTube live event. The interactive Q&A were so effective too.'

'She read your instructions and made the whole thing very carefully. She loved it,... She did a few trial and error runs, where it wasn't quite right, she'd think about the problem, note it down and then try to fix it.'



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'Your output is excellent, very much appreciated and if we can plan it appropriately, would really help inspire our pupils and break down the preconceptions about Universities/subjects that they could inspire to.'

'I love the Women in Chemistry resources, and will definitely show them to our pupils!'

'Thank you for sending me these. They seem very exciting...'

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'We have had a lot of fun doing the Q&A sessions.'

'We have all thoroughly enjoyed it! It's been such a wonderful project to be a part of.'

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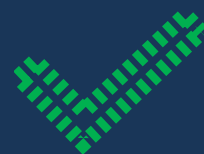
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Objectives



Sustained contact



Overall aim

Increase the perception of chemistry as a discipline that impacts positively on society and one in which females thrive and contribute.



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Open up target audience to all genders

Work alongside STEM / After-school clubs

Adapt for workshops / community organisations

Produce short clips from LIVE streams





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<https://bit.ly/womeninchem>

@women_in_chem

outreach@chem.ox.ac.uk





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Prof. Charlotte Williams FRS OBE

Prof. Susan Perkin

Hannah Hayler

Holly Yeo

Megan Bell

Prof. Nazira Karodia

Ellesse Janda

Phoebe Hinton-Sheley

Anabel Ekere

Heather Angell

Dr Dani Pearson

Abbie Whittock

Dr Natercia Rodrigues Lopes

Emily Holt

Sofia Goia

Dr Clare Mahon

Prof. Jacquie Robson

Lottie Ayres

Dr Amy Hall

Helen Sims

Prof. Sophia Yaliraki

Vanessa Ho

Dr Tiffany Chan

Diana Tanase

Helena Dodd

Aileen Cooney

Tamzin Bond

Anna Wilson

Dr Aoife Grant

Dr Angharad Stell

Rayne Holland

Dr Hannah Chawner

Alice Ramsden

Rebecca Ward

Dr Angelina Wenger

Bethany Shire

Lydia Cox

Renee Boling

Dr Simon Gerrard

Nick Barker

Tim Harrison

Dr Malcolm Stewart

