

Royal Institution Mathematics Masterclasses



Felixstowe Transition Project 4 July 2018

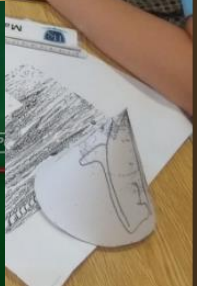
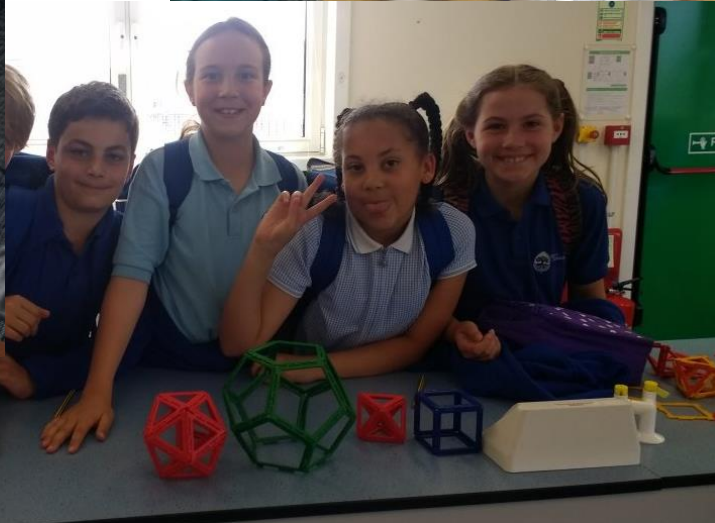
rigb.org
@Ri_Science

Image credits: Tim Mitchell

Ri The Royal Institution
Science Lives Here

Masterclass network

Ri Masterclasses in pictures



Ri Masterclasses: an introduction

- Aim is to “open young people’s eyes to the excitement, beauty and real world value of mathematics”
- Masterclass programme developed from Christmas Lectures in 1978, and Primary Masterclasses have been running for around 20 years.
- Currently 44 Series nationwide: next year 55-66, so exciting times. Felixstowe could be one of the new series!



Ri Masterclasses: what are they?



- Ri Masterclasses aim to stimulate, encourage and inspire young people in the beauty and wonder of mathematics.....
-and to develop a sense of enjoyment in the subject.
- We aim to challenge students who are well-motivated and curious about mathematics
- We are keen to reach students for whom other opportunities may not be readily available.

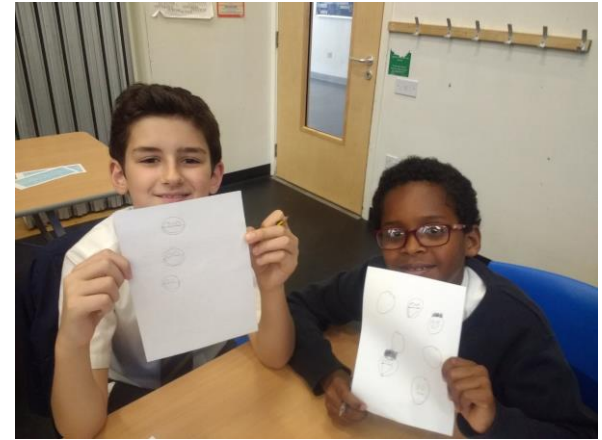
Ri Masterclasses: what are they?



- The Ri has a nationwide Masterclass network, working with volunteers across the UK to help enrich the education of young people in the subjects of mathematics, computer science and engineering.
- For primary school students, the Masterclasses focus on mathematics.
- These series of workshops, led by enthusiastic speakers, offer students an opportunity to investigate mathematical ideas outside the curriculum and explore the wider aspects of the subject.

Ri Masterclasses: what are they?

- Series of at least six sessions
- Topics outside the school curriculum – need to explore the wider subject & it's applications
- Students nominated by their teachers for the whole series
- Hands-on, interactive and in-depth
- Different workshop leaders and topics each session (ideally)
- Certificate given for completing the Masterclass Series





Example Activities

- We now have the opportunity to try some typical Masterclass activities.
- The activities are around the room.
 - Platonic solids: Triangles
 - Sierpinski Triangle
 - Compare magic squares
 - Counting squares worksheet
 - Stacking cannon balls

The Royal Institution

Inspiring everyone to think more deeply about science and its place in our lives.



Image credits: The Royal Institution

Royal Institution activities

- Online videos & activity resources
- National education programmes
- Membership
- London-based:
 - Talks and shows
 - Holiday workshops
 - Family fun days
 - Faraday Museum

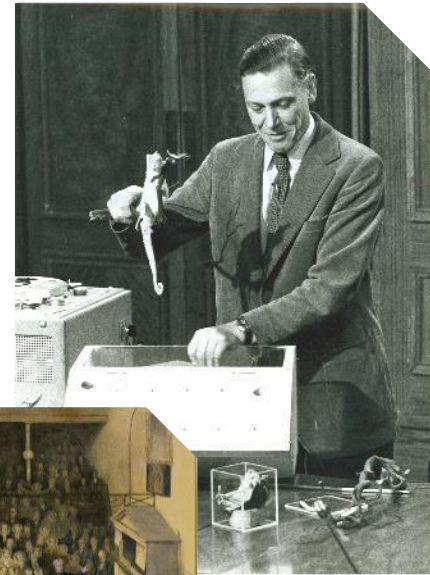


The CHRISTMAS LECTURES

The CHRISTMAS LECTURES are the Ri's most famous activity and are televised on the BBC. The first maths lectures by Prof. Sir Christopher Zeeman in 1978 started off the Masterclass programme!

Past Christmas Lecturers include:

- 1855 Michael Faraday
- 1973 David Attenborough
- 1977 Carl Sagan
- 1991 Richard Dawkins
- 2017 Sophie Scott



Royal Institution videos

- CHRISTMAS LECTURES – on the Ri website

The screenshot shows the Royal Institution website's interface for Christmas Lectures. At the top left is the 'Ri' logo with the tagline 'The Royal Institution Science Lives Here'. To the right are navigation buttons for 'Menu', 'Blog', and 'Video'. Below this is a breadcrumb trail 'Christmas Lectures → Watch →'. The main banner features a video player with the text 'Watch past CHRISTMAS LECTURES' and 'Catch up with past CHRISTMAS LECTURES in full and for free on our ever expanding online archive.' Below the banner is a search bar labeled 'Search Lectures'. Underneath are filter buttons for 'Topics', 'Lecturer', and 'Year', along with a 'View all' button. A 'YouTube' logo is also present. The 'Active filters' section shows 'series x'. Two video thumbnails are displayed: 'The language of life' by Sophie Scott and 'Supercharged: fuelling the future' by Saiful Islam.

Ri The Royal Institution
Science Lives Here

Menu Blog Video

Christmas Lectures → Watch →

Watch past CHRISTMAS LECTURES
Catch up with past CHRISTMAS LECTURES in full and for free on our ever expanding online archive.

Search Lectures

Topics Lecturer Year View all

YouTube

Active filters **series x**

The language of life
Sophie Scott takes us on a journey through one of the fundamentals of human and animal life - the unstoppable urge to communicate, in the 2017 CHRISTMAS LECTURES.

Supercharged: fuelling the future
Saiful Islam leads an incredible journey through the invisible presence that

Royal Institution videos

- CHRISTMAS LECTURES – on the Ri website
- Ri on YouTube – experiments, videos & talks for all ages

The image shows a composite of two screenshots. The top screenshot is from the Royal Institution website, featuring the logo 'Ri The Royal Institution Science Lives Here' and navigation buttons for 'Menu', 'Blog', and 'Video'. A banner for 'Watch past CHRISTMAS LECTURES' is visible, along with a search bar and filter options. The bottom screenshot is from the Royal Institution's YouTube channel, showing the channel name, subscriber count (378,807), and a grid of video thumbnails including 'Levitating Superconductor', 'Purple Doesn't Exist', 'Nitrogen Triiodide', 'Burning a Diamond', and 'Fluorine and Caesium'.

Ri The Royal Institution Science Lives Here

Menu Blog Video

Christmas Lectures → Watch →

Watch past CHRISTMAS LECTURES
Catch up with past CHRISTMAS LECTURES in full and for free on our ever expanding online archive.

Search Lectures

Topics ▾ Lect

Active filters series x

(Ri) The Royal Institution 378,807 subscribers

HOME VIDEOS PLAYLISTS COMMUNITY CHANNELS ABOUT

Popular Experiments PLAY ALL

Watch and learn the science behind some of the most popular demonstrations we have done here at the Ri.

Levitating Superconductor 7:30
Levitating Superconductor on a Möbius strip
The Royal Institution

Purple Doesn't Exist 5:14
Colour Mixing: The Mystery of Magenta
The Royal Institution

Nitrogen Triiodide 4:56
Slow Motion Contact Explosive - Nitrogen Triiodide
The Royal Institution

Burning a Diamond 4:41
2012 Christmas Lectures - Burning a Diamond
The Royal Institution

Fluorine and Caesium 4:37
Reacting Fluorine with Caesium - First Time on
The Royal Institution

Royal Institution videos

- CHRISTMAS LECTURES – on the Ri website
- Ri on YouTube – experiments, videos & talks for all ages
- ExpeRimental – science experiments at home

The screenshot shows the top navigation bar of the Royal Institution website. The logo 'Ri The Royal Institution Science Lives Here' is on the left. To the right are three hexagonal menu items: 'Menu' (yellow), 'Blog' (grey), and 'Video' (black). Below the navigation is a dark grey bar with the text 'Christmas Lectures → Watch →'. The main content area features a large banner with the text 'Watch past CHRISTMAS LECTURES' and 'Catch up with past CHRISTMAS LECTURES in full and for free on our ever expanding online archive.' The background of the banner shows an audience in a lecture hall.

This screenshot displays the YouTube channel page for The Royal Institution. The channel name 'The Royal Institution' and subscriber count '378,807 subscribers' are visible. The navigation tabs 'HOME', 'VIDEOS', and 'PLAYLISTS' are present. The 'VIDEOS' tab is active, showing a list of videos. The first video is 'The language of Sophie Scott', featuring a woman with a megaphone. Below it is 'Supercharged' by Saiful Islam. A 'Popular Experiments' section is also visible, with two video thumbnails: 'LEVITATING SUPER CONDUCTOR' (7:30) and 'PURPLE DOESN'T EXIST'. The channel banner at the top of the page reads 'THINK MORE DEEPLY ABOUT SCIENCE'. The footer of the page features a blue banner with the text 'Make your home a science lab with our fun experiments to do with children' and a row of icons representing various experiments.

Ri Masterclasses

What impact do they have on participating schools?

- “Shakespeare of Mathematics”
- Although only a handful of pupils benefit directly, the ideas can be taken back to school and used more widely. (This is best achieved by a teacher or TA accompanying the pupils to each Masterclass (CPD))
- Raises aspirations and status of mathematics within the schools
- Can inspire course of study or choice of career for pupils, so perhaps increasing take up of maths at later stages of education.
- Celebrates maths as a human endeavour, important to and accessible to all, to be enjoyed by all.

Ri Masterclasses

What support can the Royal Institution offer?

- Printed resource ideas ([book](#))
- [“Off The Shelf” \(OTS\) Masterclasses](#) including [“Ask the Ri”](#) and links to [other websites](#)
- Find and fund 2 experienced speakers for a new series
- Dedicated team to support in London (Alison plus 6 colleagues): advice and support on any aspect of setting up and running
- All the necessary paperwork to manage the administrative tasks, including child protection, risk assessments, GDPR compliance.
- Certificate for each child who completes the Masterclass Series
- Invitation to a Celebration Event next June at the Royal Institution.

Ri Masterclasses

Practical considerations

What do you need?

- Venue (Felixstowe Academy?)
- Decide on times and dates: get into school calendars
- Who will transport the children?
- Will the children be accompanied or unaccompanied?
- Send out invites and obtain parental consents: collate medical information etc.
- Appoint an Organiser to coordinate the programme
- Appoint a Supervisor to take pastoral responsibility (ideally same person for all sessions)
- Arrange programme of varied speakers/topics
- Take time to enjoy the magic of Masterclasses!

Other information of interest:

- We also offer Masterclasses in y8/y9
- Closest secondary series is in Ipswich for y8 in the Spring or Summer term
- We have a series for computer science/engineering starting in Ipswich in Autumn 2018 for y9
- We can offer some tickets for Y7 for the 2018 Christmas Lectures, and a travel bursary.



Next steps

Any questions or help needed please contact

Alison Eves

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Thank you!