What is CHaOS?
Cambridge Hands-On Science, more commonly known as ‘CHaOS’, is a non-profit voluntary student group based at the University of Cambridge that believes science is exciting and relevant to everyone. Our aim is to transfer our enthusiasm to the general public through fun hands-on experiments, bringing science to as many different people as we can.

Who pays for CHaOS?
CHaOS is committed to making our experiments accessible to as many people as possible, so we do not charge for entry to our public events. We ask that schools make a small contribution to our running costs, but each visit is heavily subsidised by the generosity of our financial supporters.

Careful budgeting keeps the cost of the Roadshow to below £3 per person reached. We keep our costs down by accommodating our demonstrators in campsites whilst on the Roadshow, filling up on delicious school dinners and doing as much of the rest of our cooking as possible on a camp stove.

How much does the Roadshow cost?
Each year CHaOS spend approximately £15,000 over the course of the Roadshow, with the main cost being transport (around £7,700, including vehicle hire and demonstrators’ train fares), food (£2,200) and advertising the events (£800). We are therefore hugely grateful to our supporters for enabling the Roadshow to take place!

How did CHaOS and the Roadshow begin?
CHaOS has been running for over 16 years. Our first events were held in Cambridge as part of the Cambridge Science Week. In 2002, some of our members thought it would be fun to pack some of our experiments into a van and take them around the country for a week — and so the Roadshow was born! From these humble beginnings, our volunteers have developed the Roadshow such that we are now on the road for a month or more each summer, with this year our longest ever at 7 weeks!

How does the CHaOS Roadshow work?
Our events are based around hands-on experiments that all ages can try, covering every aspect of science from physics and engineering to biology and how our body works. Small groups are guided through each experiment by an enthusiastic volunteer, experienced in demonstrating the science behind it at an interesting and accessible level, tailored to the ability of the children. In July and August 2014, CHaOS brought these experiments to schools, town halls, community centres and other events and venues around the country. In seven weeks we visited 23 venues across eight counties and saw over 8,000 visitors. A record total of 116 volunteers from the University of Cambridge gave up part of their summer.
Roadshow Route 2014

Where did the Roadshow visit in 2014?

One of the main aims of the CHaOS Roadshow is to visit areas of the country where access to science is not easy, for example where there are no permanent science museums locally. With this in mind, this year the Roadshow visited Shrewsbury and Gloucestershire. This year CHaOS also brought interactive science to HESFES, a festival for home educated students, giving them a chance to try experiments not always easy to recreate at home. Finally the last two weeks were spent on two different scout and guide Jamborees which gave us the opportunity to involve thousands of children from all across the UK and beyond!

How are CHaOS volunteers trained?

Of the demonstrators who responded to our post-Roadshow survey, around half had not volunteered at a previous CHaOS event, and about a quarter had never been involved in science outreach activities before. In the run-up to the Roadshow, we ran sessions to introduce new demonstrators to our experiments, and to pass on hints and tips about communicating science in a way that matches the ability level of the audience. Many new demonstrators attended one of these sessions, and the feedback we received indicated that they were generally pleased with the opportunity to practice with some of the experiments, and to meet some of the committee members in person before the Roadshow.
This year the Roadshow kicked off in Hampshire and traversed the area for nearly two whole weeks!

School events started in Twynham with Water Rockets and Mechanical Advantage experiments being used to their full outside in the sun. Calamity almost ensued, however, when a part of our Mechanical Advantage experiment was nearly left behind at a school, which a demonstrator remarked would be a Mechanical Disadvantage...

The brand new marquee, which replaced our old one with leaking walls, was finally tested out and thankfully found to be sufficiently waterproof.

Our new Maths and Engineering experiments came on their first tour too.

For the first time ever the CHaOS Roadshow ventured outside of the country all the way to Wales - and we very much enjoyed it! Our Rocks and Fossils experiment proved very popular with many interesting reactions from the students when examining fossilised shark poo. Students and teachers alike also enjoyed learning about how similar they were to fruit in the Kiwi DNA experiment.

It was really fantastic. I think we learnt something from each exhibit.

Parent

The pupils benefited from exposure to scientific ideas, without the pressure to learn for a test.

Teacher

Excellent event and great to have it locally - Thank you!

Parent

Really enjoyed it - feel I learned a few things as well

Grandma

Parent

It was really fantastic. I think we learnt something from each exhibit.

Parent

The pupils benefited from exposure to scientific ideas, without the pressure to learn for a test

Teacher
Week 4

A very sunny Heckington show was enjoyed by all involved. Meanwhile, both kids and demonstrators alike received a first hand extension to the UV experiment, learning the importance of suncream in preventing skin damage.

This week the new maths experiments became especially popular - due to some very enthusiastic mathematicians on our side - although Hot Air Balloons and Boris the Skeleton were the favourites of the younger ones by far! A primary school lunch was enjoyed at Kingsmead, where demonstrators got to sit nostalgically at primary school-sized tables in the lunch hall.

CHaOS was also hosted at the Catalyst Science & Discovery Centre where one demonstrator recounted how a parent had taken her kids to the event, gone to the cinema, and they'd then insisted on coming back for another two hours!

Week 5

HESFES

Demonstrators had a great week at HESFES with lots of really keen kids who kept coming back every day despite their parents urging them to go and visit some of the other tents. The Cornflour experiment proved particularly popular, although probably less popular with parents when they saw the state of the kid's clothes. Who knew non-newtonian fluids could be so fun to squeeze, stand in, and even roll around in?

In the evenings the CHaOS demonstrators showed their musical side after being asked to perform some newly written songs about malaria and Boris the Skeleton (and a hastily written Ode to HesFes) on the main stage. This was all accompanied by, rather appropriately, a CHaOS-blue ukulele.

Everyone was really nice and friendly, so I felt at home very quickly. I also was made to feel comfortable with demonstrating the experiments very quickly, so the outreach itself was a lot of fun.

Demonstrator
This week the Roadshow moved to its first Jamboree event of the summer - Chamboree - entertaining over 5,500 scouts and guides over the course of the week. The Roadshow was given its own tent within an even larger science zone, giving campers a chance to sharpen their minds as part of their superhero training.

On the sunnier days demonstrators took full advantage of the field to try out the outdoor experiments including Water Rockets and Trebuchets. With such a large area, many experiments were rotated between, allowing almost everyone to try something they hadn’t before!

On the first day CHaOS volunteers practised their ability to engage even the youngest scientists-in-the-making, demonstrating to the cubs and rainbows, who joined the camp for the weekend. Later on, however, the demonstrators had their knowledge tested by the older groups. For the rest of the week CHaOS was frequented by many eager guides and scouts who enjoyed making objects invisible, creating explosions and competing to fire innocent stuffed animals as far as they could!

In the evenings demonstrators were also allowed to take part in other activity zones. Here they got the chance to run around in zorbs, tackle assault courses, play laser tag and attempt plenty of crafts. Demonstrators also brushed up on their pioneering skills as well as participating in some rather successful pub quizzes.

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Week 7

This week our demonstrators headed back down South to Norfolk for the second Jamboree of the season - Norjam - which hosted over 4000 scouts and guides. This time the experiments were integrated within the crafts zone giving a steady stream of campers throughout the day, with many returning in their free mornings to try out even more experiments.

With the impressive height of the barn, the Air Streams experiment, with its double strength fan, quickly became a camp favourite and the sound of Electrolysis certainly tempted over more intrigued visitors. Being indoors gave us the opportunity to set up the Dark Room with even more fantastic light experiments. Meanwhile demonstrators also spread to the adjacent field in the sun and tested the maximum strength of the suspension bridge, the results were conclusive - much stronger than the ground!

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Parent

Excellent event for children - volunteers really patient and able to tailor activity to a child’s ability.

Parent

Excellent! Caught the imagination of my Aspergers 6 year old - congratulations.
What did families think?

More than 2,000 people in family groups visited our drop-in public events this year. We asked our visitors to give us their feedback, and collected 123 questionnaires representing the views of over 450 people. Half of the visitors considered themselves to be from a non-scientific background and visited museums only once a year or never at all. Many said they were not sure how we could improve, or asked if we could even extend to bring activities for children younger, and older, than our current target age range. We were thrilled to find that over 98% of our visitors said they would come to another CHaOS event if they had the chance to do so.

What did the demonstrators say?

“The best bit was] the amazing people on the Roadshow with me, and feeling I really got through to a few kids about my chosen subject.”

“I feel it has shown me that this is what I want to do as a career, as in the communication of science. Thank you!”

“[The best bit was] feeling like the children actually realised that Science is ‘cool’ and fascinating”

Pleasingly, 100% of all the demonstrators who responded to our post-Roadshow survey said they had enjoyed the Roadshow and want to participate in future CHaOS events!

What’s next...?

We have shown consistently that the CHaOS model is a successful and cost effective way of communicating the relevance and excitement of science to the public.

If you would like to host CHaOS in your school, town hall or community centre, please let us know. We always receive more requests for visits than we can fulfil each year (often from people who have seen us in action before), but we will do our best to visit everyone! Planning for the 2015 Roadshow is already in progress, and we are always looking for sponsors.

If you are a part of, or know of, an organisation that could help provide CHaOS with the funding it needs to continue the Roadshows, please get in touch at:

contact@chaossscience.org.uk
The student demonstrators of 2014 were:


With many thanks to:

Mike Dale at Twynham School, Fiona Wright at Bournemouth School for Girls, Claire O’Brien at Regents Park Community College, Sarah Jennings and JJ Ferguson at Brockenhurst Village Hall, Natalie Jeffery at Pavilion on the Park, Hannah Belben at Ringwood School, Mike Seale at The Sholing Technology College, Lyn Brayshaw at SEEDS, Jenny Shipway at the Winchester Science Centre, Emma Stuart at the Corinium Museum, Lesley Prout at the Armstrong Hall, Rhoanne Clark at Maesyrhandir Primary School, Keith Davies at Llandrindod High School, Nicky Maddocks at Newtown High School, Jane Bellingham and Jenny Higgs at the Park Lane Centre, Ken Vine at the Shrewsbury Beaconsfield Club, Lynne Hooper at the Bishops’ Blue Coat School, Ruth Dauberley at Kingsmead Primary School, Meryl Jameson at Catalyst, Sarah Grant at the Heckington Show, Jane Hickson at HesFes, Aileen Higgs at Chamboree and Tom Wheeler at Norjam.

Also thanks to the Tyrrell, Rostom and Patto families for their hospitality and the Sedgwick Museum for the loan of their fossil collection.

Thanks to the rest of the CHaOS team in Cambridge and countless others who were involved in helping the CHaOS Roadshow 2014 run smoothly.

Finally, thanks to all of the school pupils and families who attended our events and made our efforts worthwhile with their enthusiasm and enjoyment.

Generously supported by: