

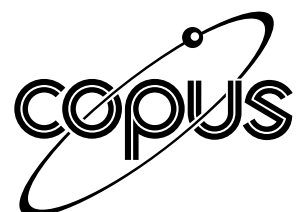


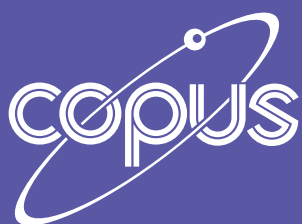
## Out and about

Organising public events: a collection of case studies from the COPUS grants scheme

*COPUS – the Committee on the Public Understanding of Science – is a joint initiative of the Royal Society, the Royal Institution and the British Association promoting a better understanding of the role of science, engineering and technology in society.*

*Produced by the Royal Society on behalf of*





**COPUS - promoting a better  
understanding of the role of science,  
engineering and technology in society**

The views expressed in this guide are the contributors' own and do not necessarily reflect those of the Committee on the Public Understanding of Science (COPUS) or its partners, namely the Royal Society, the Royal Institution of Great Britain and the British Association for the Advancement of Science.

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# CONTENTS

	Pages
Preface	4
Green fingers	5
Away from home	7
Science in the city centre	9
Trailing around and around	11
Playtime	13
Off to the museum	16
Science north of the border	18
In the tropics	19
School's out	20
Water water everywhere	23
Festivals and fairs	25
On show	26
How to organise your own public event...	29
...and get help funding it	30

# PREFACE

If you are looking for inspiration or ideas on innovative approaches to communicating science, engineering and technology then *Out and about* can help. Organisers of some of the 750 projects, funded since 1987 through the COPUS grants scheme, describe their projects here, sharing their experiences and offering advice on the pleasures and pitfalls of planning activities. *Out and about* is a treasure trove of individual approaches which can be replicated or emulated on large or small scale.

The *Out and about* case studies demonstrate how public events on science, engineering and technology themes can prove an attractive alternative, competing with other choices for people's leisure or extracurricular time.

COPUS thanks journalist Barbara Drillsma who was commissioned to write this guide, and the project organisers featured herein who gave up their time to share their experiences with others. Finally, for every project described, there are many others equally informative that simply could not be included in a publication of this size.

**‘All intellectual improvement  
arises from leisure’** Dr Samuel Johnson

# GREEN FINGERS

Gardening is a favourite pastime in the UK. Every weekend, garden centres are packed and thousands of us flock to famous gardens open to the public. Gardening is a wonderful environment for exploring aspects of science and COPUS grants have helped many gardening projects off the ground.

## The Disease Garden

“When applying for a grant make sure you ask for sufficient money to establish all aspects of your project. Dr Roland Fox discovered that he had sufficient funds to set up the exhibition and to cover certain travel costs but then ran out of funds to look after the collection.”

The last thing anybody expects to see when they go along to a gardening exhibition is a display of sick and dying plants. But that is exactly what Dr Roland Fox of the University of Reading's Department of Horticulture created with his £2000 COPUS grant. He planted, in tubs, common garden plants riddled with typical diseases. ‘The idea was to show plant disease to visitors and to explain the horticultural science of plant pathology,’ says Dr Fox.

Rhododendrons, azaleas, camellias, even weeds were planted out by Dr Fox and his students. Display boards and leaflets explained what was wrong with the plant and how the illness was affecting it. The latest scientific breakthroughs and the new products on the market to cope with plant diseases were also exhibited but Dr Fox couldn't come up with any wonder cure himself for an ailing plant.

‘Along with modern techniques, good husbandry is essential to help plants thrive. Plant, feed, protect and prune your plants appropriately for lasting results.’

The Disease Garden has toured gardening clubs and exhibitions and was awarded a bronze medal at the Chelsea Flower Show. One offshoot was that scores of show visitors went home, parcelled up their sick plants and sent them off to Dr Fox.

‘The owners didn't want their plants cured and sent back to them, they simply wanted to add to the collection,’ said Dr Fox. ‘But we did find that many of the plants actually recovered and thrived. The soil and air are good and constant around Reading so that may have helped. It's a little like sending a sick relative off to a nursing home for a change of air — they often get better!’

## Sensorama: The Children's Plant Discovery Centre

In an effort to dispel the myth ‘plants are boring’ which he felt many children believed, Dr Ian Darwin Edwards, Head of Public Education at Edinburgh's Royal Botanic Garden, applied for a £20,000 grant to help establish an interactive science exhibition where children can discover, through exploration, basic concepts in plant science, ecology and ethnobotany.



Experience has shown that children are more receptive when all their senses are stimulated and Sensorama certainly does that. Exhibits are based around five of the senses — smell, touch, sight, taste and hearing. Designer Gordon Davidson has created an Alice in Wonderland effect with giant colour puppets of a bee, moth, fly, hummingbird and bat and models of the plants they visit for food and pollination.

‘Sensorama is magical from the moment someone walks into it. Children particularly are awe-struck,’ says Dr Darwin Edwards. ‘We originally thought it would appeal just to children but in the first nine months it has been open we've had over 150,000 visitors, many of them adults alone.’

“Many hands-on exhibitions overlook the overall effect of the premises in which the displays are housed,” says Dr Ian Darwin Edwards. “Remember to try and create a really exciting and stimulating environment.”

“Check and double check all your costs and plans. Dr Jill Walker stressed how important it was to carefully plan the last detail so nothing goes wrong on the day.”

“Never underestimate the older generation!” says Jackie Green. “They’ve got so much to give with enthusiasm, time and experience. It’s dangerous to forget the wisdom and potential of the older person.”

Visitors can play at matching up jelly beans with flowers and colours and identify the taste or open up a giant spice rack with different drawers featuring spices like cardamom. There’s also a scent table, rain sticks made from cacti, and dried herbs with explanations of how they are used by people in the home. The whole exhibition is a box of delights.

Trained staff point out how plants stimulate the senses, both in the wild and in the garden, and encourage the children to find out for themselves what the plants taste, feel and smell like.

Sensorama opened in spring 1997 to coincide with the Edinburgh International Science Festival and has quickly proved to be one of the most exciting and visual hands-on exhibitions in Britain.

## Living Colour — Using Nature’s Palette

It is surprising how fashion conscious gardeners are. Fifteen years ago, flowers and plants in delicate shades of pinks, blues and silver were all the rage. As the pastel colours gained popularity, vivid hot colours like red, yellow and orange declined. Recently the hot colours enjoyed a revival and it was this revolution which formed the basis of a travelling exhibition organised by the University of Oxford Botanic Garden.

More than 300,000 people a year visit the University’s Garden. They can be broken down into three groups: well-informed amateur gardeners, interested general visitors and people of all ages in full-time education.

Jill and Timothy Walker and their team have produced a couple of very successful displays which can be packed up and taken on the road. One called *Sex, drugs and botanical fulfilment* was designed for secondary school pupils wanting to learn more about plants. A teacher who borrowed the display said his botany lessons will never be the same again! Inspired by this success, Timothy applied for a COPUS grant of £3000 to explain the structure and properties of the molecules which provide gardeners with the palette of colours from which to create their gardens.

Two displays were produced — pastel and hot colours — with large panels explaining the molecular basis of plant colours. It was another great success and even carried off a gold medal at the Chelsea Flower Show. The *Living Colour* exhibition is available for loan to horticultural societies and is used by schools where, in addition to enlivening botany, it enhances both chemistry and biochemistry lessons.

## Common or Garden Box

It’s a long time since the members of the National Federation of Women’s Institutes were first famed just for their skills at jam-making. The range of activities and interests enjoyed by the quarter of a million members has created a formidable body of experts. In Worcestershire, where more than 160 groups represent 5000 women, a thriving science club has been established with a £1500 COPUS grant.

Led by Mrs Jackie Green, a retired chemist, science and gardening were linked when members were given an action pack containing soil sampling kits and instructions on how to carry out straightforward chemical testing. Fifty four women from different Institutes met for the first science club where Jackie Green brushed up her rusty chemistry and started explaining basic science. The WI’s jam-making fame came in useful when Jackie explained that pH testing in soil was simply like testing the pH of jam, which for the uninitiated is 3.5.

From there, members, many of them retired, went off to lead their own groups and soon the whole county was buzzing with women sampling soil. The results of the testing were collated and will be entered onto a parish map, giving a unique overall view of the soil

conditions throughout the county. So enthusiastic and successful has been the project, that the WI members have decided to expand their original brief and are now taking photographs and recording details of hedgerows. This, they hope, will end in time to donate a record of the whole county and create a picture of what's happening in one corner of rural England to coincide with the millennium. What's more astounding is after this huge effort, the project has come in within the original COPUS grant of £1500.

'It's been a wonderful project for us and has led to so many spin-offs,' says Jackie Green. 'Some of our members who haven't tackled any science since schooldays and thought they were too old to learn anything new, now feel that our science club has opened doors for them, given them another bite of the cherry.'

## Herb Garden Guide

At the beginning of the 1990s, derelict land in the grounds of the Geffrye Museum in East London was transformed into a herb garden. It has quickly become a popular feature of the Museum, for general interest and enjoyment as well as for study and learning.

A COPUS grant of £2500 was used to produce an information leaflet and [Herb Garden Guide](#) to provide visitors with an introduction to the special scientific properties of herbs which have been used throughout the centuries. Medicinal, cosmetic, aromatic, culinary and cleansing are some of the purposes for which herbs are used and the leaflet provides a comprehensive and scientifically detailed description.

Visitors to the garden can find out how to identify herbs and appreciate their particular properties. In addition, the leaflet explains the environmental impact of the garden which provides an important city centre habitat for insects and birds, attracting bees and butterflies and contributing to natural life cycles.

The Museum's Deputy Director, art historian Christine Lalumia, has become fascinated by the herb garden and hopes the home-grown herbs will soon be used in the Museum's restaurant. They are already used for educational workshops but cannot be sold commercially because of the pressures on space and staff resources.

*When producing any literature with scientific explanations check and double check every fact,' says Christine Lalumia. 'And give yourself plenty of time to do it. When we were working on the leaflet, I underestimated just how long it takes to make sure every detail is scientifically sound. As a result, the leaflet took longer than expected to get out.'*

## AWAY FROM HOME

Camping is certainly popular in the UK. But it doesn't always have to mean soggy wet canvas or wasps in the marmalade. Following their success in the USA, science camps are fast becoming popular here too. In many a centre, as doors close to daytime visitors they open to overnight campers.

### Women's Science Night

The Science Museum in London has been something of a pioneer in setting up camp under its display cabinets. In 1993, the first science night camp-in for children was held and was judged so popular that COPUS contributed £6000 for a series of science camps for women.

For their first science night, more than 350 women, many with little or no experience of science spent the night extracting DNA from onions, playing the generation game (using wires, batteries and bulbs to generate magnetism) and whooping it up in Launch Pad — an



“Make sure the emergency services know you are holding an overnight event. If anything does go wrong the fire brigade or police will be prepared if they receive a call from a venue which normally doesn't have hundreds of people in during the night,” says Jo Miller. ”

“Dr Brian Delf advises anyone organising events for children, especially if they involve children sleeping away from home, to be absolutely familiar with the Children Act. ‘We didn't have any problems but we did ask the youth group leaders to be responsible for the girls while we provided the premises and staff.’ ”

“The camp worked because we spent months planning everything to the last detail,” says Jackie Zammit. ‘But it is important to try and delegate. We told the press what we were up to but found we had no free time to chase them up. If your event needs to generate publicity, make sure you have time put aside to concentrate on looking after journalists.’ ”

interactive centre usually packed out with children. Participants took their own packed supper but were provided with breakfast after sleeping on the floor in a carpeted gallery. Those of a more delicate constitution were advised to bring bed rolls or lilos.

Every woman who camped said it was a wonderful night and they would recommend it to a friend. There was massive publicity with newspaper and magazine articles and broadcasts both on *Woman's Hour* and BBC television.

The Science Museum continues to run science nights. Several women's nights have been held and on average 11 nights for children are organised each year. ‘There's always a terrific atmosphere at the women's nights with many of the women turning into kids. On our first night, we still had women wandering around the galleries in the early hours of the morning,’ says organiser Jo Miller. The ages of the women ranged from 18 to 80. One woman, who obviously couldn't sleep, was asking for directions to a certain gallery at 5 o'clock!

A wide range of women applied for places on the trailblazing first camp. Some were scientists or involved in science, others had no scientific background at all, not even from school. Some had left school at 14 and had never had a science lesson in their lives yet they all got on and gained a great deal from the camp.

## No Tents at Techniquet

At Techniquet, a giant science centre in Cardiff, organisers were anxious not to copy whole-heartedly American style camps when they too started organising science camps back in the early 1990s. They were careful to plan and structure the event but allowed the campers a certain amount of freedom too.

The first Techniquet camp, partly funded by a £3000 COPUS grant, was aimed at members of the girl guides and girls' brigade. Thirty youngsters with sleeping bags were allowed to sleep anywhere they liked in the centre following a series of activities and talks.

‘Part of the fun was to find the strangest place to sleep,’ said organiser Dr Brian Delf. ‘We did, however, think of those girls who couldn't stay up too late and we had ‘sleepy time’ with a designated quiet place for those who couldn't take the pace.’

‘We invited staff in from the local hospital to talk about their work, put on a planetarium show, had egg-races, toured the centre, used the interactive exhibits and generally had an amazingly successful night. It would be fair to say that the intellectual content of the programme declined as the evening went on — and the mess increased. We told the girls they could make as much mess as they liked but the downside was that everything had to be cleared up for 10 o'clock the following morning when the public were admitted.’

Techniquet has since organised further camps and is planning others for specialised groups — single parents, for example, and maybe older people.

## Immersed in Five Days of Science

One night wasn't enough for Jackie Zammit who whisked off 50 children from inner-city London to the Surrey countryside for a five day science camp at the Juniper Hall Field Centre. Ranging from nine to 13, the children made human sundials and recycled paper; took part in environmental and robotic projects; and studied space and design technology. Pulleys, springs and levers were made for a gigantic mouse-trap game with the children designing and building the game as well as being the mice. The Centre is used to holding residential courses for children so Jackie and her colleagues were free to concentrate on the activities with the help of a £3000 COPUS grant.

On the final day, parents, teachers and youth leaders and anybody interested in organising similar camps, were invited along to see what a brilliant time the children had had.

'It was such a success that within weeks we had requests from more than 80 children wanting to come on the next camp,' said Jackie who organised the camp through the Islington and North London Science Centre.

## Chinese Science Camp-in

*“If you are looking for sponsorship think carefully about timing,” said Alison Hulse. ‘We tried to organise local firms to donate sleeping bags or gifts to be used for goody bags or prizes but our camp happened during the National Week of Science, Engineering and Technology at the end of the financial year for many companies so we weren’t successful. ”*

Staff from Manchester’s Museum of Science and Industry visited London’s Science Museum, Techniquet and the Royal Museum of Scotland when science camps were being held and picked up valuable tips which were useful when they organised their first camp for 100 schoolchildren.

‘I slept on hard floors, under a space rocket and ate breakfast in the strangest of places whilst carrying out research for our camp but it was well worth it,’ said Alison Hulse, the Museum’s Assistant Education Manager. ‘Everybody — the staff, volunteers and most of all the campers — had a great night.’

The camp, supported by a £3000 COPUS grant, was linked to the Museum’s temporary exhibition looking at the history of Chinese science and children were soon busy making Chinese lanterns and listening to a talk on the effects of liquid nitrogen, *Say it with frozen flowers*. They took part in activities focusing on astronomy, navigation and medicine and a treasure trail. There was also that essential ingredient for a good night away from home — a ghost story connected to the Museum.

## SCIENCE IN THE CITY CENTRE

One way of enabling public access is to take science, engineering and technology to the city centre where shoppers and passers-by who may not normally take part in scientific events are given an opportunity to do so. Make sure the authorities know you are staging an event and publicise it well in the local press, not forgetting the free give-away newspapers which are often grateful for copy and photo opportunities.



### Let Us Get Up Your Nose

Each year in March, the National Week of Science, Engineering and Technology (setWeek) is held throughout the UK. During one setWeek, shoppers in Lancaster city centre had a pleasant diversion — identifying household products by their smell. Anna Ponsonby, armed with a grant of just £750, set up her display and stall in the city’s bustling market for two Saturdays. She offered passers-by a prize if they could correctly match up by smell the household products with six bottles of clear liquid on her stall.

Students from Lancaster University were standing by ready to describe how chemicals react with the nerves in the nose as well as talking in general about the source and structure of the chemical compounds.

*“Check with the local authority if they have any stalls or sales areas allocated free of charge to charities. Anna Ponsonby was able to keep costs down by booking a recognised charity stall in the market which traditionally attracted large numbers of visitors. ”*

*‘If planning events for schoolchildren make sure they relate to the National Curriculum framework,’ advises Gareth Marshall. ‘Time is so tight for some schools that extracurricular activity can be a burden.’*

*‘Watch out that your own enthusiasm doesn’t make you over ambitious,’ says Dr Joe Doust. ‘And remember you have to approach people and attract them to what you are doing. Don’t expect people to come up to you just because you’re there.’*

## Selling Science

People living in parts of Kent certainly had no excuse for not knowing that setWeek was taking place — their city centres were packed with shops taking part. Organised by the Kent Education Business Partnership with the help of a £3000 COPUS grant, shops and businesses put on displays showing the science behind everyday products and services.

Boots the Chemist had displays showing how aspirin is made; Halford organised another showing the engineering behind bicycles; sports shops explained the scientific principles of the golf ball, demonstrating ballistics on a tiny scale; bakers demonstrated the science of bread making; chemists and perfumeries explained the science behind the manufacture of shampoos; and the whole county was flooded with posters and literature on health and nutrition.

‘Schools took part with their own setWeek events and the whole thing demonstrated a very strong partnership between schools and businesses,’ said organiser Gareth Marshall. ‘We had almost 200 active players during the week so good planning and organisation were vital.’

## The Science of Sport and Exercise

The Arndale Centre is a busy thoroughfare in the centre of Eastbourne and it was there that a four day exhibition demonstrating all aspects of the science of sport and exercise was staged by the town’s Chelsea School of Physical Education, part of the University of Brighton.

The College works closely with national sportsmen and women, monitoring their performance and assisting with training. It was fortunate to have Olympic gold medal winning cyclist Chris Boardman taking part in the exhibition, submitting himself to public scrutiny as he showed how his body reacted to exercise.

COPUS gave just under £1000 to the project which paid for the printing of posters and leaflets. Large sized displays were mounted showing the biological, biomechanical and psychological under-pinnings to elite performance in competitive sport and particular emphasis laid on the importance of the cardio-vascular and nutritional demands on sportsmen and women.

Brighton University and the local health authority contributed to the event by providing equipment and staff, and the exhibition area, nearly 30m<sup>2</sup>, was donated free by the local council.

‘Whilst we were tackling the science of elite performance in sport, the health authority was distributing advice and leaflets,’ said Dr Joe Doust, leader of the College’s sports and exercise section. ‘In the end we had more than 2000 people stopping to look at the exhibition and we were tremendously pleased with the numbers. It was a massive undertaking and although we were all exhausted with running the exhibition each day from 9 until 5 o’clock we were delighted with its success.’

# TRAILING AROUND AND AROUND

Although static exhibitions in city centres are popular with visitors, many enjoy discovering cities themselves, armed with a map and wearing sturdy shoes. A number of cities now offer tourists, as well as the locals, the chance to explore the city's scientific and engineering heritage at the same time. Trails often include a visit to the local science centre.

## Aberdeen City Centre Science Trail

*‘To attract advertising try and find a scheduled stop near the advertiser’s premises and have something advertising the guide in the shop window,’ suggests Dr Liz Robertson. ‘Any activity in a shopping precinct can bring in publicity.’*

Aberdeen is an ideal city for a science trail. It has a compact city centre and many sites of scientific and engineering interest such as the harbour, railway station and Satrosphere, a hands-on science centre. Dr Liz Robertson, a science coordinator, had two aims when she planned the trail: to stimulate the study of science and technology through outreach and to provide an attraction for visitors.

The booklet produced by Dr Robertson is packed with excellent maps, activities and things to do. A £3000 COPUS grant funded production and research costs and further income was generated from selling advertising space in the guide.

The trail takes participants between two and three hours to complete but is divided into three sections so the less energetic can take their time. Exploring sound, looking at lichens and investigating granite are just a few of the topics in this comprehensive booklet which also asks trailers to identify high frequency aerials on boats at the docks as well as the six common gulls that nest in the city.

Three thousand copies of the trail guide were produced with a launch by the Lord Provost generating some good initial publicity. It sold for £2.99 per copy.

‘One of the problems we faced, particularly with schools, was that the guide was too expensive for every child to have their own copy. Maybe we should have made photocopied editions available,’ wondered Dr Robertson. ‘Also, we found that the trail wasn’t ideal for schools because teachers with 30 children stopping and searching needed quite a lot of help to make sure the children crossed roads safely. But it has proved very successful with visitors and new families settling up here in Aberdeen.’

## Aberdeen Mystery Trail

Much of Dr Robertson’s knowledge of Aberdeen, so vital for the science trail guide, had been gleaned through an earlier project — [the Aberdeen mystery trail](#). She and her staff used a forensic science theme to set up a scientific mystery trail around Aberdeen centred on the theft of a fictitious piece of University silverware. Participants were invited to solve the crime in a competition requiring them to piece together information derived from a series of scientific clues. The event stretched over a week.

Grampian police assisted with enquiries by setting up a fingerprint workshop as well as a couple of incident rooms. All the city’s major scientific institutions took part and free workshops on soil analysis and intruder detectors were held. Clue solving involved participants examining photographs; identikits; simple paper chromatography of inks; and examination of hairs and textiles under a microscope. At the end of the week, a

prize was awarded to the person giving the best explanation of all the clues.

'On reflection it may have been better condensing the trail over one day or a weekend,' says Dr Robertson. 'Some people were slightly confused about the time commitment involved. But as it was running for setWeek we were restricted. Other people wanted it to run during the summer holidays when families could take part.'

## Leaflets for Geological Walks

A tiny COPUS grant of £690 helped members of the South Wales Group of the Geologists' Association produce four leaflets covering four popular walks — and has produced some revenue too!

Dr Geraint Owen, the Group's secretary, produced the A4 leaflet folded in three so it would fit into a pocket. As a contribution to setWeek, he and his colleagues accompanied parties on guided walks along coastal stretches between Swansea and Cardiff; Swansea and Carmarthen; and around caves, quarries and waterfalls in the Brecon Beacons. The leaflets describing the geology of the region were given away free of charge.

'As well as helping on the walk, the leaflets are a permanent reminder and reference tool,' said Dr Owen. 'After setWeek we decided to charge a nominal sum of 25p for the leaflet and this has actually brought in a small amount of money which helps us cover speakers' expenses when they attend our meetings. If we put our leaflets out in visitor and information centres they would be picked up but may be thrown away by some people. When we ask for a small fee they are valued and kept.'

## Somerset Space Walk

Pip Youngman is a little bit older than his name suggests. He is in his 70s and, although he has never had any formal training in science, has a passion for finding out how things work. He has always enjoyed astronomy but puzzled over the actual size and relationships planets had with each other.

'The little pictures of planets we find in our encyclopedias and atlases leave us with a false picture of the space in which we live,' he says. 'It's not the fault of our atlas makers, the true picture cannot be put on one sheet of paper!'

With this in mind, Pip decided the only way to understand the solar system was to build a model — to scale. And when he heard that British Waterways was opening up a cycle path along a stretch of the Taunton Bridgewater Canal, he was in business. The full distance from Taunton to Bridgewater represents the full disc of the solar system.

'The objective was to try and increase public awareness of the true scale of space and of its vast emptiness.'

Pip set to designing his models and local yards and workshops were soon busy preparing the stainless steel and concrete models. The £3000 seed grant provided by COPUS proved to be vital for launching the project. Once it was under way, other businesses and organisations donated further monies.

The [Somerset Space Walk](#) is 22kms in length, and is centred on the sun which stands at the Canal's Higher Maunsel Lock. The planets, in their orbits, stretch out either side of the sun. For example, heading to Taunton or Bridgewater the distance to Pluto is 11kms (just over six miles). By some strange cosmic coincidence, either way, the nearest pub is five miles! The walk can be tackled in sections — there's no need to complete the whole distance in one go.

Pip Youngman's efforts have resulted in a permanent exhibition set alongside the countryside canal. Both Arthur C Clarke and Patrick Moore supported Pip's COPUS

*Dr Geraint Owen describes himself as something of a traditionalist and doesn't always think it wise to be constantly on the search for new ideas to enable people to access science. 'Often the tried and tested methods and old formulas which actually explain simply and clearly are overlooked by people constantly searching for the latest gimmicks,' he says.*

*Be very clear what you want to do before you approach other people for assistance,' says Pip Youngman. 'Don't be democratic, only involve people who are interested in doing what you want to do.'*



*“If you want to run a similar project, Dr David Knight suggests speaking to the police who, through their patrols, often know where animals roam at night. He is also anxious to stress that you mustn’t build up expectations and cannot guarantee any sightings. ‘But bringing people into such a different routine and staying up all night in this way is exciting in itself.”*

*“Plan ahead for any event like this and plan in great detail,” said Gordon Thomas. ‘Fortunately we did our planning well and didn’t run up against any hidden costs but it is a good idea to write in a contingency sum for anything unforeseen when working out the budget.”*

application (he wrote to them!) and leading astronomer Heather Couper declared the walk officially open on a sunny summer afternoon. A colourful illustrated leaflet is available for people walking along the tow path; there are explanatory displays at strategic points and each planet bears a plaque detailing special points of interest.

When he started out Pip had no direct experience of establishing such a venture but made countless telephone calls and personal visits until he discovered how to get things done as an individual — perseverance and hard work.

## Night City Safari

No wonder Dr David Knight has to inform the police when he sets off on his COPUS funded project. For David leads groups around Southampton in the dead of night investigating the wildlife that roams the streets when everyone else is tucked up in bed.

An environmental educator who works at the University of Southampton New College, David spent £3000 buying binoculars, infra-red night viewing equipment, moth traps, bat detectors and powerful searchlights. He sets off with a group of eight or 10 people and scours the city’s common, ponds, streets and suburbia looking for badgers, foxes, owls and bats.

‘We have to tell the police what we are up to because we look very odd mooching around the undergrowth or sitting doing a wildlife quiz at 3 o’clock in the morning,’ says David.

David’s companions stretch across a wide age range and some actually come from the rural areas of Hampshire to take part because they see more of the animals’ behaviour at night in the city than they do in the countryside. The night watchers have discovered fragments of habitat that have escaped development on the edge of the city where it is still possible to find badgers in their setts, their territory surrounded by roads, shops and houses. By contrast foxes moved into the heart of the city many years ago and show a particular fondness for up-market detached residences with large gardens and rich pickings in the dustbins!

‘We are careful not to disturb any of the animals and we have a deep respect for their habitats,’ points out David. ‘We don’t take photographs because that would startle them but we do use searchlights over the pond to watch bats swooping down to catch insects. Sometimes it looks like a Battle of Britain film with the searchlights criss-crossing each other.’

## PLAYTIME

One of the best ways of learning is by playing. And playing need not be restricted to children. Many of the events funded by COPUS for setWeek, held annually in March, involve play activities which can be enjoyed by children and adults alike.

### Wild World

Playing around in a Victorian cemetery doesn’t sound like everybody’s idea of fun but the 700 visitors — adults and children — who joined in a [Wild World](#) weekend at York Cemetery had a riotous time.

The weekend aimed to provide an understanding of the environment and nature

conservation by involving both adults and children in problem-solving. Participants were provided with passports, and each activity they completed resulted in a stamp in the passport. When three stamps were gathered, the holder could join in the search for the Green Man, who, when discovered, quizzed the finder on what they had learnt.

Eight local conservation groups set up a pilot **Wild World** project before deciding it could be a success and approached COPUS for a £1500 grant. The weekend was a hit with more than 700 people taking part. Workshops were held where people, for a modest fee, could make and take away bat and bird nesting boxes. Otherwise the whole event was free of charge.

'It was so successful we have held other weekends and are in the throes of planning the fourth,' says one of the organisers, Gordon Thomas, a York park ranger. The lives and habitats of birds, bats, mini-beasts and pond creatures coupled with geology and the study of lichens were some of the activities on offer at **Wild World** which has attracted many visitors looking for tips on how to establish their own **Wild World** events.

## The Science of Cosmetics

When a Dutch friend told Christine Andrews of a science activity she had developed in Holland, Christine, a freelance play trainer, decided it was just what was needed at the summer play schemes she organised in Surrey.

*“If you have any problems trying to find ingredients, science teachers at local schools are often willing to assist and offer suggestions and substitutes,” says Christine Andrews.*”

A relatively small COPUS grant of £450 was awarded to Christine to set up a workshop for adult playworkers at Trinity School, Esher, showing them how to make cosmetics. Hair gel, bath salts, shampoo and face cream were some of the goodies on offer and soon the adults were mixing, measuring and sloshing around a range of ingredients whilst finding out the basic science behind each stage of their preparation.

Armed with ingredients and notes, the playworkers took their new skills to their own play schemes and soon boys and girls were busy making their own beauty preparations.

'The project was an amazing success,' said Christine. 'Once we had the workshop going, the enthusiasm of the playworkers was wonderful to see and this was obviously passed on to the children.'

So successful was the scheme that a further grant of £1500 was made which has enabled Christine to set up a number of boxes containing everything required to let a group of children make their own cosmetics. The idea is that playworkers can call in and borrow the boxes and Christine can replenish the ingredients when necessary. Detailed instructions including explanations of scientific principles are included.

The only problem Christine faced was getting hold of some of the necessary substances, particularly emulsifiers. In Holland, preparations were easier to obtain. Dr Lida Schoen, the Dutch science teacher who originated the project and helped train the original workshop, stepped in and passed on British contacts to Christine. However, where possible, basic everyday ingredients such as food colourings, salt crystals and paraffin oil were used.

## Superbus Science Sensation

For those living in rural areas it isn't always easy to get into city centres to take part in events. So Jill Smith, Mobile Play Manager with Stirling District Council, took her science activities to seven remote villages, courtesy of COPUS and the Superbus.

The Superbus is a double decker bus which has been converted to provide an imaginative play area for five to 11 year olds. It features a textile tunnel where young children can differentiate between the feel of different materials and then learn what they are made from and how. There's also a place for water-based activities, fluorescent dressing up clothes in a blacked out area to explain to the youngsters about light, and plenty of room for

*“Never underestimate the amount of publicity material needed. Target local radio, shops and schools as well as newspapers when preparing an event. And don't forget the leaflets and posters too,” says Jill Smith.*”

making educational toys like periscopes and kaleidoscopes. *The coldest show on earth* — a 15-minute display featuring liquid nitrogen — was top of the bill when the bus pulled up and the project was enthusiastically received by villagers appreciative of such an event serving their small communities.

The £1000 COPUS grant partly funded the project which ran through an autumn half-term holiday. Staff on the bus worked closely with the Edinburgh International Science Festival which provided training and a staff member to accompany the bus and its crew.

‘The response from both parents and children has convinced us that science is a subject people want to know more about,’ says Jill. ‘And we have learned some lessons for the next time particularly about publicity. We initially only targeted the villages where the bus would be visiting. We didn’t realise that people would travel from miles around to take part.’

“Keep it simple,” says Claire Bidder. ‘We had a lot of interactive displays around the Park which were constantly being broken or damaged and needed maintenance. Think of these on-going problems when devising a piece of play material, especially if you have limited funds.’”

## Whipsnade’s Survival Game

Next to its white rhinoceros house, Whipsnade Wild Animal Park in Bedfordshire has a huge colourful survival game which was built with the help of a £1500 COPUS grant.

The game teaches children how animals survive and covers loss of habitat, being struck down by a virus, being attacked by other animals, and the effects of pollution. Children spin discs to take them across a lay-out of paving stones which contain various hazards to be overcome. The aim is to avoid the hazards and survive as the children move through the game.

‘It’s a sort of giant snakes and ladders game,’ says the Park’s Education Officer Claire Bidder. ‘We used our grant to buy tools to build the game and also to cover the cost of paints and display boards which give all the relevant information.’

## Skills for Society

The idea of ‘keeping it simple’ didn’t appeal to Dr Carolyn Skilling. Following a visit to the USA where she was captivated by the country’s huge space science hands-on centres — The Challenger Centres — she decided to come back to Britain and set up her own.

The Challenger Centres give children the chance to spend a few hours on board a simulated space station like Mir or at a simulated mission control headquarters in Houston, Texas. Although it’s a lot of fun, children prepare for their visits to the centres by working in teams on set projects at school.

With the assistance and co-operation of the Bourneville Further Education College in Birmingham, Carolyn set up a series of projects where schoolchildren, working in groups, prepared to go off on space missions — held in school halls.

‘The problem I quickly discovered is that British schoolchildren, unlike their American counterparts, don’t have natural team skills,’ said Carolyn. ‘I had to find a way to help develop these skills.’ And this is where a COPUS grant of £1000 came in.

At the time, Carolyn was an active member of the Birmingham Rotarians Breakfast Club. Every Friday morning around 40 professional men and women met at 7 o’clock and it was here that Carolyn asked each member to identify which particular skill they possessed and what they could pass on to the children to help them with their project.

‘It was surprising what people offered,’ said Carolyn. ‘One estate agent decided his business expertise wasn’t called for but he was a keen gardener so he acted as the mission specialist for the nutritional team; a printer became the recognition mission patch specialist, helping devise uniforms; whilst a man who worked at catching sophisticated credit card fraudsters took over as communications specialist and taught the children coding.’

“The average man or woman in the street has no idea what skills they actually possess,” says Carolyn Skilling. ‘Many of our Rotarians thought they couldn’t offer anything useful for a science project until they sat and thought about it. Science is all about observation — something we all do. Everybody needs valuing and encouraging, everybody has something to contribute.’”

The COPUS funding was used for hiring premises, materials and to fund a meeting asking for adult volunteers.

And although Carolyn wasn't able to fund and organise her own complete Challenger Centre, she helped the University of Leicester secure a £23 million grant from the Millennium Lottery Fund to build a space science research centre with a Challenger Centre on its premises.

## OFF TO THE MUSEUM

*‘When looking for funds and grants to buy equipment remember the expense of on-going maintenance and repairs’ says Lucy-Anne Bishop. ‘It is often easier to attract funds for buying and building interactive models and display material but harder to get the money to keep them in good condition.’*

On every Bank and Public Holiday in Britain, hundreds of thousands of visitors stream through the doors of museums and art galleries. Whether it's to see a permanent gallery, touring display or a temporary exhibition, visits to a museum still hold a great attraction for those looking for a good day out.

### CUE — The Centre for Understanding the Environment

A COPUS development grant of £20,000 went to the Horniman Museum and Gardens in South London to fund four interactive exhibitions in its [Centre for Understanding the Environment \(CUE\)](#).

CUE has proved popular with schools and other visitors since it opened at the end of 1995. It strives to promote an understanding of and respect for the environment both globally and locally. An ever-changing range of displays and exhibitions draws in school parties and the beauty of the energy-efficient building and its surroundings makes sure that the team of volunteers who staff the Centre are kept busy.

The original COPUS grant funded four display areas or islands which link together the themes of sun, water, air and plants. A few of the many attractions for children include a giant model sunflower which allows children to move its leaves and study the effects of light on a plant; finding out what time it is on a sundial; and microscopes and telescopes with which to study squirrels, birds and other wildlife living in the 16 acre Horniman Gardens. An innovative solar powered system pumps water from the three ponds on to the roof where it irrigates a wild flower and grasses roof meadow.

Fittingly, for such an energy efficient building, CUE's displays cover natural energy sources such as solar and hydro power and encourage environmental awareness by demonstrating the three Rs — reusing, recycling and reducing.

‘Another popular exhibit is our working beehive with resident bees,’ says CUE's volunteer coordinator Lucy-Anne Bishop. She manages and trains the team of 60 hard-working enthusiastic volunteers who are mainly retired people and students.

### Cider Museum

At the opposite end of the financial scale, a COPUS grant of £500 was sufficient to provide display material and literature for a temporary exhibition of working models exploring the technology of the cider-making process at the Cider Museum in Hereford.

‘There are strong local links with the cider-making industry and the exhibition attracted many visitors including people who used to work in cider-making,’ says exhibition



*‘Make sure you have sufficient technical back-up and knowledge to produce displays especially if it's in an unfamiliar subject,’ says Estelle Jakeman.*

organiser Estelle Jakeman. ‘There haven’t been many basic changes to the processes of making cider since the industry first began so it was relatively easy to devise exhibits to show the technology behind the processes.’

The interactive exhibition, which demonstrated the principles of gears, capacity and volume, was seen by more than 1000 visitors and the more popular models moved into the Museum’s permanent collection of cider-making exhibits.

## Underground

“Be realistic when planning,” says Theresa Dhaliwell. ‘Make sure you have enough money guaranteed to cover all your costs when planning an event.’”

Crawling through tunnels, playing with fake rats and bats, the Livesey Museum’s exhibition showing children what happens under their feet has been a great success.

A small museum in London’s Old Kent Road, the Livesey was awarded a £3000 grant towards building an exhibition for young children, their teachers, parents and carers. It featured such delights as a giant mole hole for children to climb through; part of a street showing the cables and pipes underneath; and a display of archaeology uncovered from the Jubilee Line extension which also provided funding and display material.

One of the main aims was to attract local children in a deprived inner-city area who would not necessarily be able to visit larger hands-on science centres. It gave them the opportunity to learn and have fun in a safe environment on their doorstep.

Youngsters were encouraged to study stuffed animals such as badgers, rabbits, foxes, rats and moles to make soft toys, and to discover through examining their lifestyles, about air, water and recycling.

Livesey staff member Theresa Dhaliwell says: ‘We originally wanted to make the exhibition larger, showing what goes on above as well as below ground but we concentrated on underground and it’s been a wonderful success. All the children loved both the exhibition and the workshops. We’ve been packed out.’

## Guildford Discovery Centre

“We have to operate our advertising on a shoe string, it’s so expensive to have a running advert in the press,” says Judith Ward. ‘Our volunteers go into the shopping centre, library and other local amenities to give out leaflets and to put up posters. These are useful tasks for volunteers to do.’”

The [Guildford Discovery Centre](#) in the heart of this Surrey city has strong links with the Guildford Museum and, with a £20,000 COPUS grant, has established a thriving hands-on science centre housed in an old chapel.

Twenty five interactive exhibits have been bought for the Centre and others were built by the first curator, Roger Coleman. One of his creations tests people’s reaction times. They have to respond quickly when various coloured lights flash at them and can check whether their reaction times differ the more familiar they become with the test. Another of Roger’s hand-made exhibits demonstrates and evaluates heat transmission. Visitors can use heat-sensitive sheets to see the effect of hot and cold tiles on their colour. Insulating materials can be used to see how the intensity of heat transmission alters. Amongst the other attractions for visitors are a video microscope, hot-air balloon, a hand-powered electricity generator, a turbulent turntable and a dissectable human torso — a model of course! The exhibits are themed around light, sound, touch, motion and heat.

Special interactive workshops have proved particularly popular with visitors. One of the most successful was a video workshop which enabled participants to have hands-on experience of live video mixing and other techniques.

Co-curator Judith Ward shares the running of the Centre where organised school parties make up the bulk of visitors during term time with families supporting the Centre at weekends and during holidays. Judith is fortunate, however, to have the support of three casual staff — two sixth formers and a student from the University of Surrey — who help out when things get hectic. A dedicated group of volunteers is also actively involved.

‘No event will work unless you have public interest,’ said Dr Gordon Chancellor. ‘Make sure you find a peg you can capitalise on and get the support of the local press.’

## Jurassic Week

‘You can’t go wrong with dinosaurs and children,’ says Dr Gordon Chancellor, Curator at Peterborough Museum and Art Galley, who used a £1000 COPUS grant to help stage **Jurassic Week** during the build-up to the launch of Stephen Spielberg’s film, *Jurassic Park*.

A real Megalosaurus dinosaur skeleton, life-size models of dinosaurs, dinosaur eggs and even a piece of moon rock lent by NASA were on display. A medley of stalls and activities were on offer including a fascinating lecture on how to track down a dinosaur from foot prints. **Jurassic Week** also featured film shows, puppet workshops and a geological treasure hunt around the Cathedral precincts.

‘The whole week was a great success,’ said Dr Chancellor. ‘But we couldn’t have gone wrong because the timing was perfect with all the interest the film had generated. However, we planned the week down to the last detail and we had a great team of people working on the project who shared enthusiasm and a desire to make it work.’



## SCIENCE NORTH OF THE BORDER

As this guide shows, Scotland is buzzing with science events and activities ranging from the Superbus Science Sensation touring rural Stirling to trails in Aberdeen. The Edinburgh International Science Festival is a high-profile initiative which organisers can contribute to and, through lottery funding, Scotland will have some major new sciences centres in the next few years.

### The Scottish Science Trust

In 1996, COPUS provided a £15,000 grant towards the establishment of the **Scottish Science Trust**, an umbrella body supporting the Scottish Science Centre Consortium of existing and proposed science centres. The Consortium was the first stage in the development of the Scottish Science Network which extends to other organizations that provide public access to science, engineering and technology such as museums, botanic gardens, universities, zoological gardens and observatories.

The Trust has many ambitions including the building of a new science centre on the banks of the Clyde in Glasgow with a total capital investment in Scotland of more than £126

million. Funding has arrived from a wide range of sources including the Millennium Commission but it was COPUS' donation which set the ball rolling.

'The COPUS grant came at a crucial and pivotal time, acting as a catalyst and showing Scottish funding bodies that we had the support of premier scientific organizations in the UK,' says Dr Graham Durant who has been seconded to the project from Glasgow's Hunterian Museum.

It is hoped the [Scottish Science Trust](#) will become a body that speaks for the public face of science in the same way as the Scottish Arts Council does for the arts and the Scottish Sports Council for sport. The role of the Trust will include central support for the Network, major fund-raising, liaison, training, communications and national outreach projects.

## Science in the South (of Scotland)

Outreach projects in Scotland have already resulted in travelling exhibitions including a successful science roadshow in the Outer Hebrides. The first mini-science festival in Dumfries ran with a COPUS grant of £2500. Dr Graham Durant who organised it hopes it will become a regular event and the first of many such festivals throughout Scotland.

## The Photo-Discovery Tent

One attraction at future Scottish festivals could well be Kenny Bean's [Photo-Discovery Tent](#).

He tours community groups and photographic meetings with his portable darkroom demonstrating how to make cameras from biscuit tins and how to develop the prints these cameras produce. At the same time, Kenny holds workshops explaining the basic scientific aspects of photography and shows how easy it is to make micro-monsters — large prints of insects and plant sections using a photographic enlarger.

Using a COPUS grant of £1200, Kenny has already set up his Tent at *Fotofeis* — the Scottish Photography Festival, the Isle of Skye Festival, and has organised workshops at Edinburgh's award-winning Fruit Market Gallery. He has also recently introduced a touring workshop, *Victorian Ghosts*, which links together history and science and allows children to create ghosts in dark rooms using long exposure equipment.

'I've never been a baby and wedding photographer,' said Kenny. 'The COPUS grant was so helpful in getting the [Photo-Discovery Tent](#) together and has led to so many exciting projects.'

## IN THE TROPICS

His own exciting experiences in the Amazon rainforest have been shared by the thousands of visitors to David Shaw's [Rainforest Roadshow](#). David has toured throughout Britain with his Roadshow, explaining the lives of the Quechua tribe in the Ecuador region of the Amazon, with the help of authentic artefacts, spiders and snakes and describing in detail, accompanied by music and photographs, the life of the tropical forests.

COPUS has provided two grants in support of David Shaw's work. A £3000 grant enabled hundreds of children to take part in a trail through the tropical glasshouses at Kew Gardens. The basement of the Princess of Wales Conservatory at the world-famous Gardens was transformed into part of an Indian village with a market stall showing what is sold in tropical rainforests, stocked with tropical fruits, herbs and spices.

The event aimed to encourage an interest and understanding of the rainforest as an ecosystem, looking in detail at the role plants play in the dynamics of the forest and the tribes who live within it.

“Don't use jargon when talking to the press,” says Kenny Bean. ‘Make sure your project is well-publicised and is described in upbeat and accessible language. Remember, it's no good setting up a project if no-one turns up.’”

“When working with children do have adequate insurance and be very aware of health and safety laws,” says David Shaw. ‘Health and safety has become a big issue which covers all sorts of things like allowing children to taste foods and have their face painted.’”

Thanks to a further £10,000 grant, children awaiting the arrival of the [Rainforest Roadshow](#) at their school or centre might find themselves deep in the jungle.

'We are using the money to buy and equip a patrol vehicle, painted in metallic green jungle colours, just the sort of thing children would expect to see trundling out of the undergrowth,' said David who is planning a further trip to visit his friends of the Quechua tribe to stock up on handicrafts and other items. One of his latest additions is an authentic Indian hut, two metres high which has been constructed by a forest guide, Pepe, who has helped David from the start of his rainforest projects. Explains David: 'The idea is that when we roll up, the vehicle looks as if it has just arrived back from the forest with suitcases and rucksacks on the top, signwriting and artwork on the sides, and full of artefacts and live exhibits which, when unloaded, will be set up within the hut.'

### The Rainforest Experience

It wasn't enough to have the [Rainforest Roadshow](#) visit them. Sally Munn, Project Director of the Iver Nature Study Centre in Slough, decided to create her own rainforest in the Centre which caters for visiting schoolchildren, adults and those with special needs.

'It was the best project we've ever done,' says Sally. 'We had the most amazing dedicated team who transformed the Centre into a rainforest complete with waterfall. We had terrapins swimming around, geckos running around, a model of a giant anaconda and a smaller one of a monkey and hundreds of plants and flowers.'

Sally enlisted the help of Jackie Zamitt of the Rainforest Foundation (she works closely with David Shaw) who set up an Indian hut, talked about the life of indigenous tribes and showed off her display of stick insects and tropical spiders as well as running topic-related workshops.

The [Rainforest Experience](#) was scheduled to run for nine weeks but Sally couldn't face turning people away and extended it for a further fortnight.

'We reluctantly had to dismantle the exhibition but hope to do it again in 1999, setting it up permanently in a poly tunnel in the grounds.'

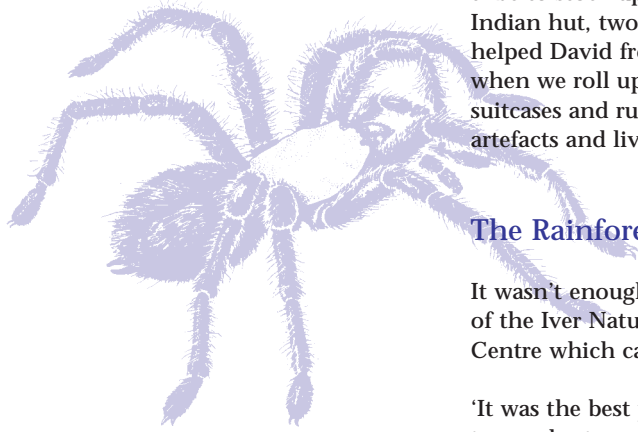
## SCHOOL'S OUT

Schools are so often hard pressed both financially and with the amount of work that has to be covered to comply with the National Curriculum, that any idea or project from an outside source must mean as little work as possible for staff and almost no capital expenditure! Nevertheless, schools are always on the lookout for attractive projects that interest children and which also enhance their education.

### Dustbin Derby

Youth clubs and primary and secondary schools throughout Cleveland were invited to take part in an event to encourage an understanding of recycling.

Armed with a £500 COPUS grant plus other money donated locally, Miles Garnett from the



*For a project of this scale make sure you have enough volunteers and use them!' says Sally Munn. 'We couldn't possibly have created such a brilliant project without the help of so many people.'*

*When applying for grants, really study the application form and make sure you are asking for what the provider is able to fund,' says Miles Garnett. 'Another point worth remembering is when you are publishing a guide, print as many copies as you can afford to first time around. Reprints prove more expensive in the long run.'*

University of Teesside staged a competition at the Grangefield School in Stockton, choosing a Saturday morning when the school wasn't in use and when other schools and family groups could come along. Piles of glass, paper, plastics, metals and other household rubbish were piled high and teams were invited to identify materials, often carrying out simple tests to determine what it was, and then run to the correct dustbin to deposit it.

In addition to the Derby itself, Miles and his team produced a training manual and recycling guide, in comic format, which can be used by schools and other groups wishing to run their own Derby. The booklet stands alone however, as a comprehensive, easy to understand guide to recycling and has proved most popular in schools throughout the North East.

## On The Science Trail

*‘Equipment always seems to cost more than you estimate,’ warns Jack Pateman. ‘And so does the amount of paperwork — in both time and money.’*

Jack Pateman, a retired engineer from Kent, was keen to see young people taking an interest in engineering. He is both a Fellow of the Royal Academy of Engineering and a governor at his local primary school so when he heard about the COPUS grants scheme, he decided to apply for funding to set up a science trail in the grounds of Borough Green Primary School in Sevenoaks.

With the support of local craftspeople, Jack devised a series of exhibits to be installed in the playground including a weather station, and a series of blocks and pulleys to demonstrate simple mechanical principles. But the venture wasn't without complications.

‘Firstly the local authority insisted the playground was resurfaced for safety reasons,’ said Jack. ‘This delayed the project but the authority did meet the cost.’ The staff of Borough Green Primary School then found themselves producing vast amounts of paperwork in the form of guides and notes for those who would be supervising the trail.

‘It was worth it in the end but the amount of work the trail involved was far more than I first imagined.’

## Time Machine Sci-Dra-His

*‘I wish we had trebled our grant application,’ says Brian Moroney. ‘These things always cost more than you expect so my tip is study all costs, think on a large scale and don't ask for too little.’*

Trying to combine science, history and drama to explain basic scientific principles on a COPUS grant of £300 is no easy matter. But Brian Moroney, Science Advisory Teacher in the London Borough of Redbridge, is delighted to report that he and his colleagues achieved this and the event was judged a great success.

As part of setWeek, Brian invited primary schoolchildren, their parents and carers to take part in a series of challenges set in an historical context. For instance, Ancient Greek history prompted an activity based on construction, pulleys and weights where participants had to make a Trojan Horse. Echoes of World War II were heard as children crawled through dark tunnels into a blackened studio space and had to move a beam of light using mirrors and then crack a secret code.

‘Although we sent invitations to all local schools, we held the [Time Machine Sci-Dra-His](#) out of school hours on a cold damp Friday night and equally miserable Saturday morning,’ said Brian Moroney, ‘so we were delighted to get over 100 people in.’

## Keep It Or Lose It

The Hermitage School in the East End of London is an excellent example of how to organise science events for children. Each year they contribute to setWeek and, in 1997, a £2000 COPUS grant funded *Keep it or lose it* which explained energy conservation to children and their parents.

‘Right from the outset keep staff and colleagues informed and involved so too much work doesn’t fall on one person,’ said Abdulhayee Murshad who stressed again the importance of involving children in the planning stage and keeping up their interest during the build-up period. 》



‘Concentrate on what children like and then build science into it,’ says Regina Bash-Taqi who describes her work as ‘science education for children.’ 》

The number of activities and events staged by the small primary school was overwhelming. The week started with Deputy Head Teacher Abdulhayee Murshad taking a group of children to one of the Science Museum’s overnight camps, and then followed on with a week-long series of workshops and investigations set up in the school. Actually, to say the week started then gives the wrong impression.

‘We really started planning our March setWeek activity back in September,’ said Abdulhayee. ‘We’ve found it important to get the children involved right from the word go. They were included in all planning meetings and started off the term devising activity books and posters. Everyone was involved including catering, caretaking and secretarial staff.’

Abdulhayee stressed it was vital to link in any week-long project with the National Curriculum and the scores of events staged during the week covered all aspects of the children’s timetable. Parents were invited into the school, all day every day if they wished, and many brought toddlers along too. Hermitage School is in the heart of a Bangladeshi community so some of the workshops were bilingual.

Investigation tables were set up around the school and included practical problem solving such as discovering which material conducts electricity best and which substance is best for making a cup of tea. Some of the COPUS grant was used to buy a special package for a mobile computer which allowed the children to go around the school with the premises manager finding out where energy is lost.

‘This was a very useful exercise. At the end of the week the children discovered four points — all of which are relevant to the home,’ said Abdulhayee. ‘We were losing energy by not closing windows; leaving outdoor doors open; not turning all radiators on; and not turning lights off.’

The local electricity board sent its education worker along to pass on helpful tips on how to save energy at home. The Quantum Theatre Group joined in and gave a performance of *Quirks in the works*, and staff from the local Mudchute City Farm came into the school to explain how animals conserve energy.

In addition, the children made windmills, used solar panels to discover just what solar energy could drive, and listened to energy-related stories read to them by staff from the local library.

‘The week was great fun and the children learned so much in an active and practical way,’ was an exhausted Abdulhayee’s comment.

## Little Atoms Science Club

‘If only it were like that when I was at school!’ Readers can be excused thinking this when they hear of the way science is taught through the [Little Atoms Science Club](#) at the Lighthouse Supplementary School in South London.

The Lighthouse is a community-based school offering after-school care, extra tuition, Saturday school and holiday schemes. Project Director Regina Bash-Taqi, a chemist by training, was keen to teach science to children making it such fun that they were keen to learn more.

She used her £8500 COPUS grant to set up the [Little Atoms Science Club](#) which consists of workshops and parties — yes *parties*.

‘We try and use what children are into at any given time and throw a science party around it,’ Regina explains. ‘For instance, we’ve just had a Spice Girls party where the children learned basic chemistry through making perfumes. At the end of the party, they dance to a laser light show.’

Instead of trooping off to the local fast food restaurant or racking their brains about how to entertain hoards of youngsters at home, parents can throw parties for their children's birthdays where the range of bubbling potions, chemical magic and special effects including rocket launches and laser shows guarantee they will be truly memorable.

Themed workshops are on offer over a six week period for children who have discovered science at the parties and want to follow it up, and with titles like *Rock around the galaxy* it's easy to see why the science club is always well attended. The club and parties also feature games where children need to grasp a scientific principle or point to move on to the next section of the game. Of course, to entice them along there are prizes.

'The children basically come here to have a good time and the science is thrown in as an added bonus,' says Regina.

## WATER WATER EVERYWHERE

Water always holds a fascination. Trips to the seaside, walks along the river bank, even wandering around derelict docks are a great day out. And for those hoping to expand their scientific knowledge, water has a lot to offer.

### Wild Water

More than 200,000 people a year have visited the Snibston Discovery Park in Leicestershire since it opened its gates back in 1992. It boasts the country's first outdoor science and technology play area and, as a canal surrounds the park, it made sense to use it to develop [Wild Water](#).

A COPUS grant of £17,500 went towards developing the project. A series of bridges across the canal bring visitors to [Wild Water](#) which houses activities in troughs and tanks filled with water recycled through a series of pumps.

'We've designed the activities for primary children — Key Stage 2 — and they have great fun,' says Paul Duckworth, Assistant Keeper for Science and Technology Interpretation. 'One of the problems, as you can imagine, is wet arms, but the children don't seem to mind that.'

Another problem facing the staff is that algae builds up in the tanks. As nobody wants to put powerful chemicals in water where children are constantly dipping their hands, an ultra-violet filtration system has been devised to try and cut down the growth.

[Wild Water](#) is constantly exposed to the elements and the exhibits have to be rugged. Such exhibits can involve massive amounts of engineering to build which can prove expensive.

'We tried to get around any potential problems by having a period of test bedding — setting up exhibits on a small scale and then ironing out problems,' said Paul.

Dams, water-wheels, lock gates, boats, an aqueduct and water organ are just a few of the attractions at [Wild Water](#) which opened to the public in 1996.

### Explore It

A COPUS development grant of £20,000 went to [Explore It](#), an interactive science centre on a marine theme, housed within Exploris, Northern Ireland's first public aquarium.

*When creating and building exhibits outdoors,' says Paul Duckworth, 'try and make them stand alone, allowing visitors to see what is happening and why without outside interpretation being necessary.'*

“Caroline Nolan’s philosophy in life is ‘Go for it’ and she applauds innovation in all forms. ‘If you are setting up a project on this scale go for it in a big way and be innovative, don’t just try and copy other initiatives,’ she says. But a word of warning: ‘Be prepared to spend more time than anticipated on developing programmes and be ready for setbacks and the time and cost they present.’”

Since it opened in March 1994, the number of visitors to Exploris has exceeded all expectations. An average of 130,000 visitors pour through the gates each year and a fledgling interactive centre, the prototype for [Explore It](#), was used by 75% of these visitors, showing the organisers that this was an appropriate area to develop.

‘Initiatives to provide public access to science were under-represented in Northern Ireland and there was a desperate need for new projects,’ says Caroline Nolan, then General Manager of Exploris.

A whole range of interactive models, computers and apparatus was bought, created and set up to allow visitors to experiment and discover for themselves the science of the sea. They are able to see what happens to fish under pressure, discover the theory of wave motion, and use computers aligned to a real tidal pool simulating real-time tidal action in the Irish Sea.

*Where is the fish?* explains refraction to visitors while they search for fish through glass and water. *Whose baby am I?* follows the embryonic stage of fish and sea creatures and leads on to an opportunity to create a 3D model of a fish.

‘The wonderful thing about [Explore It](#) has been that it has grown and evolved and the team was able to bring in new interactives and initiatives to meet public demand,’ says Caroline. In fact, so successful has [Explore It](#) been that it has outgrown its premises and will be moving next year into a specially built seal sanctuary and educational centre nearby.



## Aquatic Science

When the then Minister for Science, the Rt Hon David Hunt MP, visited Newham Docks in East London in 1995, he certainly made a splash — and got a soaking too. For the Docks were teeming with hundreds of children taking part in [Aquatic Science](#) and when the Minister tested the reliability of some experimental canoes, he found they weren’t quite as water-tight as expected.

But a wet Minister was just part of the fun at the Royal Victoria Dock’s Education Centre, when a £3000 COPUS grant enabled Tracey Barbe and Judy Hallgarten to devise a range of water-based workshops and activities. Children took part in canoe orienteering around the docks; tested the pH of the River Thames to determine how clean or polluted it was; built boats from wooden sheets and glue — no metal rivets or joins; and toured the Docks in a yacht studying the design of its swing and bascule bridges.

‘We had such a good time running these activities,’ said Tracey. ‘The team-building raft-making was brilliant and so was our sail-making day when a retired Thames barge skipper and sail-maker spent the day showing children his skills. The kids took part in weather forecasting and had lessons in our floating classroom as well as all the outside activities.’

Disabled visitors to the event also enjoyed themselves, some helping to test pilot a specially-designed dinghy for sailors with disabilities.

## Hands-on Water

Surveys at Chatham’s Historic Dockyard had shown that visitors wanted more interactive exhibits and a £3000 COPUS grant went some way towards realising this when Education Officer Jane Middleton set up a series of interactive activities on board HMS Gannet, a Victorian ship under restoration.

‘We had lots of visitors to the ship but they never spent more than an hour on board which we thought was a shame,’ said Jane. ‘We wanted to use the ship to help us capitalise

“Don’t try and do everything yourself,’ says Judy Hallgarten. ‘If you can afford to, get experts and facilitators in to help. Write them into your costs when applying for grants.’”

‘It is difficult to find good calibre students to act as facilitators,’ says Jane Middleton. ‘If you do have problems, try approaching the nearest teacher training college for help.’

on the technological legacy of the Dockyard and we set up our [Hands-on Water](#) as part of a setWeek.’

Jane was anxious to set up exhibits and activities using everyday materials demonstrating how boats and ships actually move on and through water. Visitors were encouraged to make paper boats and weigh them down with paper clips and marbles or use pieces of guttering to demonstrate the waterways’ lock system. Children’s paddling pools were used as containers for the activities and students were on hand to explain the basic science behind the activities. Posters and leaflets advertising the *Moving through water hands-on days* were sent to all local schools and the turn-out was so encouraging that many other follow-up interactive activities have been organised as a result.

## FESTIVALS AND FAIRS

The UK has a rich history of organising festivals and fairs, many of which now attract overseas visitors. Week-long festivals increasingly attract visitors to a region as a focal point for a holiday. It is worth considering such festivals as venues for exhibitions, demonstrations and hands-on activities.

### Urdd Eisteddfod

The Urdd is a Welsh language cultural organisation for children and young people and its annual Eisteddfod — a cultural and social festival — draws together thousands of youngsters and their families.

Also renowned in Wales and elsewhere is the Centre for Alternative Technology in Powys, and it was from there that a team set off to the [Urdd Eisteddfod](#) to run workshops in the science and technology pavilion. A COPUS grant of just over £1000 was used to demonstrate the principles of sustainable technology.

‘We ran workshops in Welsh on designing, making and testing model wind generators,’ said the Centre’s Education Officer Ann MacGarry. ‘We also had a display about our Centre showing wind, water and solar power in use.’ And there was a quiz — also in Welsh of course — to test what visitors had learned.

An added bonus of taking part in the Eisteddfod was that the staff found it useful to talk to teachers about the science involved in alternative energy sources, and were able to promote school visits to the Centre.

### The Newcastle Science Fair

The amount of hard work needed to make an event truly successful has been amply demonstrated by Mark Snell and Simon Williams, Heads of Chemistry and Science respectively at the Newcastle-under-Lyme School in Staffordshire.

‘This area used to be dominated by the Potteries which are declining and is now almost totally lacking in science-based events. We decided to get the ball rolling and show people what a lot of fun science could be,’ said Mark. Armed with a dedicated team — staff, secretaries, and children, the two teachers staged a one day science fair in the grounds of their school.

‘Look out for opportunities to stage science events and activities where you have an audience ready to get involved,’ says Ann MacGarry.

‘Think big,’ advises Mark Snell. ‘Contact all local industries, follow-up leads and keep at it.’



COPUS gave a £2700 grant and other small amounts of funding were sought. From the outset it was decided to charge a fee — £5 per family. To generate publicity, Mark and Simon visited local schools with a travelling science show and gave out posters and leaflets about the fair. They also discovered that for a small amount they could put up A4 posters on the buses and these ran for two weeks before the event.

The innovative twosome then started to use all their contacts to attract exhibitors to the fair. Within weeks they had the promise of a hot air balloon from Lloyds Bank; a helicopter courtesy of the RAF; and dozens of exhibitions and displays from local industries like Rolls Royce and JCB. They booked TV personality Michaela Strachan — a great favourite with young people — to open the fair and arranged with the Cardiff-based science centre Techniquest to come along bringing 25 interactive exhibits with them.

‘At first it was difficult to get industry interested but once we had a promise from one others soon followed,’ said an exhausted Mark who optimistically expected 1000 visitors but ended up with over 4000!

‘Looking back we can honestly say it was an amazing success which was down to a great deal of hard work and forward planning by a lot of people,’ said Mark.

## ON SHOW

Too often, exhibitions can mean a few display boards strategically placed around a room blocking off doorways and radiators. But this doesn’t ring true with the following exhibitions which demonstrate the exhibitor’s imagination and resourcefulness.

### Dr Pumpalot’s Patented Heart Demonstration Appliance

David Paynter carries the title of ‘Public Library Entrepreneur of the Year’, an award granted for his work in promoting science over three years in Kent’s libraries. In his time, he has organised indoor displays where visitors skate past exhibits on a type of indoor ice rink and has shown through many projects that imagination is needed to make exhibitions work well.

COPUS gave a grant of £3000 for one of David’s exhibitions featuring the work of sculptor Stirling Clark. Stirling capitalised on the fact that a famous 17th Century doctor, William Harvey, from Folkestone, achieved fame for his work relating to blood circulation. His sculpture, [Dr Pumpalot’s patented heart demonstration appliance](#), is a concertina-like device which, when operated, reveals the specific movements of the heart. It shows how blood passes through the heart up to the lungs, back to the heart and off around the body.

Housed in a box, a little like Dr Who’s tardis, the appliance works through bicycle pedal power and stands eight feet high.

‘No matter how good an exhibit is, it is difficult to hold the attention of visitors, particularly children, for any length of time so it is important to offer more,’ says David, Head of Organisational Development and Training with Kent’s Arts and Libraries Service.

‘We set up an exhibition around Pumpalot based on a fitness centre with keep fit machines and apparatus testing pulse and heart strength,’ says David. ‘We also had health promotion literature and people on hand to answer questions and give advice.’

“To attract maximum attention, develop your display or exhibition into a themed ‘event’ with related supporting materials and activities,” says David Paynter.”

“*Ian Simmons’ experience has resulted in him passing on many tips to others but the overall message he wants to stress is how important it is to be single-minded about a project. ‘Once you have your idea, get it funded and don’t let it dissipate!’ he says. ‘Don’t be deterred by setbacks and make friends with the press. It is also important to learn how to sell your projects to the media for without its help you won’t attract the visitors or the funding.’*”

## Medieval Machines and Fabricators’ Week

Setting up an event requires a great deal of work and research whether you are a first-timer or an old-hand. Many COPUS funded projects have been organised by full-time staff in museums and science centres.

Ian Simmons, an ex-teacher, biologist, writer and museum curator, has been involved in developing hands-on science exhibitions and running public events since 1988, originally with Leicestershire’s Snibston Discovery Park. He has staged events during a number of setWeeks; assisted in Snibston’s [Wild Water](#); helped develop two *Exploring science* exhibitions — one looking at risk, the other at the senses; and he is now Director of INSPIRE, a science centre operated by Science Projects and housed in a 15th Century medieval church in Norwich.

His surroundings seem to inspire him. For the past few years Ian has been working on a plan to set up a touring *Exploring science* exhibition about medieval machines. COPUS granted him almost £11,000 — half of the cost of the project — to demonstrate that technology did not begin with the industrial revolution, but that the middle ages should be viewed as the period of the first industrial revolution.

Ian originally expected the [Medieval Machines](#) exhibition to be up and running in the summer of 1997 but the project was delayed until Easter 1998.

‘It was frustrating because delays were out of our control,’ said Ian. ‘Our workshops were heavily involved in building exhibits on contract from other museums and science centres and sometimes our own projects need to be delayed to meet their needs.’

However, setWeek visitors to Herstmonceux Science Centre in Sussex, where the exhibition opened, had the added bonus of seeing such delights as the Bean Bag Trebuchet — a scaled medieval siege engine, firing bean bags rather than rocks and dead horses. The exhibition will tour science centres and museums before becoming part of the permanent exhibition at INSPIRE.

Another COPUS funded event staged by Ian for the British Interactive Group was [Fabricators’ Week](#) where a £1000 grant was used for a practical week of exhibition building by ‘fabricators’ from science centres nationwide. It also gave a good opportunity for the dissemination of ideas and information which can only result in even more exciting and inspiring exhibitions for us all to enjoy.

## Cellivision

Billed as ‘A window into the wonderful world of cells’, [Cellivision](#) was a medley of exhibitions, talks and hands-on experimentation all about cell and molecular biology mounted by the Biochemical Society.

‘We wanted to show visitors that scientists aren’t white-coated mysterious boffins but everyday normal people and that cell biology could be easy to understand by anyone,’ said Dianne Stilwell who was then working for the Society.

A £2500 COPUS grant was secured towards staging the exhibition during an international conference, *The life and death of the cell*, held in Edinburgh. Dianne and her team made every effort to advertise their own display, placing advertisements in the local press, leafleting schools, arts centres, restaurants, Women’s Institutes and they even booked a radio advertisement.

Their efforts worked. For the three days of opening, a steady stream of visitors took part in such activities as *Spot the cell* where the correct microscope slide had to be matched to the cell picture being shown; *Build a cell* from pasta and lentils; and *DNA your onions* where participants could take home a sample of DNA they had extracted themselves.

“*It is so important to advertise an event in public places and start doing it months before you open,’ said Dianne Stilwell. ‘Our exhibition ran when schools closed for the summer holidays so we couldn’t rely on school parties coming. We blanket-covered almost the whole of Edinburgh and our radio advert just the week before the exhibition jogged people’s memories.’*”

‘There were one or two hitches,’ remembers Dianne. ‘Someone or something had contaminated our slime mould cultures so one of our events had to be cancelled. And during a spot of play acting, the child chosen to play the role of a scavenging cell was too well-mannered. He had obviously been told it was rude to snatch and wouldn’t grab a passing electron. He waited to be offered it instead!’



## Dr Darwin’s Curiosity Shop

When he was a young student, Anthony Campbell was fascinated by glow-worms. His curiosity about these tiny creatures has paid off because Anthony, now Professor Campbell, has adapted and used the light-giving properties from chemical reactions and developed a probe used in a major area of clinical diagnosis for measuring a wide range of substances in the blood. This medical breakthrough has brought millions of pounds to his Department of Medical Biochemistry at the University of Wales, College of Medicine, in Cardiff.

Professor Campbell uses this as an example of how natural curiosity can lead to both new concepts and technology, and was the idea behind his COPUS funded [Dr Darwin’s Curiosity Shop](#) — the name reflecting the inspiration and genius of Dr Erasmus Darwin, Charles Darwin’s grandfather.

He used his £2980 grant to build a ‘shop’ — actually a large framed tent with black-out material which holds 20 children and houses apparatus to allow experiments on ‘living light’. Visitors can examine glow-worms and dinoflagellates, a form of algae which give off phosphorescence in the sea. They can also run a series of experiments measuring the heat of a candle and compare this ‘hot light’ with the ‘cold light’ emitted by certain chemicals which are then measured with a thermocouple.

‘The idea here is to show the youngsters that all living light is essentially burning without fire,’ says Professor Campbell. ‘If the children are curious to take these investigations further I can arrange for them to visit my lab and show them more sophisticated equipment and experiments.’

[Dr Darwin’s Curiosity Shop](#) also offers children a workshop on *Fright, flight and frolic* which allows them to measure their body’s response to exercise and emotion. They can exercise and measure their lung capacity with a peak flow monitor and when a balloon is suddenly burst behind them, record how their pulse rate shoots up.

Professor Campbell has also used his grant to encourage colleagues to find ways of exciting children about what is often regarded as quite complicated science.

‘If concepts are explained or demonstrated in an exciting way, children will respond and their natural curiosity excited to make them want to find out more,’ says Professor Campbell.

## Building Together

The reputedly haunted Speke Hall, an Elizabethan timber framed building completed in 1598 on the outskirts of Liverpool, was the venue for a £3000 COPUS grant funded temporary exhibition showing visitors the key principles of structure and design. It also enabled children to take part in a host of interactive activities demonstrating the engineering principles behind building.

Tony Berry and colleagues from the National Trust, which has responsibility for Speke Hall,

‘Start off a demonstration or workshop with something that will grab children’s attention — like a flash or a bang,’ says Professor Anthony Campbell. ‘Give them something exciting and let them do things for themselves. It’s often a mistake to follow ‘the keep it simple’ line — the bright or enquiring child doesn’t want to be fobbed off with simple science.’

“ We underestimated the demand we faced,” said Tony Berry. ‘Although we had volunteers to help, we only had one paid facilitator to assist the children and act as ‘explainer’ and we could have done with more. The more qualified staff you put into an exhibition, the more children will get out of it. ”

enlisted the help of pupils from nearby Liverpool College who spent design and technology classes and lunch hours building the exhibits. Boys on a government training scheme also lent a hand.

‘It was a matter of all hands on deck’ said Tony Berry. ‘As a charity, our budget for this project was very limited, and without the support of Liverpool College, our volunteers and the training scheme, it wouldn’t have been possible.’

The scheme ran throughout the 1997 summer holidays. Admission was free to anyone paying to enter Speke’s garden (60p for children) and children took part in building a child-size Speke Hall using rubber stamps to design their own room lay-out, and giant magnetic jigsaws to discover design concepts.

They also found out about the properties of wood, worked on stained glass windows, and studied the complicated design behind what was a vital part of the original Speke Hall — priest’s holes where Roman Catholic clergy were forced to hide when outlawed in the 16th and 17th Centuries.

‘We combined design and technology with history and it was such a success we are planning to run the exhibition again during the next summer holidays,’ said Tony who was delighted to record a 250% increase in the numbers of visitors paying for entrance to the Hall’s gardens where the exhibition was staged.

Although schools were closed for the holidays, local schoolchildren were told of the exhibition, the National Trust’s own publicity material was used to promote the event, and posters and leaflets were distributed throughout Liverpool.

## HOW TO ORGANISE YOUR OWN PUBLIC EVENT...

**Voices of experience:** several of the organisers featured in this collection offered advice for others planning public events which has been summarized below.

1. Think through your idea and if you’re sure it will work, do not be put off.
2. Gather together a team who will support your idea and will accept your word as final. Allocate tasks and responsibilities.
3. Look around for sources of funding. COPUS can offer suggestions if it is unable to help. Prepare a comprehensive breakdown of costings and write in a contingency figure in case anything goes wrong.
4. Book premises, checking your event will not be clashing with anything similar.
5. Notify the media — remembering that national newspapers have weekend supplements with suggestions for family days out; local press; give-away advertising newspapers; local radio; specialist publications (which often require a few months’ notice); and information services on the World Wide Web.
6. Notify the local authority (which may also help with publicity), police and fire services.
7. Print leaflets and distribute them around schools, youth groups, societies and organisations. Ask supermarkets if you can put up a poster or hand out leaflets on their premises. Don’t forget public libraries and tourist information points.

8. Determine whether or not your event could link in with topics currently being covered by the National Curriculum. If so, make contact with the local authority's education department and use their facilities to notify schools.
9. Bear in mind disabled visitors. Check access points, wheelchair ramps and toilet facilities.
10. Don't forget the three Ps — publicise, publicise and publicise!

One further point worth remembering is that if you enjoy what you are doing, your enthusiasm will rub off on others.

## ...AND GET HELP FUNDING IT

### Grants in support of public understanding of science, engineering and technology

The Royal Society, through COPUS, is committed to funding projects which enable public access to contemporary issues and ideas in science, engineering and technology whether it be through debate or demonstration, interaction or exhibition, the arts or other pursuits. Since 1987, over 750 diverse projects have been funded throughout the UK.

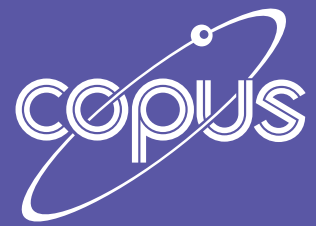
There are three types of COPUS grant; (1) a development grant to support larger scale initiatives (maximum £20,000); (2) a seed grant intended to pump prime activities on a local scale (maximum £3000); and (3), a setWeek grant for activities and events specifically intended for the annual National Science, Engineering and Technology Week coordinated by the British Association for the Advancement of Science (maximum £3000). The development and setWeek grants have been made possible through additional funding from the Government Office of Science and Technology.

Applications for the seed and development grants in particular have previously required original and imaginative projects, and priority had been given to initiatives aiming to reach new audiences. However, in response to the demand for the support of established activities, funds are now also available for projects which, although no longer novel, may nevertheless be of significant proven value and fulfilling a need.

There are three closing dates each year when applications for all three grants are considered: 31 March, 30 June and 31 October. Applicants should ensure that the appropriate application form for the type of grant required is completed. All three forms contain an option to apply for either support of a novel or an established initiative.

For a COPUS seed or development grant application pack please contact Caroline Bay at:  
The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG.  
Tel: 0171 451 2582 (Voicemail) Fax: 0171 451 2693 e-mail: copus.grants@royalsoc.ac.uk

For a COPUS setWeek application pack please contact Meenal Gupta at:  
The British Association for the Advancement of Science, 23 Savile Row, London W1X 2NB.  
Tel: 0171 973 3069 Fax: 0171 973 3051 e-mail: meenal.gupta@britassoc.org.uk



The COPUS programme is funded through a combination of public (an allocation from the Royal Society's Parliamentary Grant-in-Aid) and sponsorship funds. The annual budget is generally in excess of £300K, including the COPUS seed grant allocation. Each year, a bid for an additional £200K is made to the Government's Office of Science and Technology specifically for the COPUS development grant scheme and the special seed grant round to support activities during the annual National Week of Science, Engineering and Technology.

The COPUS *Sharing Best Practice* series aims to provide inspiration, practical advice and food for thought for all those involved in communicating science, engineering and technology. The series draws on the experiences of evaluators, organisers of events and on public understanding of science research studies, identifying information and findings of relevance to the practitioner, and highlighting strategies and tools that might be useful.

The series began with *So did it work?* which gives guidance on how to evaluate a public event about science, engineering and technology. This was followed by *To know science is to love it?* in which public attitudes to science, engineering and technology are described. *Out and about* is the first in a three-part collection of case studies from the COPUS grants scheme in which the project organisers tell their story.

A compendium of ideas on communicating science, engineering and technology is planned. This will be produced in conjunction with STEMPRA – the Science, Technology, Engineering and Medicine Public Relations Association.