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CUSTOMER SERVICE EXCELLENCE

Llywodraeth Cynulliad Cymru
Welsh Assembly Government

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All Outreach programmes are accompanied by pre and post visit extension materials that can be found on the Techniquest website:

029 20 475 476

www.techniquest.org

Helping teachers to engage students with science and motivate them to learn more

Welcome

A warm welcome to our schools' outreach service for Wales. Our services are designed to support teachers and enhance the curriculum.

Techniquest currently has 3 hubs from which it operates the outreach programme. The hubs are located in Cardiff, Wrexham and Llanberis. The Cardiff hub currently services the whole of South Wales, Llanberis services North-West Wales and Wrexham services North-East Wales. The outreach service is quickly expanding and we plan to open another hub in 2008/09.

Our education outreach programme is appropriate for Foundation Phase, KS2, KS3 and KS4, AS/A2 level and GNVQ level students. All programmes are linked to the National Curriculum and are designed to stimulate and motivate pupils to learn more.

The outreach programme covers a range of topics across science, technology, engineering and maths. The following pages outline our current outreach programme. If you cannot find a subject area you are looking for, please let us know. We are always keen to receive feedback, comments and ideas: please email edn@techniquest.org

Vital Information

- Expert staff are available Monday to Friday 9am to 5pm to answer your phone enquiries
- Once you have made a booking a letter of confirmation will be sent to your school.
- Your booking confirmation will contain a link to pre and post-visit material on our website and a risk assessment.
- A week before we visit your school, the outreach co-ordinator will confirm the logistics of the visit, i.e. number and times of sessions, which presenters will be visiting your school and their time of arrival.

To book

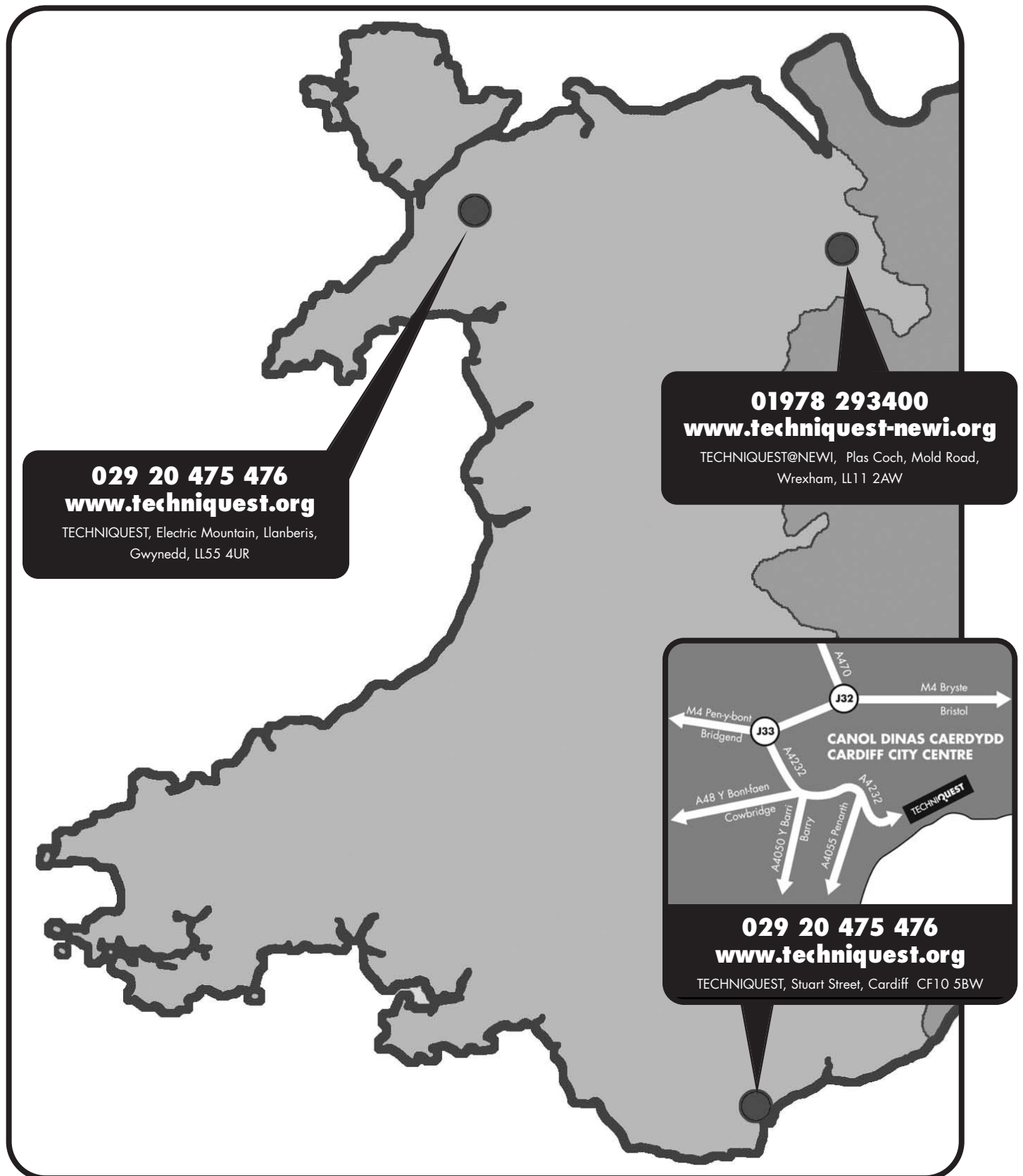
- Please use this guide to find services that suit you, and then for bookings in South and North-West Wales phone **029 20 475 476** to check availability and for more details.
- To provide a professional low cost service, your booking will be slotted into a suitable itinerary for the equipment. To minimise the price of the service, we ask you to be flexible with your date requirements. However, we will endeavour to do all we can to provide you with the services you require on your preferred dates.



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029 20 475 476
www.techniquest.org

TECHNIQUEST, Electric Mountain, Llanberis,
Gwynedd, LL55 4UR

01978 293400
www.techniquest-newi.org

TECHNIQUEST@NEWI, Plas Coch, Mold Road,
Wrexham, LL11 2AW

029 20 475 476
www.techniquest.org

TECHNIQUEST, Stuart Street, Cardiff CF10 5BW

primary outreach

SHOWS

Exciting and memorable presenter-led shows can be performed in your school hall or in the classroom with all props and materials provided. All shows cover a selected area of the curriculum. The style of the shows encourages pupils to question ideas, and stimulates interest in science and maths. Some KS2 shows can be adapted for Foundation Phase or year 7 pupils on request. Shows provide an excellent resource for transition phase events.

Show length: 45 minutes
Maximum class size: space dependent
Maximum of 4 shows per day

Mama Mia Maths

Years 3 - 4

Visit our 'Restaurant' and see how maths can be related to everyday occurrences, even a visit to the pizzeria. Using the restaurant as a setting we will see how fractions, number patterns and sequences, time and relations, calculations with money, counting, symmetry and pattern, all relate to the visit.

Curriculum links: (Maths)
 Understand and use money
 Investigate patterns and relationships
 Understand number and number notation
 Calculate in various ways
 Understand and use measures



Joining Forces

Years 3 - 6

Help Newton and his mate to move an unusual load. Discover friction, measure pushes and pulls, investigate the invisible forces of gravity and magnetism and give your teacher an unusual lift in this exciting exploration into the world of forces.

Curriculum links: (Physical processes 2)
 How things work 2 & 3

It's Alive

Years 3 - 6

Investigate healthy food for humans and how some animals form food chains. Find out about our digestive system. Help us to classify and use identification keys in this interactive presentation where we will be looking at living things and trying out some challenges along the way.

Curriculum links: (Life processes & living things)
 Interdependence of organisms 2 & 6

Science Explorers

Years 3 - 6

Shadow our intrepid science explorers Asha and Billy on their round-the-world expedition. During their journey they will be carrying out scientific investigations related to the countries they visit. Each round explores a different aspect of scientific investigation, focusing on predicting, variables, fair testing, graphs and conclusions.

Curriculum links: (Scientific enquiry)
 How things work 2 & 3

Gran Designs

Years 3 - 6

Follow two children as they go and stay with their Granny. Jade and Sean, are not environmentally friendly and during their time with Granny they learn some wacky ways to be more "green". Granny Green is an inventor and she has created some innovative inventions to help her be environmentally friendly. Will Granny's "green" ways have a lasting influence?

Curriculum links: (Living processes and living things)
 Interdependence of organisms 7
 The sustainable Earth 6

Electricity and Magnetism Years 3 - 6 Create sparks with this charged show about electricity and magnetism. Covering static and current electricity, circuits, generation, magnets and electromagnets. Enjoy lots of hands-on experiments and real life applications in this show.

Curriculum links: (Physical processes)
 Myself and non-living things
 How things work 1 & 2
 The sustainable Earth 3, 4 & 6

Materials

Make sense of materials by discovering how different materials affect our way of life. Compare and contrast natural and man-made materials, why we select certain materials for specific uses and discover solids, liquids and gases. Magical materials amaze in this flexible hands-on show.

Curriculum links: (Materials and their properties)
 Myself and non-living things
 The sustainable Earth 3, 4, 5 & 6

Years 3 - 6



Challenge Workshops

Challenge Workshops are designed to stimulate and motivate pupils as well as provide informal support for teachers in their delivery of the National Curriculum. Workshops offer a dynamic range of new challenge activities for pupils, from Forces to Sound, Light to Electricity.

In each presenter-led Challenge Workshop, pupils will be introduced to the specific topic, before being set a challenge to be completed in groups. This could range from building a bridge, a solar winch, or even a space-lander to protect an egg! Each challenge will reflect the topic area, and is designed to let pupils explore the subject through their own investigation. Pupils then provide feedback on how they tackled the challenge and what they have learnt.

Challenge Workshops can be adapted to suit your group's needs.

Workshop length: 35 - 45 minutes
Maximum class size: 30
Maximum of 4 sessions per day

Sorting Sounds

Reception - Year 6

Find out how sounds are produced and the way they travel. Experiment with sound sources, musical instruments, and investigate the nature of sound.

Curriculum links:
 KS2: Skills: Enquiry, reflection. How things work 4
 Foundation Phase: Skills, Myself and non-living things

Electric Bugs

Years 1 - 6

Put your knowledge of electricity to the test. During the Challenge Workshop pupils will examine uses of electricity in every-day electrical objects and its control in simple circuits, look at the properties of conducting and non-conducting materials, and understand and investigate the science behind every-day electrical devices.

Curriculum links:
 KS2: How things work 1, The sustainable Earth 4
 Foundation Phase: Skills, Myself and other living things

primary outreach

Mars Mission Madness

Years 1 - 6

How do you cushion your fragile craft for its landing and can you identify the forces involved? During the challenge pupils will investigate the properties of materials relating to their uses, the science behind every-day objects and the way they are constructed and work, and the different kinds of forces involved.

Curriculum links:

KS2: The sustainable Earth 2, 3 & 4; How things work 2 & 3

Foundation Phase: Skills, Myself and other living things

Bodies & Bones

Years 1 - 6

Delve inside yourself and investigate healthy eating and how our body works. The workshop includes opportunities to study the names, position and functions of human organs and the importance of a healthy diet.

Curriculum links:

KS2: Independence of organisms 1 & 2

Foundation Phase: Skills, Myself and other living things

Dragons Material Challenge

Years 1 - 6

What materials would a dragon use to make his sofa? He would have to choose them wisely! In this workshop pupils will be challenged to understand the world around them by looking at the classification, features and properties of materials.

Curriculum links:

KS2: The sustainable Earth 3, 4 & 5

Foundation Phase: Skills, Myself and other living things

Bridge Builder

Years 1 - 6

Using paper, straws, sellotape, and other stationery, pupils construct a bridge to support a load. Pupils reflect and evaluate their construction against success criteria, and identify which design was most successful.

Curriculum links:

KS2: Skills, How things work 2 & 3; The sustainable Earth 4

Foundation Phase: Skills, Myself and non-living things

Waste not, want not!

Years 1 - 6

How 'green' are you? How do you affect your local environment, and what can you do to help it become more sustainable? The workshop will look at the types of waste we produce, how we can reduce waste by recycling and reusing, and the effect this has on the local environment and habitats.

Curriculum links:

KS2: Interdependence of organisms 5 & 7; The sustainable Earth 4 & 6

Foundation Phase: Places and people, Myself and non-living things



Forensic Science: Who Dunit?

Years 3 - 6

Solve a crime! Develop your knowledge and understanding of investigation by working out 'who dunit'. The pupils will examine the crime scene and gather information to solve the investigation. During the challenge, pupils will make careful observations and measurements, compare results, use equipment and techniques that are required for the enquiry.

Curriculum links:

KS2: Skills: Enquiry 5 & 6; Developing 4 & 6



Solar Power

Years 3 - 6

Harness the power of light. There are two K'NEX challenges; one for Years 3 and 4 to design and construct a solar powered fairground ride, and the other for Years 5 and 6 to design and construct a solar-powered winch. The most successful teams are those that can build the most efficient device.

Curriculum links:

KS2: How things work 1 & 3; Design and Technology



STARLAB

STARLAB: The portable planetarium that brings the stars to you!

Bring the night sky to your school. Presenters will set up this inflatable planetarium and deliver presentations about the sky at night and the planets of the solar system for a full day in your school hall. Presentations are tailored to the ages and abilities of your pupils, from years 1-6.

What is STARLAB?

STARLAB is an inflatable portable dome that can accommodate up to 30 children plus some teachers/adults. It can easily be set up in a school hall and can be taken down during lunchtime if the space is required. The area must be indoors and have sufficient headroom (4.2m) and floor space (7.5m X 7.5m): 240v ac mains power supply required.

During the day the experienced presenters will take your group on a journey through the solar system. There are several shows available, all designed to meet the needs and ability of your group.

Show length: 30 - 40 minutes

Maximum class size: 30

Maximum of 6 sessions per day

STARLAB SHOWS

Each STARLAB show comprises two parts: an age-appropriate presentation, followed by a tour of the night sky.

Day Trip to the Moon

Years 1 - 2

Have you ever dreamed of being an astronaut? How would you get into space? What would you take with you? Izzie has always wanted to be an astronaut and would love to go to the Moon. You can follow her adventures and find out why she ends up feeling very homesick for planet Earth. We will also explore the differences between the Sun, Earth, Moon and stars.

Curriculum links: (KS1 Physical processes 3)

People and places

Time and people

Earth, Moon and Sun

Years 1 - 3

The Earth Sun and Moon show comprises of a short video presentation concentrating on the Earth, our nearest neighbour the Moon and the sun, which is so vital to all of us who live on the Earth. The presentation also looks at life on Earth animals and humans.

The presentation is followed by a star tour which looks at the join the dot patterns or constellations which we all see twinkling in the night sky.

Curriculum links: (KS1 Physical processes 3)

People and places

Sustainable Earth 1 & 2

primary outreach

STARLAB continued

Voyage Through our Solar System

Years 3 - 6

Take a presenter led voyage through our Solar System. The presentation looks at the major features of the planets and some of the Moons. The ideas of gravity and atmosphere are introduced. We will also look at where man has been, how they managed to get there and could they survive there. The sky tour which follows, looks at some of the main stars and constellation patterns in the night sky. The tour will include some of the stories and myths behind the amazing patterns seen on a clear night.

The sky tour reflects the night sky on the date of the presentation.

Curriculum links: (KS2 Physical processes 3)

Sustainable Earth 1 & 2

STARLAB STORYTIME

Storytimes are specially designed programmes to support Year 1 and 2 pupils' understanding of curriculum topics and encourage asking questions, listening to others' ideas and thinking about what might happen. These exciting presenter-led shows can be performed in your school hall or classroom if your school cannot accommodate Starlab.

MoMo Forest

Enter the MoMo Forest, and consider your role in looking after the environment, and the importance of animal habitats. The story will be accompanied with role play, games and activities. See the world from a different viewpoint with the help of our animal puppets and reporters.

Curriculum links: (KS1 Life Processes and Living Things 3 & 4)

Foundation Phase: Places and people, Time and people

Years 1 - 2



Smoggish

Visit planet Gaia and learn about the importance of recycling. While the people of Gaia are busy polluting their planet with rubbish, the evil King of Rubbish, Zog, is touring the universe looking for smelly and dirty planets. Zog takes Smoggish, his pet made from recycled rubbish on his travels. But Smoggish hates seeing all the planets polluted. What will happen to planet Gaia? What role will Smoggish play in all of this?

Curriculum links: (KS1 Materials and their properties 1)

Foundation Phase: Places and people, Time and people

Years 1 - 2



KITS

Booking a Techniquest kit creates an exciting event that is low cost and easy to arrange. Each kit has 11 specially designed hands-on activities that support the pupils' understanding of curriculum topics. The activities encourage enquiry and problem-solving. They cover areas of the National Curriculum for science and maths in a fun and engaging way.

Each kit is accompanied by comprehensive pre and post extension materials and support notes, accessible from our website, which will guide the teacher through a host of learning initiatives. The kits are easy to transport from school to school and we actively encourage schools to work together to share the resource or to provide access to parents and the wider community.

KITS are teacher-led, support materials are provided

Maximum class size: 30

Rental: 1 - 4 days

Maths 1 & 2

Years 3 - 6

Curriculum links: numbers, shape, space & measures and handling data

Supported by



Forces

Years 3 - 6

Curriculum links: (Physical processes 2) How things work

Materials

Years 3 - 6

Curriculum links: The sustainable Earth, available from September 2008



Light and Sound

Years 3 - 6

Curriculum links: How things work available from September 2008



secondary outreach

INTERNATIONAL YEAR OF ASTRONOMY

SPACE WORKSHOPS

Workshop length: 2 hours
Maximum class size: 20
Maximum of 2 sessions per day

Empire of the Sun?

A workshop covering the Sun and planets, including asteroids, comets and dwarf planets. Take a tour through the solar system using downloadable software, and view the night sky from the surface of

Years 7 - 9



other planets. How does our solar system compare with newly discovered "extra solar planets" around other stars? Where might we look for life in our solar system, and could there be life elsewhere in our galaxy?
 (Specimens on loan from the National Museum of Wales)

Down to Earth

Years 7 - 9, 10 - 11



"Down to Earth" covers asteroids, comets and the effects they have when they collide with the Earth. The workshop includes examination of meteorite and fossil specimens, including real dinosaur bones and pieces of Mars and the Moon. Learn about mass extinctions and simulate your own giant impact craters using simple software. What could we do to prevent a mass extinction like the one that killed the dinosaurs 65 million years ago?
 (Specimens on loan from the National Museum of Wales)

Seeing Stars

Years 10 - 11



Covers the "Lifecycle of Stars", and includes computer based activities where students will work on real telescope data and measure the properties of a variety of different types of stars. This workshop will cover the birth, life and death of stars, including the physics and chemistry of star-formation and stellar nucleosynthesis. What are black holes? How and when will our Sun die? How many stars are there out there in our galaxy, and how do we know?
 (Specimens on loan from the National Museum of Wales)

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What is STARLAB?

STARLAB is an inflatable portable dome that can accommodate up to 30 children plus teachers/adults. It can easily be set up in a school hall and can be taken down during lunchtime if the space is required. The area must be indoors and have sufficient headroom (4.2m) and floor space (7.5m X 7.5m): 240v ac mains power supply required.

During the day the experienced presenter will take your group on a journey through the solar system.

Show length: 35 - 45 minutes
Maximum class size: 30
Maximum of 5 sessions per day

Voyage Through our Solar System, full star tour

Years 7 - 8

Take a presenter led voyage through our Solar System. The presentation looks at the major features of the planets, some of the Moons and how they compare to the Earth. The increasing use of satellites both geostationary and polar orbiting is examined. In addition to the exploration of the Solar System we will look at where else we have been, how we have got there and could we survive on arrival. The sky tour looks at some of the main stars and constellation in the night sky from a scientific standpoint. The tour will touch on some of the stories and myths behind the amazing patterns seen on a clear night.

The sky tour reflects the night sky on the date of the presentation.

secondary outreach

CONTEMPORARY SCIENCE, DIALOGUE AND DISCUSSION

Workshop length: 1 hour
Maximum class size: 30
Maximum of 4 sessions per day

Discuss DNA

This presenter-led game encourages debate about the social and ethical issues surrounding the National DNA Database. The resource helps students to recognise that scientific developments have an effect on the society in which they live. Topics include:

DNA profiling
 Forensic science
 Gene ownership

Developments in genetic technology and their impact on society.

Meet the Gene Machine

A fast-paced drama, which is designed to encourage 14-17 year old students to explore the social and ethical issues associated with genetic testing. The drama is followed by a discussion and dialogue session where the students consider the issues posed in the drama.

Years 10 - 11



Years 10 - 11



SHOWS

Informative presenter-led shows can be performed in your school hall or in the classroom with all props and materials provided. All shows cover a selected area of the curriculum. The style of the shows encourages pupils to question ideas and stimulates interest.

Show length: 45 minutes
Maximum class size: space dependent
Maximum of 4 sessions per day

Joining Forces

Years 7 - 9

Uncover the mysteries of gravity, magnetism and pressure. Explore electromagnets and measure acceleration in this pushing, pulling, spinning, twisting and bouncing show.

Leisure & Tourism

Years 10 - 11

This presentation will provide students with an introduction to Techniquest, an overview of customer and visitor services, visitor information and marketing. A resource pack, 'Leisure and Tourism at Techniquest' provides support materials and suggested student assignments. The presentation will be tailored to the level and area of study of your students.

WORKSHOPS

Construct! Workshop

Years 10 - 11

This new workshop explores the applications of science within the construction industry and focuses on contemporary issues such as sustainability. It develops teamwork and co-operation through role-play, while increasing students' awareness of the broad career options available within construction.



Workshop length: 2 hours
Maximum class size: 30
Maximum of 2 sessions per day



transition outreach activities

KITS

Booking a Techniquest kit creates an exciting event that is low cost and easy to arrange. Each kit has 11 specially designed hands-on activities that support the pupils' understanding of curriculum topics. The activities encourage enquiry and problem-solving. They cover areas of the National Curriculum for science and maths in a fun and engaging way.

Each kit is accompanied by comprehensive pre and post materials, Year 7 extension activities, lesson plans and teacher support notes. The kits are easy to transport from school to school and we actively encourage schools to work together to share the resource or to provide access to parents and the wider community.

KITS are teacher-led, support materials provided

Maximum class size: 30

1 - 4 day rental

Maths 1 & 2

Years 6 - 7

Curriculum links: numbers, shape, space & measures and handling data



Forces

Years 6 - 7

Curriculum links: (Physical processes 2) How things work

Materials

Years 6 - 7

Curriculum links: The sustainable Earth, available from September 2008



Light and Sound

Years 6 - 7

Curriculum links: How things work, available from September 2008



SHOWS

Informative presenter-led shows can be performed in your school hall or in the classroom with all props and materials provided. All shows cover a selected area of the curriculum. The style of the shows encourages pupils to question ideas and stimulates interest.

Joining Forces

Years 6 - 7

Help Newton and his mate to move an unusual load. Discover friction, measure pushes and pulls, investigate the invisible forces of gravity and magnetism and give your teacher an unusual lift in this exciting exploration into the world of forces.

Curriculum link: (Physical processes 2)

How things work 2 & 3

STARLAB

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During the day the experienced presenters will take your group on a journey through the solar system. Shows are designed to meet the needs and ability of your group. Each show includes time for questions and discussion.

Show length: 35 - 45 minutes

Maximum class size: 30

Maximum of 5 sessions per day

Voyage Through our Solar System,

Year 6

Take a presenter led voyage through our Solar System. The presentation looks at the major features of the planets and some of the Moons. The ideas of gravity and atmosphere are introduced. We will also look at where man has been, how they managed to get there and could they survive there. The sky tour which follows, looks at some of the main stars and constellation patterns in the night sky. The tour will include some of the stories and myths behind the amazing patterns seen on a clear night.

The sky tour reflects the night sky on the date of the presentation.

Voyage Through our Solar System,

Year 7

Take a presenter led voyage through our Solar System. The presentation looks at the major features of the planets, some of the Moons and how they compare to the Earth. The increasing use of satellites both geostationary and polar orbiting is examined. In addition to the exploration of the Solar System we will look at where else we have been, how we have got there and could we survive on arrival.

The sky tour looks at some of the main stars and constellation in the night sky from a scientific standpoint. The tour will touch on some of the stories and myths behind the amazing patterns seen on a clear night.

The sky tour reflects the night sky on the date of the presentation.