



Education Kit

Sci-Quest is at Scienceworks Museum from 12 May to 6 November 2007

Scienceworks

2 Booker Street Spotswood, Victoria 3015

Bookings: telephone (03) 9392 4819 between 9.00am and 4.30pm weekdays

Email: sweducation@museum.vic.gov.au

Website: <http://museumvictoria.com.au/education/>



Contents

	Page
Teacher Notes Curriculum Links Resources	3 - 6
The Exhibition	7 - 16
School Based Activities	17 - 27
Exhibition Floor Plan	28
Pathway A	29 - 32
Pathway B	33 - 36

Acknowledgements

Sci-Quest was developed and toured by Waikato Museum, Hamilton, New Zealand.

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Kit preparation: Geoff Moore, Patrick Watt, Peter Pentland, Pennie Stoyles, Janet Marlow, Jenny Kelso.

This education kit contains material produced by programs officers at Scienceworks Museum and exhibition notes adapted from material prepared by Waikato Museum.

Teachers may copy the material in this education kit for classroom use.

Teacher Notes

Sci-Quest is an interactive science and technology exhibition that introduces a range of physical science concepts suitable for a broad student audience. This education kit provides teachers with resources to plan a successful class excursion to explore the exhibition at Scienceworks. The material complements the exhibits and will contribute to a student learning experience that is both educational and enjoyable.

Highlights of the exhibition include taking control of a metre high whirlpool (or vortex), firing rockets powered by air pressure or magnetic repulsion, and using a control panel to direct the movements of 'Robot BUZZ'. Other favourites are the 'Bernoulli Blower' that suspends balls in a column of air, the giant 'Guitar String' that demonstrates wave motion, and the 'Whisper Dishes' that enable sound to carry over long distances. All exhibits are fun, and they challenge students to think about the science behind the amazing effects that they observe.

The exhibition focuses on two broad areas within the physical sciences:

Motion (air pressure, magnetism, inertia, Bernoulli effect, the cycloid, vortices) and
Waves (electricity, sound, frequency, pitch, resonance).

Excursion planning

- *Sci-Quest* is at Scienceworks from **12 May until 6 November 2007**.
- Scienceworks is open from 10am until 4.30pm each day.
- Admission is free for supervising teachers and students, but bookings are essential (telephone 9392 4819). Please note that there is a fee of **\$11 per booking**, and that a surcharge applies for Planetarium and Lightning Room shows.
- It is a good idea to familiarise yourself with the *Sci-Quest* exhibition prior to the excursion if possible. Teachers with an **MVteachers** membership card can visit Scienceworks for purposes of excursion planning at any time without charge. Apply online: <http://museumvictoria.com.au/education/MVteachers/>
- Student groups will be booked into *Sci-Quest* for **60 minutes**. They should be divided into small groups to avoid crowding.

Essential Preparation

Research has shown that setting clear objectives for a museum visit and discussing them with students is extremely important. It makes the purpose of the visit clear and assists students to focus and work together during the visit.

Creating interest in the subject of an exhibition is vital to a successful and enjoyable museum experience. Prior to your visit to Scienceworks, take some time in class to discuss your excursion and to assess your students' knowledge and understanding of what they will see. The information in this kit should be used as a basis for discussing the exhibits in *Sci-Quest*.

Excursion Checklist

- Photocopy the Scienceworks site map on your yellow confirmation letter and discuss with your students what they will be doing on their visit. Get them to locate toilets and the amphitheatre (lunch space), as well as the exhibition galleries that they are booked into.
- Photocopy the *Sci-Quest* exhibition floor plan in this kit and discuss the exhibits with your students. 'The exhibition' section of this kit contains detailed descriptions of each interactive exhibit and the science that it demonstrates.
- Review the 'School Based Activities' section and choose several that are suitable for your students. Do some activities with the class before the excursion and others in the days after your visit. You should carefully select, review and adapt these to ensure that they are appropriate for your students.

Note: Worksheets that are suitable for photocopying and distribution to students are indicated by the symbol Δ in the top right hand corner.

- Two student pathways are provided for use in the exhibition. Pathway A will be suitable for many Primary level students and Pathway B for most Secondary level students. The pathways are written as 'trails' that help to keep students focussed and provide a record of the visit for use back at school. You should review both pathways before deciding which one(s) is best for your students to use during their visit. Note that the pathways can be adapted, shortened or split into sections as appropriate. Make copies of the chosen pathway for each student or workgroup and discuss it with in class before the excursion.
- Divide your class into groups before you arrive at Scienceworks. Ideally, workgroups of 3 or 4 students to assist hands-on access and avoid crowding around the exhibits. Discuss with your students in advance how they will move through the exhibition and what they might see. On the day of the excursion, each group should bring a clipboard, pencils, a copy of the exhibition floor plan and a copy of the *Sci-Quest* pathway that they are using.
- Please check your confirmation letter to ensure that the details of your excursion are correct. If there is a problem with your booking details, please ring the Booking Office at Scienceworks: telephone 03 9392 4819.

Curriculum Links

The exhibits and themes of the *Sci-Quest* exhibition are closely related to the standards and learning focuses of Levels 3-6 of the Victorian Essential Learning Standards (VELS).

Level	Science knowledge and understanding	Science at work
3	Students identify the actions of forces in everyday situations. They use the words <i>push</i> and <i>pull</i> in discussing how things can be moved and stopped. They identify forms of energy and energy transformations in the everyday world. They use appropriate scientific vocabulary to describe and explain their observations and investigations.	Students plan, design, conduct and report collaboratively on experiments..... They select and use simple measuring equipment, use a range of appropriate methods to record observations, and comment on trends. They describe the concept of a fair test and identify the variables associated with an experiment.
4	Students explain change in terms of cause and effect. They identify the characteristics of physical and chemical changes..... They qualitatively describe changes in motion in terms of the forces present.	Students design their own simple experiments to collect data and draw conclusions..... They design and build simple models and write an account of the science that is central to explanation of the model. They use diagrams and symbols to explain procedures used when reporting on their investigations.
5	Students use everyday examples of machines, tools and appliances to show how the thermodynamic model describes energy and change, and force and motion.	Students design investigations that include measurement, using standard laboratory instruments and equipment.... They make systematic observations and interpret recorded data appropriately....
6	Students explain change in terms of energy in a range of biological, chemical and physical contexts.... They give both qualitative and quantitative explanations of the relationships between force, mass and movement.	Students formulate their own hypotheses and plan and conduct investigations in order to prove or disprove them... They construct working models and visual aids that demonstrate scientific ideas.