

PRIMARY AND SECONDARY SCHOOL PROGRAM

SEMESTER 1, 2012



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EDUCATION PROGRAMS

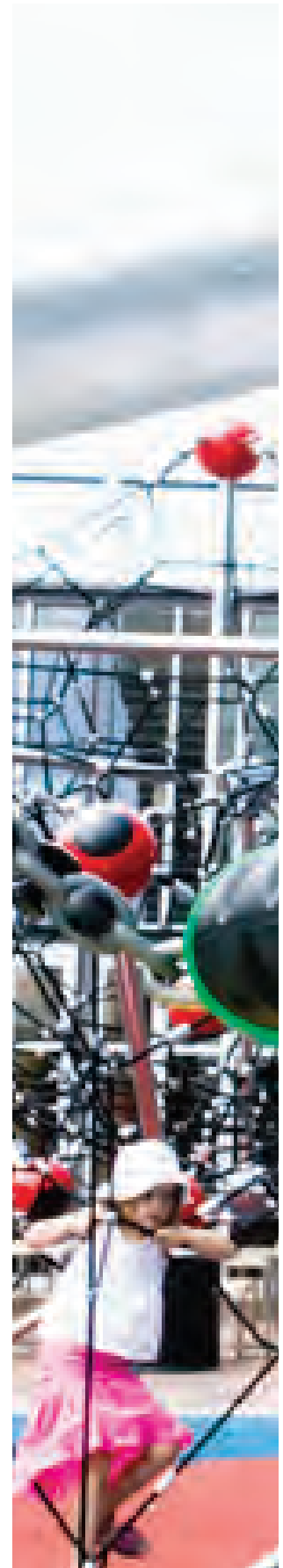
The Powerhouse Museum exists to discover and be inspired by human ingenuity. Located in the heart of Australia’s creative industries precinct, our education experiences strive to provide historical and future contexts for students in a landscape of innovation.

The Museum offers Self guided and Educator-led programs that connect classroom learning with the Museum’s virtual, physical and intellectual spaces. Underpinned by history, our programs span science, design, sustainable technologies, and the vast range of creative and cultural industries.

How can we best prepare students for the future? The Powerhouse Museum Education team looks towards creative learning approaches and seeks out new ways to engage students in learning.

We are a new team of Educators who work with gallery and service staff to deliver the best possible excursion for you and your group. Browse the pages of this program to see the many ways the Powerhouse Museum can support your next excursion and your students’ learning.

Powerhouse Museum
Education Programs Team



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Information correct at time of printing, November 2011, but is subject to change.

HOW TO BOOK

1. Choose either a Self guided or an Educator-led program

All Self guided programs are included in Museum admission: \$8 per student / free for PSP schools. PSP Educator-led program prices are listed in the following pages, and include Museum admission.

2. Print and complete a booking form, choosing your preferred times and dates

Please note that some Educator-led programs are only available at specific times and dates. Book early to avoid disappointment.

3. Send your booking form by:

Fax (02) 9217 0622

Mail PO Box K346 Haymarket, Sydney, NSW 1238

Email edserv@phm.gov.au

We will contact you to confirm your booking and provide an invoice for payment. When you receive your booking confirmation please check that the details are correct, sign and return the form. Only on receipt of this signed form will your booking be considered confirmed.

4. Payment

Payment must be made in advance or on the day of your visit via cheque, credit card or cash. Our bookings office will issue you with a receipt for payment on the day of your excursion.

Risk assessment

Information about risk assessments can be found online at powerhousemuseum.com/education

CONTACT

Education Programs Team

Powerhouse Museum

500 Harris St, Ultimo, NSW

Tel: (02) 9217 0222 Fax: (02) 9217 0622

Email: edserv@phm.gov.au



COMBINE YOUR VISIT OR GO VIRTUAL

Combine your visit to the Powerhouse Museum with a visit to another great venue. You'll receive a \$1 discount off the student admission price at the Museum and enjoy savings at other venues too. Participating venues include Sydney Observatory, National Maritime Museum, ABC Centre Ultimo, Sydney Aquarium, Sydney Central YHA and Sydney Learning Adventures. Bookings and payments must be made separately at each venue. Programs over 2 hours in duration are not suitable for combined visits.

Go virtual with video conferencing! A fantastic way to inspire students, our virtual excursions provide students with the opportunity to interact with designers, artists and scientists; experience significant objects from the Museum's collection; or partake in a pre-visit introduction to an exhibition that they will be visiting. Programs are available in the areas of science, visual arts and design. Full details of upcoming sessions can be found on the Powerhouse Museum's page on the DART website <http://dartconnections.org.au/upcoming/phmlist.html>



CURRENT EXHIBITIONS

Harry Potter™: The Exhibition until 18 March 2012

Step into the magical world of *Harry Potter: The Exhibition* and experience first-hand all the wonders of the Hogwarts™ School of Witchcraft and Wizardry.

Bookings: Call Ticketek Group Bookings Team on 1300 364 001

HARRY POTTER: TM & © Warner Bros. Entertainment Inc. Harry Potter Publishing Rights © JKR. (s11)



Love Lace until April 2013

Discover lace as you've never seen it before! More than 130 lace works by 134 artists from 20 countries. Accompanying teachers' resources are available.

Entry included with Museum admission

Second image from the top: *Tribe* by Kim Lieberman, South Africa, 2010.

EcoLogic

Explore one of the world's hottest topics today: climate change. Discover the science behind global warming and what we can do to prevent it from getting worse.

Entry included with Museum admission



Space

What's it like to live and work in the weightless environment of space? What do astronauts eat? Discover what it's like to live and work on the International Space Station and experience the illusion of weightlessness in the Zero Gravity Space Lab.

Entry included with Museum admission



Transport

Move among the kinds of vehicles that have shaped our way of life. See what carries us from cradle to grave including a pram, penny farthing bicycle and a hearse.

Entry included with Museum admission

What's in store?

Discover the fascinating story of Australia's retail history from 1880–1930. This exhibition examines the development of urban and rural stores and the social links between city and country that they fostered.

Entry included with Museum admission



Experimentations

Experimentations and experimenting both start from everyday experience. Why does the freezer door stick? How does a battery work? This exhibition shows how scientific and technological breakthroughs have answered questions like these and changed many of our ideas about everyday phenomena.

Entry included with Museum admission

Steam revolution

For more than 200 hundred years, steam did almost everything... pumped water, drove factories, and powered ships. Steam turbines still provide 90% of our electricity. The steam revolution shows how steam touched the lives of millions.

Entry included with Museum admission



DesignTECH 18 February 2012 – 13 May 2012

DesignTECH is an annual exhibition from the Board of Studies NSW and the NSW Department of Education and Training which showcases outstanding major design projects by 2011 Higher School Certificate students of Design and Technology.

Entry included with Museum admission

Bottom image: *Luzism* by Maggie Chieng, Cheltenham Girls High School.

Visit powerhousemuseum.com
for a full list of all our exhibitions and events

PRIMARY SCHOOL PROGRAMS

Self guided visits

General visit

STAGES 1–3 (YEARS 1–6)

Book your group a general visit to the Powerhouse Museum and you are free to explore the diverse range of exhibits at your own pace and find your own specific curriculum links. Teachers exhibition notes and resources are available to support your visit online at powerhouse.com/education.

Cost: \$8 per student / PSP schools free

Duration: 2 hour visit recommended

Bookings: Groups can take this tour anytime during Museum hours (10am – 5pm)

Marvellous Machines

STAGE 2 (YEARS 3–4)

With a diverse array of machines on display, the Museum provides an exciting learning environment to see these important objects first hand. Through observation, peer discussion and drawing, students gain insights into how machines work. They are asked to isolate the lines, shapes and forms of the machines, make connections and see the big picture through drawing, discussions and writing. Utilising a drawing book they are guided through some of our most fascinating exhibitions including *Steam Revolution*, the Boulton and Watt steam engine and *Transport*.

Cost: \$10 per student / \$5 PSP

Duration: 1½ – 2 hours

Bookings: Groups can take this tour anytime during Museum hours (10am – 5pm)

Support material: An Activity Pack with background notes and a pre-visit slideshow with script is provided with your booking confirmation

Group size: 90 (maximum)

Curriculum links:

Stage 2 Science and technology units: 'Out and about', 'Making it easy'

Stage 2 COGs unit: 'Machines'

Technology and Innovation: Human Ingenuity

STAGE 3 (YEARS 5–6)

As a museum whose exhibitions are centred on ideas and technologies that have changed the world, and the stories of the people who create and inspire them, the Museum provides the perfect environment for students to explore technologies and innovations. The program incorporates a visit to *Steam Revolution* and *EcoLogic* exhibitions as well as the Museum's online resources.

Cost: \$8 per student / PSP schools free

Duration: 1½ – 2 hours

Bookings: Groups can take this tour anytime during Museum hours (10am – 5pm)

Support material: Download the Technology and Innovation Activity Pack (pdf) from the website

Group size: 90 (maximum)

Curriculum links:

Stage 3 Science and technology units: 'Environment matters',

'The best place to live', 'Switched on'

Stage 3 COGs units: 'Symbol systems', 'Living land'



Educator-led programs

Tours

Introductory guided tour

STAGES 1–3 (YEARS 1–6)

See the world of science and design come to life on this introductory tour of the Powerhouse Museum. Marvel at massive locomotives, miniature models and stunning artefacts. Hear about inspiring innovations in transport, space exploration and sustainable futures.

Cost: \$10 per student / \$5 PSP

Duration: 45 minutes

Bookings: Tuesday – Friday, 10am, 11am, 12pm and 1pm

Group size: 15 minimum, 120 maximum

Curriculum links: Cross curricular

Space gallery tour, led by a costumed guide

STAGES 1–3 (YEARS 1–6)

What's it like to live and work in the weightless environment of space? What do astronauts eat? Your group will pose questions to our costumed guide and learn many fascinating insights about life in space and space technologies. Through observation and discussion, your group will experience the illusion of floating in space as they are led through the Museum's Zero Gravity Space Lab. You will learn about the worldwide technological breakthroughs that have enabled humans to realise life in space and the ingenious dream of spaceflight.

Cost: \$10 per student / \$5 PSP

Duration: 45 minutes

Bookings: Tuesday – Friday, 10am, 11am, 12pm and 1pm

Group size: 15 minimum, 120 maximum

Curriculum links:

Stage 1 COGs unit: 'Powering on'

Stage 2 COGs unit: 'Understanding each other'

Stage 3 Science and technology unit: 'Out in space'

Transport gallery tour, led by a costumed guide

STAGES 1–3 (YEARS 1–6)

Take your students on a different kind of journey through the Museum's *Transport* gallery. Explore first hand, examples of historical innovation that span an array of transport modes including air, road, rail and space. Move among the vehicles that have shaped our way of life from boats and bikes to planes and trains. Students will hear stories spanning the history of human ingenuity in transport, learn more about life in the past and how it has helped shape our future today.

Cost: \$10 per student / \$5 PSP

Duration: 45 minutes

Bookings: Tuesday – Friday, 10am, 11am, 12pm and 1pm

Group sizes: 15 minimum, 120 maximum

Curriculum links:

Stage 1 Science and technology unit: 'Getting about'

Stage 1 COGs units: 'Powering on', 'Products and services'

Stage 2 Science and technology units: 'Out and about', 'Making it easy'

Stage 2 COGs units: 'Machines', 'Products, services and systems'

Stage 3 Science and technology unit: 'On the move'



PRIMARY SCHOOL PROGRAMS

Science shows

Cogs' Chemistry Show

STAGE 1 (YEARS 1-2)

Join Cogs, the Powerhouse Museum's resident lifesize robot in a playful kitchen adventure examining the chemistry of change. In a fun filled theatrical style, your students will learn with Cogs as he looks at the world around us to observe change and explain his growing understanding of the nature of matter. Learn the scientific language for an icy pole melting, or a piece of toast burning. How can the objects in everyday life aid Cogs' scientific adventure?

Cost: \$10 per student / \$5 PSP

Duration: 30 minutes

Bookings: Wednesday – Friday during school term, 10am, 11am, 12pm, 1pm and 2pm

Group size: 180 maximum

Curriculum links:

Stage 1 Science and technology units: 'Look around you', 'Hot or cold'

ZAPPED!

STAGES 2-3 (YEARS 3-6)

Spark your group's curiosity with an interactive exploration into electricity – both static and current – and how it is made. Witness some home-made lightning using the Van de Graff Electro Static Generator and gain a deeper understanding about conductors and insulators with the Wimshurst machine. We explore the relationship between electricity and magnets in some colourful demonstrations using a dynamo and steam engine and an exciting look into the power of electromagnetism. Prepare to be shocked and amazed at the illuminating power of electricity!

Cost: \$10 per student / \$5 PSP

Duration: 30 minutes

Bookings: Monday – Friday during school term, 10am, 11am, 12pm, 1pm and 2pm

Group size: 45 maximum

Multiple sessions can be arranged to accommodate larger numbers (maximum 135)

Curriculum links:

Stage 2 Science and technology unit: 'Stuck on you'

Stage 3 Science and technology unit: 'Switched on'

Stage 3 COGs unit: 'Physical phenomena'

Liquid Nitrogen

STAGE 2-3 (YEARS 3-6)

Using extremely cold liquid nitrogen students will learn how the properties of materials change according to temperature. The show explores the properties of water and air in their solid, liquid, and gas states, which leads to some amazing, entertaining and explosive effects.

Cost: \$10 per student / \$5 PSP

Duration: 30 minutes

Bookings: Monday – Friday during school term, 10am, 11am, 12pm, 1pm and 2pm

Group size: 45 maximum per session.

Multiple sessions can be arranged to accommodate larger numbers (maximum 135)

Curriculum links:

Stage 2 Science and technology unit: 'Material world'

Stage 3 Science and technology unit: 'Sailing, sinking, soaring'

National Year of Reading

STAGES 1-3 (YEARS K-6)

To celebrate the National Year of Reading, Museum Educators are hosting story-time sessions during term time. Your group can choose to hear a chapter from any of the Children's Book Council of Australia's 2011 winners' list. Bookings required.

Cost: Free

Duration: 15 minutes

Bookings: Monday – Wednesday during school term, 10am, 11am and 12pm



Workshops

Life in the Gold Rush

STAGE 3 (YEARS 5–6)

Experience life in the gold rush in this innovative and exciting role play experience. How did the gold rush differ for families, women, children, Chinese Migrants, Indigenous Australians, miners and British settlers? Students will learn the chronology of significant gold rush events and technologies and will question a variety of primary and secondary sources from the Museum's collection to form and communicate a variety of interpretations of life in the gold rush.

Cost: \$10 per student / \$5 PSP

Duration: 4 hours (including 30 minute break)

Bookings: Weekly on Mondays, starting Term 2, 10am

Group size: 60 maximum

Curriculum links:

Stage 3 HSIE unit: 'Gold!'

Stage 3 Science and technology units: 'On the move', 'Way out communication'

Stage 3 COGs unit: 'Traditions and heritage'

Technology and Innovation: Design and Make

STAGE 3 (YEARS 5–6)

This workshop complements the teacher-guided program, Technology and Innovation: Human Ingenuity. Students are presented with a design challenge! They must establish criteria for success, test their design, improve the design and discuss solutions with their fellow students.

Cost: \$10 per student/\$5 PSP

Duration: 40 minutes

Bookings: Monday – Friday during school term, 10am, 11am, 12pm, 1pm and 2pm.

Group size: 30 maximum for each session

Curriculum links:

Stage 3: Science and technology units: 'Environment matters', 'The best place to live', 'Switched on'

Stage 3: COGs units: 'Living land', 'Symbol systems'

Life in Extremes: Space and Weather

Powerhouse Museum and Sydney Observatory

STAGES 1–3 (YEARS 1–6)

At the Powerhouse Museum, you'll be led by our costumed guide on a tour of the *Space* exhibition exploring how humans and technologies have adapted and innovated to thrive, survive and communicate in the extreme environment of Space. Then closer to home on Planet Earth your students will participate in a special *EcoLogic* wild weather discovery activity. At the Sydney Observatory you'll move through the *Observing the weather* exhibition, collect data and experience the 3-D Space Theatre presentation *Extreme places*. Walk between the venues using Solar System walking tour resources, or request coach access.

Cost: Observatory \$10 / Powerhouse Museum \$10

Duration: 4 hours (1½ hours at Powerhouse, 1½ hours at Observatory, 1 hour travel)

Bookings: Groups can take this tour anytime during Museum and Observatory hours

Group size: 60 per venue (120 if group is split across both venues)

Curriculum links:

Stage 1 COGs unit: 'Powering on'

Stage 1 Science and technology units: 'Growing up', 'Hot or cold', 'Back to nature', 'A place in time'

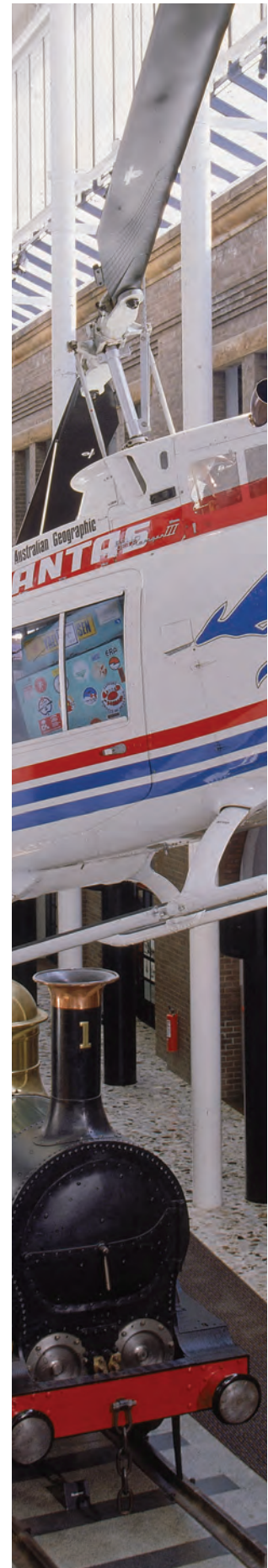
Stage 2 COGs unit: 'Understanding each other'

Stage 2 Science and technology units: 'Cycles in our world', 'Mini-worlds', 'Keep in touch'

Stage 3 COGs unit: 'Physical phenomena'

Stage 3 Science and technology units: 'Out in space', 'What's the weather?',

'A change for the better'



SECONDARY SCHOOL PROGRAMS

Self guided visits

General visit

STAGE 4–6 (YEARS 7–12)

Book a general visit to the Powerhouse Museum and you are free to explore the diverse range of exhibits at your own pace and find your own specific curriculum links. Teachers exhibition notes and resources are available to support your visit online at powerhousemuseum.com/education.

Cost: \$8 per student / PSP schools free

Duration: 2 hour visit recommended

Bookings: Groups can take this tour anytime during Museum hours (10am – 5pm)

Shaping the Future

STAGES 4–5 (YEARS 7–10)

This resource incorporates the Museum's geography and science exhibitions with online and print material to provide an integrated and contextual environment, encouraging reflection, enquiry, and collaborative learning in the area of sustainability. Our *Shaping the future* resource can be downloaded from the website and includes teaching and learning materials for pre, during and post-visit activities such as:

1. Pre-visit: slideshow *Changing Times, changing lives* – Facilitate discussion on how humans meet the challenges of a changing world
2. Visit: *EcoLogic* student booklet – Learn why we need to adopt sustainable practices
3. Post-visit: Discussion of visit and synthesis questions in *EcoLogic* student booklet. Students present their ideas of future directions. Suggestions for class projects are also included in the booklet.

Cost: \$8 per student / PSP schools free

Duration: 1½ – 2 hours

Bookings: Groups can take this tour anytime during Museum hours (10am – 5pm)

Group size: 90 (maximum)

Curriculum links:

Stages 4 and 5 Science prescribed focus areas: 4/5.3, 4/5.4, 4/5.5

Stage 4 Geography 4G2, 4G3, 4G4

Stage 5 Geography 5A3, 5A4

Educator-led programs

Tours

Introductory guided tour

STAGES 4–6 (YEARS 7–12)

See the world of science and design come to life in this introductory tour of the Powerhouse Museum. Marvel at massive locomotives, miniature models and stunning artefacts. Hear about inspiring innovations in transport, space exploration and sustainable futures.

Cost: \$10 per student / \$5 PSP

Duration: 45 minutes

Bookings: Tuesday – Friday, 10am, 11am, 12pm and 1pm

Group size: 15 minimum, 120 maximum

Curriculum links: Cross curricular



SECONDARY SCHOOL PROGRAMS

EcoLogic exhibition tour

STAGES 4–5 (YEARS 7–10)

The *EcoLogic* tour explores one of the world's hottest topics today: climate change. Discover the science behind global warming and what we can do to prevent it from getting worse. Your group will be led through the exhibition and its exciting interactive displays with the opportunity for robust discussion and exploration of some of the causes and effects of climate change.

Cost: \$10 per student / \$5 PSP

Duration: 30 minutes

Bookings: Tuesday – Friday, 10am, 11am, 12pm and 1pm

Group sizes: 15 minimum, 120 maximum

Curriculum links:

Stages 4 and 5 Science prescribed focus areas: 4/5.3, 4/5.4, 4/5.5

Stage 4 Geography 4G2, 4G3, 4G4

Stage 5 Geography 5A3, 5A4

DesignTECH Seminars

STAGE 6 (YEARS 11–12)

Students will have the opportunity to hear from students featured in the *DesignTECH* exhibition from the 2011 HSC Design and Technology course, speaking about their Major Design Projects. Students will also hear from industry practitioners talking about various projects, participate in design activities and visit the *DesignTECH* exhibition.

Year 12 seminars: Monday 27 February – Friday 2 March 2012

Year 11 seminars: Monday 19 March – Friday 23 March 2012

Bookings for these seminars are coordinated by the Board of Studies NSW, one teacher admitted free for every 20 students.

Call (02) 9367 8309 or visit <http://www.boardofstudies.nsw.edu.au/exhibitions/#designtech>

Workshops

Exploring the design process

STAGES 4–6 (YEARS 7–12)

Working in groups students interact with what just might be Australia's largest design process graphic, commencing with the design brief and working their way through to the presentation of the final solution, continually evaluating as they go. Students learn about the importance of why designers follow a design process and see first hand some examples some of the outcomes of this process.

Cost: \$10 per student / \$5 PSP

Duration: 1 hour

Bookings: Tuesday and Wednesday, 10am and 1pm

Group size: 30 maximum

Curriculum links: Technology Mandatory, Design and Technology

Exploring chair design

STAGES 4–5 (YEARS 7–10)

The aim of this hands-on workshop is to introduce students to the complex functional and aesthetic issues involved in chair design. Working in groups students investigate a variety of collapsible chairs through observation, drawing and assembly. They undertake a critical product analysis considering function, aesthetics, materials and manufacture within the design process. The workshop concludes with students presenting their findings to the group for discussion.

Cost: \$10 per student / \$5 PSP

Duration: 1 hour 30 minutes

Bookings: Tuesday and Wednesday, 10am and 1pm

Group size: 30 maximum

Curriculum links: Technology Mandatory, Design and Technology



Workshops cont.

Exploring lighting design STAGES 4–5 (YEARS 7–10)

The aim of the program is to introduce students to the practical as well as sculptural role of lighting. Working in groups, students investigate and draw a number of decorative and functional contemporary pieces of domestic lighting. Students undertake a detailed product analysis considering function, aesthetics and materials to determine which criteria has most affected the design process, then present their findings to the group for discussion.

Cost: \$10 per student / \$5 PSP

Duration: 1 hour 30 minutes

Bookings: Tuesday and Wednesday, 10am and 1pm

Group size: 30 maximum

Curriculum links: Technology Mandatory, Design and Technology



TEACHERS' EVENTS

Program Preview

Education Program Teachers' Preview FRIDAY 24 FEBRUARY 2012, 5.30PM FOR 6PM START.

Hear about the Museum's exciting new range of Educator-led activities and enjoy a complimentary viewing of *Harry Potter: The Exhibition*. This is a great opportunity to plan your visit to the Museum and meet the Education team over a glass of wine and nibbles. See hundreds of authentic film artefacts displayed in settings inspired by locations from another school you will no doubt be familiar with, Hogwarts™ School of Witchcraft and Wizardry. Places are limited, book today.

This exclusive event is for teachers and educators only and proof of teacher ID is required on the day.

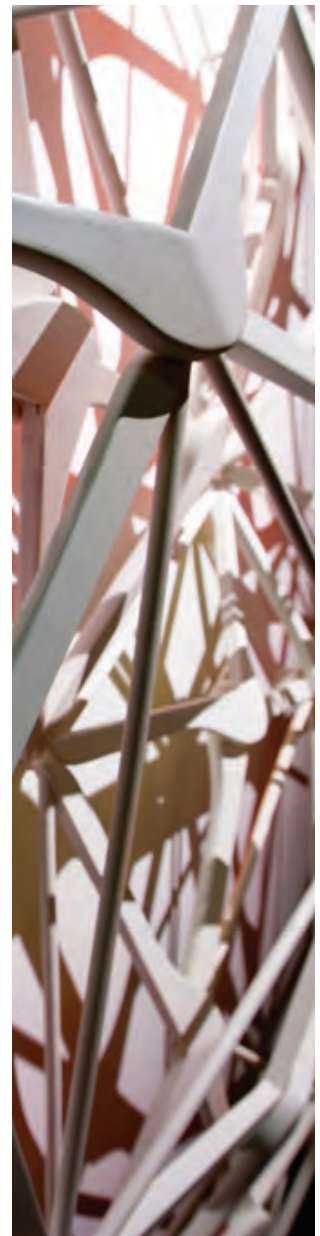
RSVP to michael.davidson@phm.gov.au by the end of week 1, Term 1.

If you miss this event, please subscribe to our education email newsletter at powerhousemuseum.com/education/subscribe to be kept in the loop about future opportunities.

Save the Date

Ultimo Science Festival HIGH SCHOOL DATES: TUESDAY 21 TO WEDNESDAY 22 AUGUST STAGES 4 TO 6

Celebrate Ultimo Science Festival with hands-on workshops, science careers panel and exhibitions at the Powerhouse Museum. At the career panels, students will have the opportunity to hear from young scientists as well as post-graduate students about the various career and education pathways available in the Science industries. Students will also have the opportunity to explore the science on display along Harris Street from other festival partners ABC, UTS and TAFE. To register interest or to find out more email info@ultimosciencefestival.com



ON THE DAY OF YOUR EXCURSION

How to get to the Powerhouse Museum

The Powerhouse Museum is at 500 Harris Street, Ultimo, close to Darling Harbour, Chinatown, Central Station (Sydney Terminal), Broadway bus station (Railway Square), and Paddy's Market monorail station.

Chartered buses

Buses can drop groups off and collect students at the Museum entrance on Harris Street, Ultimo. Coach parking is available on Darling Drive, Darling Harbour.

When you get here

Entry is via Harris Street. A staff member will meet you on arrival.

Self guided visits

If you have chosen a Self guided visit, you will have a brief induction by bookings staff, then you're free to set your own path through the Museum. Please note, priority access to some spaces is given to groups who have booked Educator-led programs.

Educator-led programs

Your entire visit will be facilitated by a Museum Educator and you'll receive priority access to spaces as necessary.

Lunch, recess and rest

We have a large, shady sheltered courtyard with tables and chairs for all visitors. You are welcome to bring a snack and lunch with you to enjoy during or after your visit. We also have a café where you can purchase food and drinks.

School bags

We provide cloaking bins for student bags but recommend that valuables are not taken into the Museum. The Powerhouse Museum takes all care but no responsibility for student belongings left in the cloaking bins.

Services for students with a disability

These services are available at the Powerhouse Museum:

- Parking for cars, vans and minibuses (two days notice required)
- A map showing ramps and lifts
- Wheelchairs for loan from level 3
- Accessible toilets
- Auslan interpreters (two weeks notice required)

email: edserv@phm.gov.au



FIND OUT MORE

To learn more and download resources, visit powerhousemuseum.com/education phone (02) 9217 0222 or email edserv@phm.gov.au