



WA's most exciting excursion destination!

The Gravity Discovery Centre is a unique facility which offers students the opportunity to explore the big questions about our Universe. It connects leading science research with students' lives and provides ways to develop deeper understandings of concepts within the Australian Curriculum.

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Purpose of the Excursion

The Gravity Discovery Centre aims to provide both primary and secondary students with an inspiring and engaging educational experience in an environment inspired by real science research.

Student outcomes include recognizing that *science is a human endeavor* in which theories are constantly evolving; that scientific knowledge has limitations; that scientific knowledge changes as new information is gathered; that science drives technological development and those developments drive science.

Exhibits in the Discovery Gallery will encourage students to explore concepts such as curved space, forces and motion, space-time, free-fall and gravity, quantum weirdness, magnetism and the evolution of the Universe.

The GDC aims to encourage students to consider career path options in the sciences; considering the possibility of WA hosting the Square Kilometer Array and the fact that physicists are confident that gravitational waves will be detected on earth within the next decade.

Environment

The GDC is set on approximately 10 hectares of pristine bushland on the Wallingup Plain, one hour drive North of Perth.

The main areas include:

- **Discovery Gallery:** An extraordinary array of unique, visual and hands-on exhibits representing themes of space and our Universe. Explore Einstein's space, the forces of the Universe, the effects of gravity, and the fascinating world of black holes.
- **Cosmology Gallery:** The gallery is home to the Timeline of the Universe, a complete and visual story of the evolution of the Universe, beginning at the Big Bang. There are also artworks representing various cultural perspectives of the Universe. Students can lay on the carpeted floor to watch the full dome projection movie *Black Holes*.

- **Zadko telescope:** One of the largest public telescopes in the Southern hemisphere with a 1m diameter mirror, the Zadko is used currently for research into gamma-ray bursts, near earth asteroids and space junk.
- **AIGO:** The Australian International Gravitational Observatory can be visited to gain insights into the research being conducted onsite.
- **Leaning Tower of Gingin:** This 180 tonne structure is the world's most leaning tower. Students can replicate Galileo's famous gravity experiments in Pisa, Italy, and conduct studies of impact craters. A climb up our tower is often the highlight of the day.
- **Solar System Walk:** A 1.1km scale model of the Solar System showing the planets with their moons along the way. Students experience the Solar System to a scale of 1 to 8 billion. Each step represents 4 million km.
- **Western Power Pendulum Tower:** A three-storey high structure housing a Foucault Pendulum, a coupled pendulum, a parametric pendulum and a spring pendulum. Depending on the level of the student group, these are used to prove the rotation of the Earth or to show a concrete example of energy efficiency. Teachers are welcome to lead experiments to measure the mass of the earth.
- **Theatre:** Initial presentations and an introductory DVD are conducted in our indoor theatre. The theatre is also used to present low-light exhibits such as relativistic distortion of rapidly moving objects.
- **Biodiversity Walk:** The outdoor area around the GDC building hosts a myriad of rare flora and fauna. The Wallingup Plain is located in one of the 12 biodiversity hotspots on Earth. A guided walk will highlight and identify species in this bushland.
- **Time Coil:** The 1.1km coil is used to illustrate the concept that telescopes are time machines which look into the past.
- **Biodiversity Gallery:** Exhibits a collection of flora and fauna. Students can look through microscopes at insects and creatures collected in the native bushland.
- **Shop and cafe:** The GDC has both a shop and café inside the venue.
- **Gingin Observatory:** The largest public astronomy facility in Australia is available for daytime solar viewing or evening stargazing. Costs apply.

Except for the Leaning Tower, all areas of the GDC are wheelchair accessible and a toilet for people with disabilities is available.

Accommodation Options

If required, there are various accommodation options available for an overnight stay nearby. Further information is provided in the school pack.

Transport

Transport is to be arranged by the school. There is ample free parking available on the grounds.

Students' Capacity

A school group visit to the Gravity Discovery is generally about 4 hours long. The Gravity Discovery Centre's school programs are designed to be linked to the Australian Curriculum.

Experienced GDC presenters lead activities for Year 3 to Year 12. Teacher-led activities include the Free Fall Experiment, Mass of the Earth Investigations and the Solar Walk. The complexity of the content presented is adjusted to the skill level of the group.

<p>There are many activities for students, including:</p> <ul style="list-style-type: none"> • replicate Galileo’s ground-breaking free fall experiment from the Leaning Tower of Pisa, Italy • study laws of planetary motion using our black hole model • investigate scale and distance in the Solar System • listen to the past and measure the speed of sound using the Time Coil
<p>Supervisor/Supervisory Team</p>
<p>Presenters at the Gravity Discovery Centre will assist in the case of an emergency. However, the school group is to be supervised by teachers and parents of the school group.</p>
<p>External Provider Information</p>
<p>All Gravity Discovery Centre education staff have a current Working With Children Check. Our public liability insurance is \$20 million and is insured with Westsure - Westfarmers Insurance. Policy Number 09 CPL 2316893. Further information will be provided upon request.</p>
<p>Supervision Strategies</p>
<p>GDC Presenters will assist you by greeting your group, conducting activities and tours of various parts of the precinct, facilitating students’ learning experience and liaising with teachers in regards to special requirements.</p> <p>The Gravity Discovery Centre recommends that teachers visit the GDC website prior to a visit. Pre-visit activities can be provided by our education manager.</p> <p>Our suggested ratios are one adult to ten students; however this is a recommendation only. This will vary according to the needs of your students.</p> <p>Some of the education programs involve students taking part in activities that involve heights – please stress the need for students to listen actively to all instructions and to read warning signs.</p>
<p>Identification of Excursion Participants</p>
<p>Schools are responsible for choosing a suitable method of identifying students and adult leaders.</p>
<p>Communication Strategies</p>
<p>The Gravity Discovery has normal mobile phone reception.</p> <p>We recommend that there be a couple of adults with mobile phones during the excursion. In an emergency, schools are welcome to use the landline at the reception desk.</p>

Emergency Response Plan

The Gravity Discovery has an emergency plan for the whole site. In the event of an emergency it is important that all visitors take directions from Gravity Discovery Centre staff members. If evacuation is required, all visitors will be assembled in the theatre which is the designated safe area. Teachers will be required to complete a roll call and must immediately notify Gravity Discovery Centre staff if any students are missing.

Teachers can increase safety by always ensuring that they provide suitable adult-children ratios (1 adult supervisor per 10 students is recommended) and by regularly encouraging students to stay in groups with their adult supervisor.

Teachers need to be aware that if evacuation is required during an emergency, such as bush fire, the school transportation will be required onsite to facilitate this. The Gravity Discovery Centre does not have a bus on site for use in such emergencies.

Briefing Students and Supervisors

Before commencing the school program, a GDC presenter will address the whole group to:

- Welcome everyone
- Briefly describe the purpose of the GDC
- Caution those with pacemakers about strong magnetism in the gallery
- Brief everyone present of the Emergency Evacuation Procedures
- Raise awareness of the unlikely possibility of snake bite, ticks or bee stings

Impress upon every one the need to adhere absolutely to the safety precautions regarding the Leaning Tower. Teachers will be required to supervise students and help them follow the procedure of the experiments.

Other Relevant Details

The Gravity Discovery Centre is open to schools and general public.

GDC is opened Tuesdays to Sunday 9.30am – 5.00pm, and Mondays during school holidays and on Public Holidays.

To make a booking, email bookings@gdc.asn.au or call 9575 7577 Tuesdays to Fridays. Alternatively, booking forms are available on the GDC website www.gravitycentre.com.au

The postal address is PO Box 313, Gingin, WA, 6503.

This information is valid until 31 January 2013

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