

## About the Planetarium...

The planetarium is located at the *University of South Australia Mawson Lakes* and is part of the *UniSA STEM Unit*.

It contains a *Zeiss ZKP-1* star projector that simulates the starry sky on an 8 metre dome and has seating for 45. The projector provides a remarkably realistic sense of being under the real night sky. It is used to show the sky as seen from the southern hemisphere, pointing out constellations, the Milky Way, the Magellanic Clouds and where to look for planets. It also demonstrates the general celestial motions that cause the sky to appear different at various times of the night and year.

The planetarium is also equipped with a 1.6k projection system by which our astronomy educators take the audience on a virtual guided tour of the solar system and the universe and plays our full dome movies.

We accommodate the level of information from junior primary school to adult level.



While it is one of the smaller planetaria (yes that's the plural) in Australia, it has the advantage that we can interact with the audience and their questions. We find this often provides a unique and rewarding experience for the visitor.

## How to get the best out of the Planetarium experience...

Students that are prepared in advance with some information about the solar system, space exploration and stars are more likely to ask questions and get value from the session.

Sessions are pitched at the age grade level so that information and the experience can be easily followed. A good place to start with basic information aimed at different age levels can be found at this weblink: <http://www.ucar.edu/>

Monthly Southern Star maps can be downloaded for free from this weblink: <http://skymaps.com> be sure to select the southern hemisphere version for the current month. We follow the SACSA Framework Strand: Earth and Space. Some topic ideas for students to research or ask about during their planetarium session:

### Sky and Space

- What are constellations
- What is the difference between a star and planet
- Why does the Moon change phases during the month
- How the cycles of the Sun and Moon affect us on Earth
- Animals that use the stars for navigation
- How far out have humans travelled in space
- What can a pair of binoculars show in the sky

### Solar System topics

- The order and distances of planets
- Difference between rocky planets and gas giants
- Why are gas giants so big and rocky planets small
- Where do asteroids and comets come from
- How was the moon formed
- About planetary exploration with space craft
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### Basic questions about the stars

- What is a star
- How are they formed, how do they die
- The nature of the Milky Way (is it a galaxy)
- How big is the Milky Way
- How old is the universe
- What are black holes
- Have we found life out in space



There are also hand outs and worksheets available on the Planetarium website, great resources for school use.

### Some useful information when visiting the Planetarium...

As the planetarium is located within the *UniSA STEM Unit* there are often classes and tutorials in progress in adjacent rooms. **We ask that your student's noise level be kept to a minimum as they enter the building and head up the stairs and while entering the planetarium.**

- ◆ Please arrive **10-15mins before** your scheduled session to allow students to use the toilet facilities and be ready in the foyer area on level 2 to begin at the allocated time.
- ◆ Toilets are located on level 2, same level as the Planetarium, diagonally across the foyer.
- ◆ When inside the planetarium we ask that students respect the equipment and chairs.
- ◆ Please refer to the Booking Form for prices.
- ◆ The Planetarium has a maximum seating capacity of **45 people**.
- ◆ Mobile phones should be turned off. No torches or other lights are allowed.
- ◆ Be aware that the lights will be turned down and it will be dark for most of the session.
- ◆ If you want to take photos inside the planetarium please ask the astronomy educator running your session.
- ◆ A session lasts for approx. 50 minutes, extended sessions can be arranged prior to your visit with the Planetarium Coordinator. \*extra charges will apply.
- ◆ A parking information sheet is attached with the booking form.
- ◆ There is a lift located in the building for access up to level 2.

TO BOOK: call reception on 8302 3138 or email: [adelaide.planetarium@unisa.edu.au](mailto:adelaide.planetarium@unisa.edu.au)

***We trust that you and your students will find the planetarium visit educational and enjoyable!***

## Why not add a Movie to your session?

They are fun, educational and the students love them!

### Tycho to the Moon

'Tycho to the Moon' is a show produced especially for the kids - shown on the Planetarium 360 degree full digital dome. Tycho is the dog that doesn't just howl at the moon...he goes there. Blast off on an amazing ride with Tycho and his friends, Ruby and Michael on a great adventure in space. Learn about night and day, phases of the moon, space travel and the lunar surface. See what it is like to play in zero gravity, watch meteors shoot across the night sky, witness earth from space and get a close up look at the sun.

**Suitable for:** Year level Preschool - 3

**Movie Duration:** 20 minutes



### Tilt

Join Annie and Max and their robot friend as they fly into space to discover how the seasons work. They examine the apparent path of the Sun and the tilt of the Earth to find out about the day-night cycle and why it is different at different places on Earth and at different time of the year. They understand how the seasons are opposite in the Northern and Southern Hemispheres and are caused by two factors, the tilt of the Earth and the path of the Earth around the Sun.

**Suitable for:** Year level 2-5

**Movie Duration:** 25 minutes



### Secret of the Cardboard Rocket

Join two young adventurers on a magical journey through the Solar System with guidance from a talking astronomy book, a cardboard rocket, and a vivid imagination. During this imaginative show, audiences will land on Venus, fly through the rings of Saturn and discover the secrets of the Solar System.

**Suitable for:** Year level 2 - 4

**Movie Duration:** 30 minutes



## Astronaut

The exploration of space is the greatest endeavour that humankind has ever undertaken. What does it take to be part of this incredible journey? What does it take to become an astronaut? Experience a rocket launch from inside the body of an astronaut. Explore the amazing worlds of inner and outer space, from floating around the International Space Station to manoeuvring through microscopic regions of the human body.

Discover the perils that lurk in space as we subject 'Chad', our test astronaut, to everything that space has to throw at him.

**Suitable for:** Year level 3 upwards

**Movie Duration:** 23 minutes



## Wildest Weather in the Solar System

Join National Geographic on a spectacular journey to witness the most beautiful, powerful, and mysterious weather phenomena in the solar system. From a storm the size of a 100-megaton hydrogen bomb, to a 400-year-old hurricane, to a dust storm that could engulf entire planets. Audiences will fly through the thick atmosphere of Venus, encounter magnetic storms on the sun, liquid methane showers on Titan, and anticyclones whirling at hundreds of miles per hour on Jupiter. Packed with eye-popping visuals, amazing computer generated imagery and cutting-edge science.

After this whirlwind adventure, you'll be glad you live on Earth!

**Suitable for:** Year level 4 upwards

**Movie Duration:** 20 minutes



## Cosmic Collisions

A radical change from our peaceful night sky. Cosmic Collisions presents the spectacular result of gravity pulling together planets, stars, and galaxies. Here are explosive encounters that ended the age of the dinosaurs and gave birth to new stars, but also created conditions essential for life on earth the Sun's warmth, ocean waves. Cosmic Collisions provides an extraordinary view of these forces - constructive or catastrophic - that continue to affect our universe.

**Suitable for:** Year level 5 upwards

**Movie Duration:** 23 minutes



## The Sun, Our Living Star

The Sun has shone on our world for four and half billion years. The light warms our skin today has been felt by every person who has ever lived.

It is our nearest star and our planet's powerhouse, the source of the energy that drives our winds, our weather and all life.

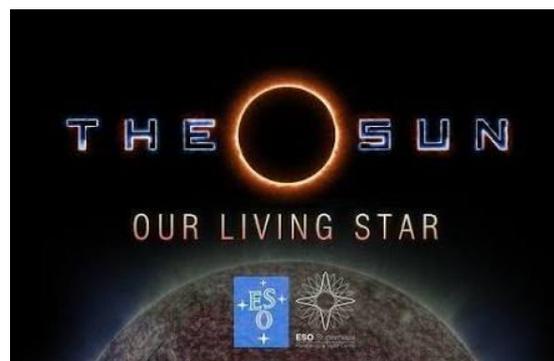
The passage of the Sun's fiery disc across the sky – day by day, month by month – was the only way to keep track of time for countless past civilisations.

Don't be fooled by the terminology; although it is a typical dwarf star, the Sun consumes 600 million tons of hydrogen each second and is 500 times as massive as all the planets combined.

Discover the secrets of our star in this Planetarium show and experience never-before-seen images of the Sun's violent surface in immersive full-dome format.

**Suitable for:** Year level 5 upwards

**Movie Duration:** 25 minutes



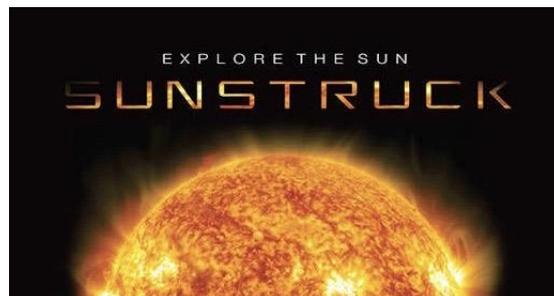
## Sunstruck

Travel back to the beginning of time and experience the birth of the Sun. Discover how it came to support life, how it threatens life as we know it, and how its energy will one day fade away.

A visually captivating experience and easy to understand dialogue makes it a great one for students.

**Suitable for:** Year level 5 upwards

**Movie Duration:** 21 minutes



## MOON 2019

First steps on another world – The 50<sup>th</sup> Anniversary of the Apollo Moon Landing. This full-dome movie commemorates Apollo 11's touchdown and exploration at Tranquillity Base on 20 July 1969.

This remarkable event was a watershed in human history and a technological achievement of astounding proportions: the mission went to the Moon and back with less computing power than a modern smart phone.

This brilliant documentary reveals the origins of Werner von Braun, the man who dreamed from age 16 of sending rockets into space, and how his infamous V1 and V2 missiles became the blueprint of NASA's most famous rocket of all: the Saturn V.

**Suitable for:** Year level 5 upwards

**Movie Duration:** 12 minutes



## The Hot and Energetic Universe

The Hot and Energetic Universe presents with the use of stunning, immersive visualisations and real images the achievements of modern astronomy, the most advanced terrestrial and orbital observatories, the basic principles electromagnetic radiation and the natural phenomena related to High Energy Astrophysics.

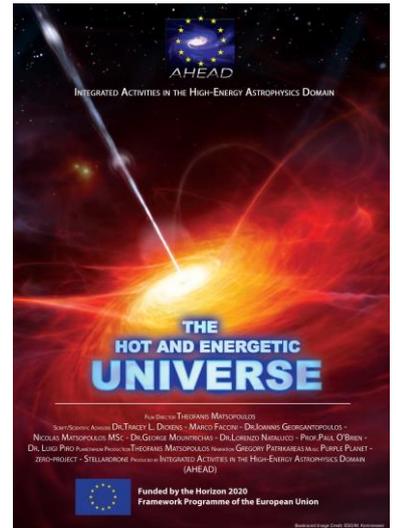
High Energy Astrophysics plays a key role in understanding the universe. These radiations reveal the processes in the hot and violent universe.

High Energy Astrophysics probes hot gas in clusters of galaxies, which are the most massive objects in the universe. It also probes hot gas accreting around supermassive black holes in the centres of the galaxies.

Finally, high energy radiation provides important information about our own galaxy, neutron stars, supernova remnants and stars like our Sun which emit copious amounts of high energy radiation.

**Suitable for:** Year level 7 upwards

**Movie Duration:** 30 minutes



## From Earth to the Universe

The night sky, both beautiful and mysterious, has inspired awe and been the subject of campfire stories, and ancient myths for as long as there have been people. A desire to comprehend the Universe may well be humanity's oldest shared intellectual experience. Yet only recently have we truly begun to grasp our place in the vast cosmos.

To learn about this journey of celestial discovery, from the theories of the ancient Greek astronomers to today's grandest telescopes, we invite you to experience From Earth to the Universe. This stunning, 30-minute voyage through space and time conveys, through sparkling sights and sounds, the Universe as revealed to us by science.

**Suitable for:** Year level 7 upwards

**Movie Duration:** 32 minutes



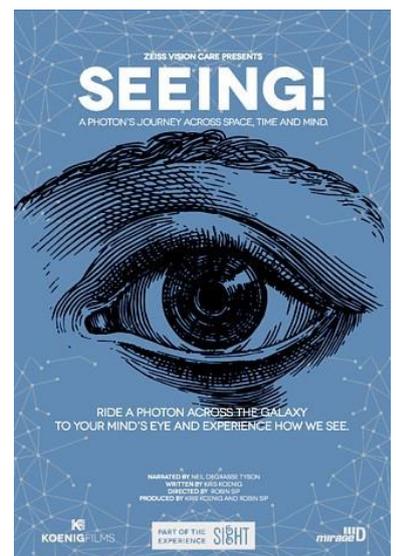
## SEEING! A PHOTON'S JOURNEY ACROSS SPACE, TIME AND MIND

Follow the journey of a single photon as it is produced in a distant star, before travelling across the vast expanse of space to land on someone's retina. This fulldome planetarium show explores some of the fascinating processes of the cosmos, from astrophysics to the biology of the eye and brain.

This show is narrated by astronomer and science communicator, Neil deGrasse Tyson.

**Suitable for:** Year level 7 upwards

**Movie Duration:** 26 minutes



## Capturing the Cosmos

Australian Astronomers today are exploring the universe on a grand scale. But knowing what's out there is just the first step. Putting the pieces together to unlock the mysteries of the universe is the ultimate goal. Discover the new astronomy being carried out under the breathtaking skies of the Australian outback. What will be learnt about our place amongst the stars?

**Suitable for:** Year level 8 upwards

**Movie Duration:** 27 minutes



## Phantom of the Universe – The Hunt for Dark Matter

Phantom of the Universe is an exciting exploration of dark matter, from the Big Bang to its anticipated discovery at the Large Hadron Collider.

Narrated by Tilda Swinton, this amazing story reveals the first hints its existence. It describes the astral choreography witnessed by Vera Rubin in the Andromeda galaxy and then plummets deep underground to see the most sensitive dark matter detector on Earth, housed in a former gold mine.

From there, it journeys across space and time to the Large Hadron Collider at CERN, speeding alongside particles before they collide in visually stunning explosions of light and sound.

**Suitable for:** Year level 8 upwards

**Movie Duration:** 28 minutes



## EINSTEIN'S GRAVITY PLAYLIST

Join Lucia, a PhD student in physics, on an exploration of how gravitational waves are formed, how they move through the universe, and how scientists like her work to hear them.

**Suitable for:** Year level 9 upwards

**Movie Duration:** 23 minutes

