VSSEC: A State-of-the-Art Centre for Science Education

The Victorian Space Science Education Centre (VSSEC) is a specialist science centre established by the Victorian State Government. It was officially opened in 2006 and uses the context of space to engage teachers and students in the teaching and learning of science. All areas within the centre are supported by an integrated system technology which supports a rich learning environment.

VSSEC is situated in the grounds of Strathmore Secondary College and its inspiring spiral-galaxy shaped building, designed by Gregory Burgess Architects, offers a stimulating environment for hands-on learning.

VSSEC applies the latest educational research to develop effective programs for both students and teachers. To maintain the highest level of excellence in both pedagogy and science content VSSEC has established partnerships with universities, industry, education and the government. VSSEC’s programs support dedicated subject and cross-curricula domains. These programs are delivered in context and highlight career and study paths. VSSEC also offers a range of outreach programs for Primary School students and events to engage the general public.

Mission to Mars

Mission to Mars is a daylong space science experience for Year 9 and 10 students. Students work as a team and use all their problem solving skills to successfully complete their Mission. During the day all students act as Astronauts, Mission Controllers and Research Scientists.

Mission Control Officers are responsible for the safety of the astronauts and success of the scientific mission on the Mars surface. From Mission Control they monitor the astronauts’ vital signs and spacesuit functions, as well as the environmental conditions on Mars.

Astronauts don spacesuits, collect their equipment, depressurise in the Airlock, and step out onto the Martian surface. Students collect real soil and rock samples, drill an ice core, conduct a thermal survey and undertake a seismic experiment.

After their return to Earth, students take on the role of Research Scientists to analyse their samples and undertake further scientific investigations in the Laboratory.

Mission to the Orbiting Space Laboratory

Mission to the Orbiting Space Laboratory (MOSL) is a daylong space science experience for Year 9 and 10 students. Students work as a team and use all their problem solving skills to successfully complete their Mission. During the day all students act as Astronauts, Mission Controllers and undertake a range of Human Physiology tasks.

Before their mission students undertake fitness assessments to see if they have the right stuff to become an astronaut. After being cleared for flight, students are briefed on their mission and sent to the orbiting Space Laboratory where they work together to complete a range of scientific experiments.

This mission is conducted under the direction of Mission Control who monitors the systems of the space laboratory and track Near Earth Objects for potential collision.
VCE Chemistry

VCE Chemistry Unit 3: Chemical Pathways, Area of Study 1: Chemical Analysis, Outcome 1: Contemporary Chemical Analysis

All instrumental analysis is performed directly by the students including the calibration of the instruments and the preparation and use of standard solutions. All students will use the Atomic Absorption Spectrometer, the UV-Visible Spectrometer and the Gas-Liquid Chromatograph. This is an opportunity for students to experience what it is like to work in a chemical laboratory while still at school.

VCE Astronomy and Astrophysics

VCE Physics Unit 1: Detailed Study 3.1 Astronomy

During this full day program students cover all the key knowledge and skills for this Detailed Study. They explore the stars and motion of the planets using a variety of software packages including Stellarium. Using the CLEA software students observe the moons of Jupiter and use their data to calculate the planets mass.

By the end of this program students will understand how to handle a telescope and have an appreciation of Australia’s contribution to the field of Astronomy including the Square Kilometre Array (SKA) and AASTINO optical telescope at Dome C in Antarctica.

VCE Physics Unit 2: Detailed Study 3.1 Astrophysics

On completion of this full day program students will have covered all the key knowledge and skills for this Detailed Study, which includes describing and explaining methods used to gather information about stars and other astronomical objects, and relating this information to models of the nature and origin of the Universe.

Students will tour the galaxy gathering data using the Galactic Explorer software designed by the Games Technology Centre at La Trobe University.

Teacher Professional Learning

VSSEC offers a range of Professional Learning Programs for teachers. These programs are designed to build subject knowledge and instructional competency, and introduce teachers to new ways of increasing student engagement in science. All programs have a significant hands-on component and draw on the E² Instructional Model and its application in the classroom.

Each of VSSEC’s student programs is supported by a Teacher Professional Learning Program to give teachers the skills to support them in getting the maximum benefit from their visit to VSSEC. The professional Learning programs at VSSEC are designed for small groups of teachers to provide an intimate learning experience and access to experts in the relevant fields.

All VSSEC’s Professional Learning Programs comply with the Victorian Institute of Teaching Standards of Professional Practice for Renewal of Registration

Professional learning programs to be run in 2009 include:

- Teaching Geology: Earth v Mars
- Teaching Astronomy & Astrophysics in the International Year of Astronomy
- Teaching Science in Context
- VCE Instrumental Analysis

Please visit our website www.vssec.vic.edu.au for other programs and more details.