

National Science Week

Art is the queen of all sciences, communicating knowledge to all the generations of the world

—Leonardo da Vinci

Art and science

To many people these two areas can seem like polar opposites, right brain, and left brain. The perception of the creative, unconventional artist who brings images to life, seemingly out of thin air in contrast to the considered, methodical and process driven scientist realising their goals through the rigorous application of logic.

We now know, however, that the ways in which artists and scientists work is actually much closer than we thought, and at the heart of this connection is our growing understanding of the creative mind.

Artists and scientists work in practical, experimental places; the studio and the laboratory. Successes and failures are part of the process of open-ended enquiry and a strong commitment to learning through the continuous feed-back loop between thinking and doing.

The 2018 National Science Week theme looks at *Game Changers and Change Makers*. It offers us time to further develop our understanding of the creative mind of both the artist and the scientist; to think about and perhaps answer some of the big questions of our time.

Around the world there is growing recognition by educators and employers of the importance of Science, Technology, Engineering and Maths as the key knowledge bases required for this century. These so-called STEM subjects are increasingly relevant to how we participate in a complex, digital, hi-tech and ever-changing world.

The Geelong Gallery has created a series of STEM themes through our permanent collection display to offer perspectives that bring art, science and ways of seeing together in a new way.

The significance of hexagons

Hexagons are one of the most amazing shapes in nature, science and maths.

They occur naturally as the building block of beehives: this is because the hexagon is the most efficient way to fill a space without any gaps and using the least amount of material.

For bees this means they do not waste any excess wax, which is biologically laborious for bees to make.

A lot of crystals are also made of hexagons and snowflakes are also in this shape. Water freezes in the shape of hexagons and soap bubbles also form hexagons where they meet.

In our world the element carbon is the building block of all life and the way carbon forms the rings that make up organic compounds is known as a benzene ring. This is also shaped like a hexagon.

Hexagonal structures are very stable and are also used in engineering for providing the greatest strength without excess weight.

COVER

Weaver Hawkins

A dying tree 1970

oil on masonite

Geelong Gallery

Purchased 1977

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55 Little Malop Street

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Key to STEM themes

There are five short STEM themes to follow through Geelong Gallery's permanent collection. Each theme is identified by a coloured hexagon, and there are three pictures in each section.

Change how we see

When we look at objects, paintings or the world around us, we can take in information at different levels.

Even looking at something as simple as a flower can make us think differently about exactly what we are seeing.

In this section we will look at three views of the natural world and ask how they might tell us how scientists view their surroundings.



Understand how our world works

In this section we will follow three artists as they view trees and look at how our scientific understanding has changed.



What we do matters

In this section we look at a number of paintings of our coastline in more detail.

The National Science Week program specifically looks at reefs, the marine environment and pollution of our oceans. 2018 is International Year of the Reef.



Making a positive difference—science and the environment

Artists often touch our emotions and activate our senses through their work. In this section we will look at three artists that confront issues of climate change through their art and aim to make a difference in challenging our ideas.



What choices do we have?

Genetic technologies are advancing quickly and raise important ethical questions that are explored in these three works.





Margaret Preston

Coastal gums 1929

oil on canvas

Geelong Gallery

On loan from the Cbus Collection of Australian Art,
as advised by Dr Joseph Brown

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James W Sayer
The Cowrie Pool, Torquay c. 1896
oil on canvas
Geelong Gallery
Purchased 1930

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James W Sayer
The Cowrie Pool, Torquay c. 1896
oil on canvas
Geelong Gallery
Purchased 1930

The Cowrie Pool, Torquay

This painting is interesting both because of the image it portrays but also because of its unusual frame.

It shows children gathered around a rock pool in Torquay hunting for those elusive gems of the shoreline, cowrie shells. Many people still walk the beaches of our coastline hoping to find one of these beautiful tropical shells.

Can you spot the cowries hiding among the other shells in the frame?

Look at the photographs of cowries to the right. Have you ever found one?

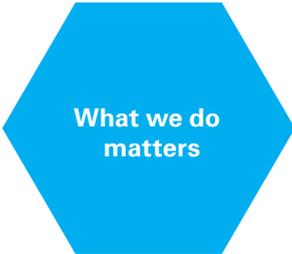
Since ancient times cowries have also been highly prized and have been used also as currency at times. Can you imagine using a shell to pay for something?

Cowries are interesting to scientists too, since they live mainly in tropical areas and their arrival on our beaches can indicate the movement of ocean currents.

Did you also know that the Cowrie is the shell of a predatory animal that emerges from rock crevices to feed at night on sponges and algae?



Photographer: Bernard Dupont



RE Falls
Port Phillip Heads 1888
oil on canvas
Geelong Gallery
Gift of HG Oliver, 1934

Port Phillip Heads

This painting, by the Heidelberg School artist RE Falls, shows us the entrance to Port Phillip Bay in 1888.

It is a view still familiar to many and seems unchanged, however, this is deceptive. Did you know that only 6,000 years ago Port Phillip Bay was a shallow basin of rivers and land rich with wildlife hunted by the local Indigenous population until it flooded at the end of the last Ice Age?

Change is part of the environment in which we live; however man-made change is accelerating its effect on the environment.

Port Phillip Bay is now a large and busy port, with over 4,000 ships coming through these heads every year. Did you know that global shipping affects the marine environment through pollution, discharge of ballast water, wildlife collision and even sound disturbance of marine mammals? We can protect the sea through continuing regulation of shipping lanes and the creation of marine reserves.

To watch the official trailer for A Plastic Ocean visit geelonggallery.org.au/national-science-week



Billy Benn Perrurle

Artetyerre 2009

synthetic polymer paint on canvas

Geelong Gallery

Gift of James Cousins AO and Libby Cousins through the

Australian Government's Cultural Gifts Program, 2017

© Billy Benn Perrurle/Copyright Agency, 2018

Photographer: Andrew Curtis

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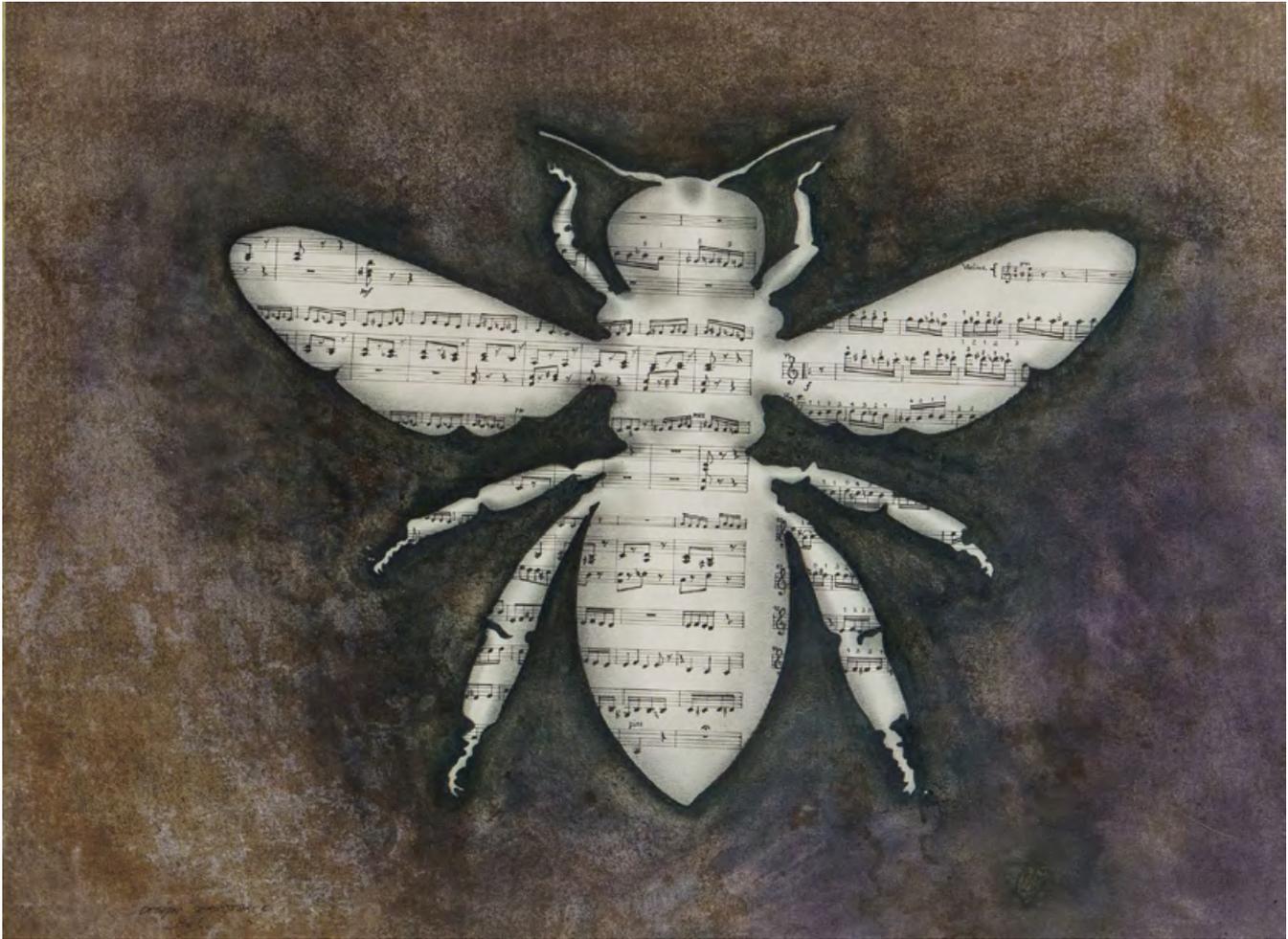
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Trevor Jones

Design structure for Concerto in B sharp c. 1977

pen and ink and coloured pencils

Geelong Gallery

Gift of the artist, 1979

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Jenny Watson

Country Road, Wandin 1987 1988

oil, synthetic polymer paint and mixed media on canvas
Geelong Gallery

Purchased with the assistance of the Visual Arts Board
of the Australia Council, 1988
Reproduced courtesy of the artist

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Visit the Geelong Gallery

Visits and Bookings

To gain the maximum benefit from your visit to the Gallery we suggest that educators visit the Gallery in advance and view the relevant exhibition or discuss the works with the Gallery Educator.

Pre-visit information

To help us conserve works in the Geelong Gallery's renowned collection for current visitors and future generations to enjoy, we recommend the following:

- Prior to your visit, educators/supervisors to brief students on appropriate behaviour in the Gallery (eg walking in the Gallery, listening to instructions and not touching the exhibits)
- Students should take care entering and leaving the building from and to the bus
- Food and drinks are not allowed inside the Gallery
- Please consider other visitors
- Educators to accompany their group at all times during their visit
- Stools and clipboards are available for student use
- Only pencils are to be used in the Gallery

Cost

An entry fee of \$5 per student will apply to school groups wishing to visit Geelong Gallery and experience a tour led by the Gallery Educator. Self-directed school groups may visit the Gallery free-of-charge.

Bookings

Bookings are essential for all Learn programs and group visits: T 03 5229 3645

learn.booking@geelonggallery.org.au

Getting to the Gallery

The Geelong Gallery is located in Johnstone Park. The entrance is in Little Malop Street, in Geelong's arts precinct.

Travelling by train—a three minute walk through Johnstone Park to the Gallery.

Travelling by bus—Arrangements for bus parking can be made with your Gallery booking.

Annual Learn program partners



Peggy and Leslie Cranbourne Foundation



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