



ART GALLERY OF SOUTH AUSTRALIA

NORTH TERRACE, ADELAIDE Open daily 10am–5pm artgallery.sa.gov.au



HOW TO USE THIS RESOURCE

The activities suggested in this resource link with the Australian Curriculum: Arts (Visual Arts) and through the strands of Responding and Making, provide opportunities for students to experience and explore the concepts of artists, works of art, world and audience. These can be used as a starting point to consider a range of perspectives within the context of social, cultural and historical viewpoints.

Some of the ways students can learn more about art include:

- Responding by using their eyes, ears and imaginations;
- Discussing how and why works are made (and displayed);
- Investigating the diversity of contemporary art forms;
- Exploring techniques and materials; and
- Making by experimenting with new or familiar materials.

AUSTRALIAN CURRICULUM SCIENCE STRANDS (F–10)

SCIENCE UNDERSTANDING

- Biological
- Chemical
- Earth and Space Sciences
- Physical Sciences

SCIENCE AS HUMAN ENDEAVOUR

- Nature and development of science
- Use and influence of science

image detail (front cover): Frank Hinder, *Australia*, 1906–1992, *Subway escalator*, 1953, Sydney, tempera, oil on canvas laid on composition board, 92.8 x 72.5 cm; Elder Bequest Fund 1972, Art Gallery of South Australia, Adelaide



SCIENCE ENQUIRY SKILLS

- Questioning + Predicting
- Planning + Conducting
- Processing + Analysing data and information
- Evaluating
- Communicating

SCIENCE: KEY IDEAS

- Patterns, order and organisation
- Form and Function
- Stability and change
- Scale and Measurement
- Systems
- Matter and Energy

CROSS CURRICULUM PRIORITIES

- Aboriginal and Torres Strait Islander Histories and Cultures
- Asia and Australia's Engagement with Asia
- Sustainability

GENERAL CAPABILITIES

- Literacy
- Numeracy
- Critical and Creative Thinking
- Cultural Understanding
- Ethical Understanding
- ICT

SUGGESTED PRE-VISIT LEARNING ACTIVITIES:

- List similarities between art and science.
- Compare the role of an artist and a scientist. How different are they?
- Play a word association game, one for art and another for science – are there any words that are repeated?
- Identify some artists who rely on science for inspiration.
- Imagine if we erased art or science from the universe? Brainstorm how different our world would be.

The Gallery's Learning programs are supported by the Department for Education and Child Development.

Information and hyperlinks correct at time of print. Art Gallery of South Australia staff Kylie Neagle and Lisa Slade contributed to the development of this resource.

RELATED WORKS IN THE COLLECTION

As the Gallery aims to showcase its vast collection, different works of art may be on display from time to time. In the event of any changes, we have compiled a list of works of art in the Gallery's collection that also have science connections. While they have been grouped into their strands, some may address more than one area.



image: Ricky Swallow, Australia, 1974, *The exact dimensions of staying behind*, 2004–05, London, laminated lime wood, 70.0 x 110.0 x 105.0 cm; Maurice A. Clarke Bequest Fund 2013, Art Gallery of South Australia, Adelaide

CHEMICAL

- John Perceval, *Angel Winkie*, 1959.
- Trent Parke, *Moving bus*, 2003.
- Robyn Stacey, *Fontaine de Vaucluse*, 2009.
- Darren Siwes, *Stand (monument)*, 1999.
- Anne Ferran, *Untitled (blue wedding gown #1)*, 2003.
- Samuel Sweet, *Second Waterfall, (Waterfall Gully)*, 1870s.
- F. Scott Broad, *Studio portrait of woman surrounded by ferns and palms*, 1891–99.
- Kevin Grey, *Serriform silver*, 2013.
- Justine Varga, *Infection*, from the series *Memoire*, 2016.

PHYSICAL SCIENCES

- Bridget Riley, *Series 33 orange and magenta added to green and violet in two colour twist*, 1979.
- Sol LeWitt, *Tangled Bands*, 2002.
- Camille Pissaro, *Prairie à Éragny*, 1886.
- Margaret Turner Apetyarr, *Bush Orange Dreaming*, 2004
- Robyn Stacey, *Lighthouse Wharf Hotel, Port Adelaide*, 2016.

BIOLOGICAL

- Julie Blyfield, *Acacia vessel*, 2007.
- Catherine Truman, *Palm up*, 2002.
- Sandra Selig, *Universes*, 2006–08.
- Junko Mori, *Propagation Project: Windy leaf*, 2012.
- Ricky Swallow, *The exact dimensions of staying behind*, 2004–05.
- Sarah Kay, *Epacris*, c 1880s, (The Gallery has a large collection of works on paper by Sarah Kay – see our online collection for more details)
- Fiona Hall, *Cell culture*, 2002.
- Marc Quinn, *Buck with cigar*, 2009.



SCIENCE AS HUMAN ENDEAVOUR: NATURE AND DEVELOPMENT OF SCIENCE & USE AND INFLUENCE OF SCIENCE

- Kunmanara Queama and Hilda Moodo, *Destruction I*, 2002.
- Frank Hinder, *Subway escalator*, 1953.
- Wolfgang Sievers, *Manufacture of matches at Bryant May, Richmond, Melbourne*, 1939.
- Patricia Piccinini, *Big mother*, 2005.
- Wim Delvoye, *Untitled (Robert)*, 2004.
- Berlinde De Bruyckere, *We are all flesh*, 2011–12.

image: Camille Pissarro, France, 1830–1903, *Prairie à Éragny*, 1886, Éragny, France, oil on canvas, 59.4 x 73.0 cm; Gift of the Gwinnett Family, James and Diana Ramsay Foundation, Roy and Marjory Edwards Bequest Fund, Margaret Olley Art Trust, Helen Bowden, Frank and Mary Choate, Peter and Pamela McKee, Emeritus Professor Anne Edwards AO, David and Pam McKee, and Members through the Art Gallery of South Australia Foundation Masterwork Appeal 2014, Art Gallery of South Australia, Adelaide

RESOURCES

Ede, S. *Art and Science*, I.B Tauris, London, 2005

Myers, W. *Bio-Art: Altered Realities*, Thames and Hudson, London, 2015

Nicholson, E. (Ed.), *Art & Science: A Curriculum for K-12 teachers from the J Paul Getty Museum*, Los Angeles, Paul Getty Trust, 2013

Rhodes, Lynette I. *Science within Art*. Cleveland, Ohio: Cleveland Museum of Art, 1980.

Strosberg, E. *Art and Science*, United Nations Educational, Scientific and Cultural Organisation, New York, USA, 2015

Wilson, S. *Art + Science*, Thames and Hudson, London, 2010

EXHIBITION CATALOGUES

Converge: Where Art and Science Meet, 2002 Adelaide Biennial of Australian Art, Art Gallery of South Australia, 2002

Day, C. & Tutton, S. *Before and After Science: 2010 Adelaide Biennial of Australian Art*, Art Gallery of South Australia, 2010

Handle with Care exhibition catalogue, Art Gallery of South Australia, 2010

Messenger, J. *Patricia Piccinini: Once Upon a Time* catalogue, Art Gallery of South Australia, 2011

Thomas, S. *Chemistry: Art in South Australia 1990–2000 The Faulding Exhibition*, Art Gallery of South Australia, 2000.

WEBSITES

Art Institute of Chicago: Science, Art and Technology
www.artic.edu/aic/education/sciarttech/2a1.html

Art and Science Journal
www.artandsciencejournal.com/

From STEM to STEAM: Art and Science Go Hand in Hand
www.blogs.scientificamerican.com/guest-blog/from-stem-to-steam-science-and-the-arts-go-hand-in-hand/

SymbioticA,
www.symbiotica.uwa.edu.au/courses/mbiolarts

Synapse: Art Science Collaborations
www.synapse.net.au/

When Two Tribes Meet: Collaborations between Artists and Scientists.
www.theguardian.com/artanddesign/2011/aug/21/collaborations-between-artists-and-scientists



image detail: Robyn Stacey, *Australia, 1952, Lighthouse Wharf Hotel, Port Adelaide*, 2016, Port Adelaide, type C photograph, 110.0 x 161.7 cm; Gift of David and Pam McKee through the Art Gallery of South Australia Foundation 2016, Art Gallery of South Australia, Adelaide

THE RELATIONSHIP BETWEEN ART AND SCIENCE



“The most important quality of art and science is curiosity”

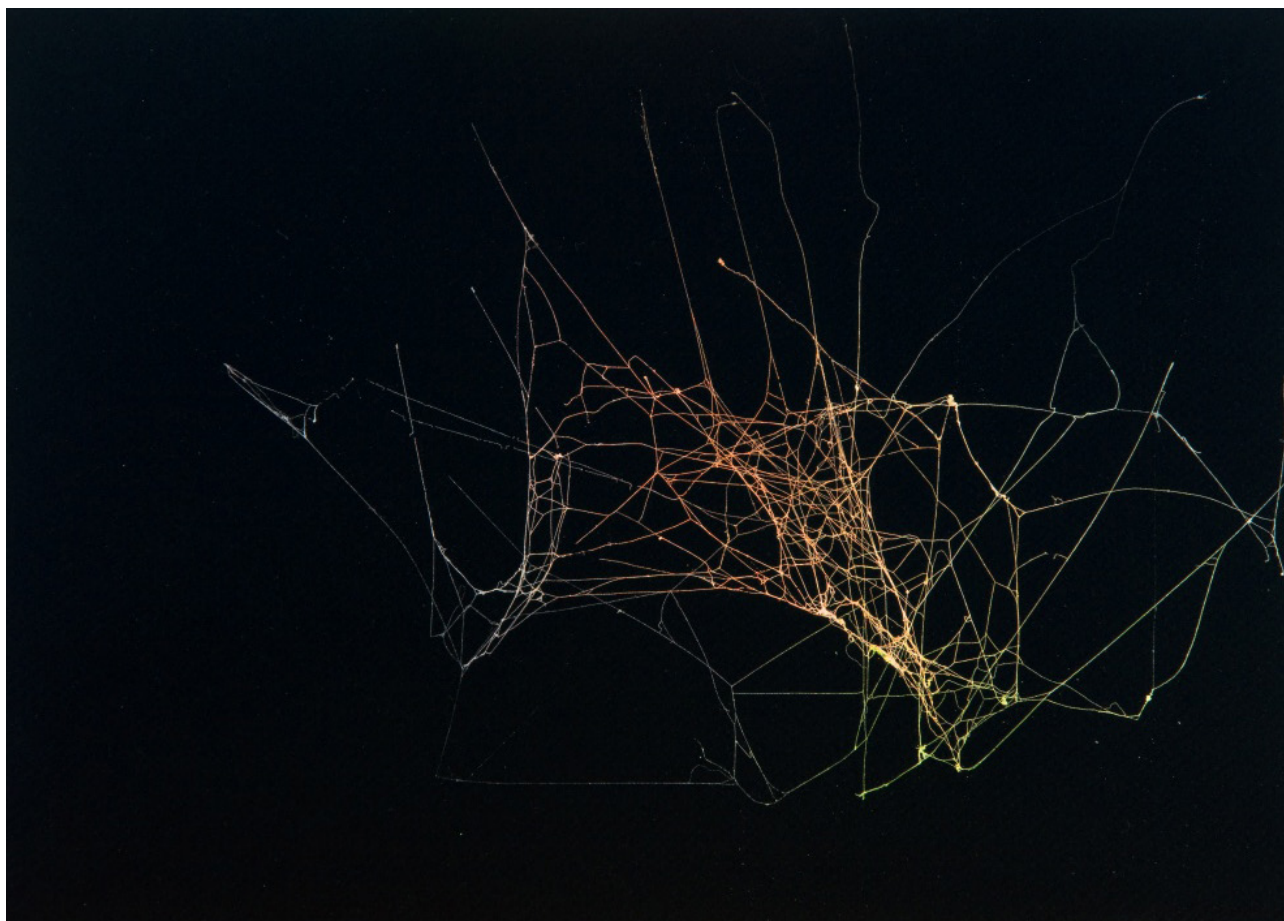
**Fabian Oefner,
Artist and Photographer**

Art and science underscore the importance of critical thought and experimentation and, at times, bring to the fore ethical and cultural issues.

Evidence, intellectual experiments, imagination and logical planning are all required to carry out scientific experiments, yet these processes are often required in the creation of works of art. Science often provides stimuli for artists, conceptually, aesthetically and practically. Progressive scientific discoveries are often explored through art as artists present ethical and moral dilemmas that science often raises, including the impact new discoveries have on the natural world. Some examples in the Gallery's collecting include *Schizophrenia* by Ivor Francis, *Big mother* by Patricia Piccinini or *Occupied territory* by Fiona Hall. Similarly, at times, artists rely on the chemistry of materials to realise an artwork's physicality, such as *Infection* by Justine Varga and *Untitled (blue wedding gown #1)* by Anne Ferran. Observation, elements and experimentation are terms that are interchangeable between the two disciplines, a subtle reminder of the similarities they share. In essence, art and science feed from one another in an attempt to understand the world's complexities.

Both artists and scientists weave incredible stories, invent extraordinary hypotheses and pose difficult questions to their audiences, making clear parallels between art and science. Both disciplines anticipate and embrace the unknown and challenge the status quo. The works of art selected in this resource aim to bring to light the science that exists in art, highlighting a connection that has existed for centuries and endures today. These disciplines have long been perceived as occupying opposing ends of our culture, yet it is both the artist and the scientist that help us to understand and interpret the world in which we live.

image: Patricia Piccinini, Australia, 1965, *Big mother*, 2005, Melbourne, silicone, fibreglass, leather, human hair, 175.0 cm; Gift of S. Angelakis, John Ayers, Candy Bennett, Cherise Conrick, James Darling AM and Lesley Forwood, Rick Frolich, Frances Gerard, Patricia Grattan French, Stephanie Grose, Gryphon Partners Advisory, Janet Hayes, Klein Family Foundation, Edwina Lehmann, Ian Little, David And Pam McKee, Dr Peter McEvoy, Hugo and Brooke Michell, Jane Michell, Paul Taliangis, Michael and Tracey Whiting and anonymous donors through the Art Gallery of South Australia Contemporary Collectors 2010, Art Gallery of South Australia, Adelaide



HISTORICAL CONTEXT

Science has, across time, changed the way artists work. During the Renaissance artists were dedicated to scientific experimentation on a quest to find solutions to visual problems such as linear perspective. In the early 19th century inventions such as photography appeared to threaten artisans as machines could seemingly replace their skills. The machine age saw rapid advancement in science and technology as means to equip nations with more efficient defence mechanisms during both world wars, inspiring many artists' shift toward interpreting reality rather than representing it.

The bio-art movement has been gaining global momentum, with artists using biology as their medium or their subject to create works of art. These artists are developing cutting edge techniques, similar to the Futurists who explored notions of complex change, movement and speed. Bio-artists challenge our understanding of the environment by exploring advancements in biomedicine and technology to create works that blur the line between art and science.

The trend for art-science collaborations is accelerating in Australia. The opening of the South Australian Health and Medical Research Institute (SAHMRI) in Adelaide in 2013 instigated a partnership with the South Australian Living Artists Festival (SALA). Annually, artists are invited to produce a work of art that responds to the SAHMRI environment or its programs, with winning entries displayed in the SAHMRI building during SALA. The Australia Council for the Arts has also combined art with science through its support for Synapse Art and Science residencies, which are facilitated through the Australian Network for Art and Technology. Programs such as these reaffirm the intersection between art and science, revealing similarities in their methodologies: the capacity to observe, hypothesise, experiment and create. Universities are also beginning to tap into this trend, with the University of Western Australia establishing SymbioticA, an artistic laboratory dedicated to research, learning, critique and hands-on engagement relating to the life sciences, which includes the opportunity to study for a Masters of Biological Arts.

image: Sandra Selig, Australia, 1972, *universes, no. 108*, 2006–08, Brisbane, spider silk, enamel, fixative on black paper; 20.7 x 29.5 cm; Gift of the Art Gallery of South Australia Contemporary Collectors 2009, Art Gallery of South Australia, Adelaide

JUSTINE VARGA *Infection*

Justine Varga, *Infection*, from the series *Memoire*, 2016, Sydney, type C photograph, 144.0 x 119.0 cm, Art Gallery of South Australia, Gift of Susan Armitage through the Art Gallery of South Australia Foundation 2016

Justine Varga graduated with honours from the National Art School in Sydney in 2007. Varga creates photographic images using analog techniques. This includes producing images without a camera, instead exposing film and paper to light over extended periods of time. Her interest in photography began in the darkroom making images, rather than looking through the lens of a camera to capture a scene. Varga enjoys the tactile nature of chemicals, film and paper and prefers creating abstract images rather than representational photographs. Instead of having a specific image in mind, Varga exposes photographic surfaces to light, with unpredictable results. At times she scratches marks into the negatives or exposes the photographic paper to heat, fluid or adhesives. Her photographs record traces of movement over time with accumulating marks on the surface of the paper or film. With observation at the core of Varga's practice, her photographs act as a type of surveillance – monitoring and recording time and place.

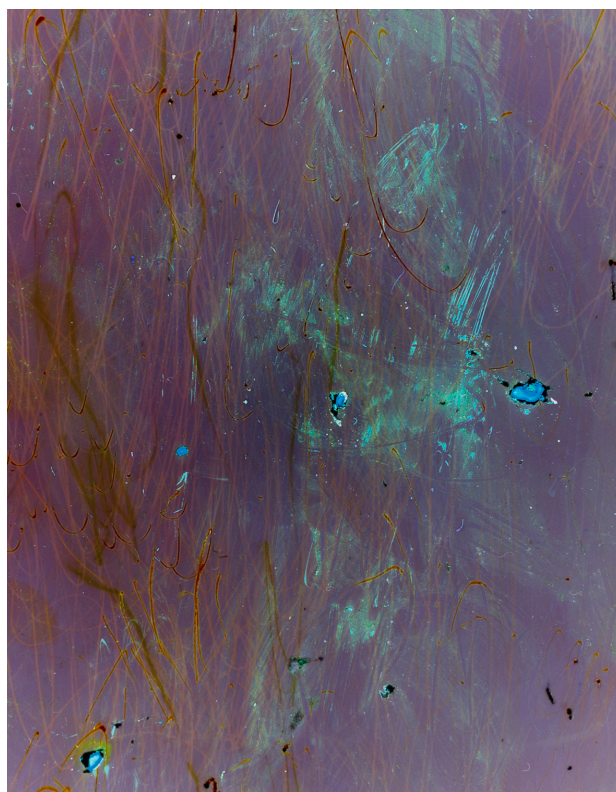


image detail: Justine Varga, Australia, 1984, *Infection*, from the series *Memoire*, 2016, Sydney, type C photograph, 144.0 x 119.0 cm; Gift of Susan Armitage through the Art Gallery of South Australia Foundation 2016, Art Gallery of South Australia, Adelaide. photo: Stephen Oxenbury

TECHNICAL CONTEXT

WHAT IS WET PHOTOGRAPHY?

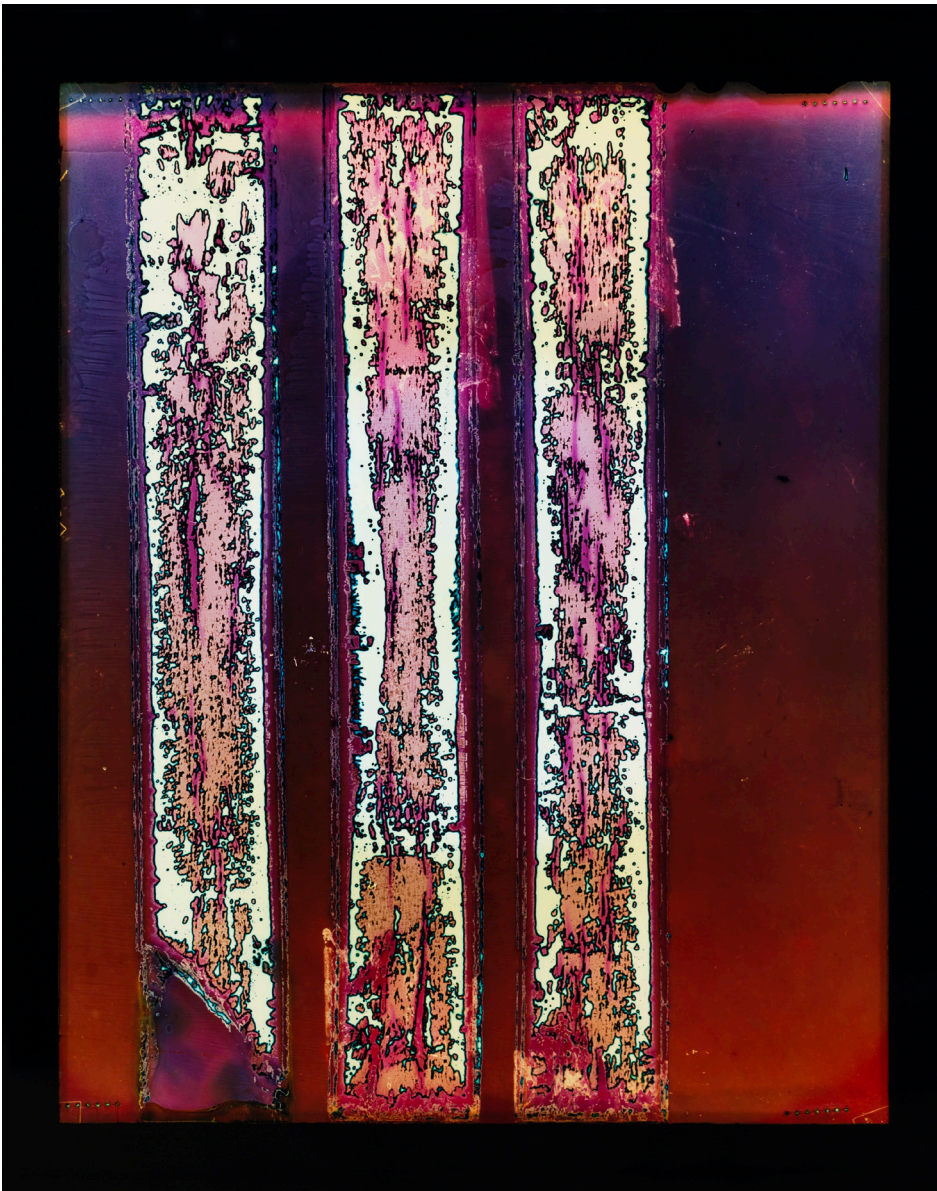
The term wet photography describes the process of making an image by using film, chemicals and photographic paper in a darkroom. A darkroom is a light tight room, where film is processed and enlargements are printed. Ambient light is controlled through the lens of an enlarger which holds the negative in place as the image is projected onto photographic paper. The paper is then developed by hand in a three-step chemical process of developer, stop and fixative; a far cry from the digital technology we have grown accustomed to today.

TIP Look for photographs in the Gallery's collection by Olive Cotton and Max Dupain, both of whom used these techniques to create their images.

WHAT IS A CAMERA-LESS PHOTO?

Justine Varga and a number of other contemporary artists are revisiting wet photography as a means of creating photographic images, at times, without a camera. Instead, Varga and other artists are utilising some of the early processes of photography that relied heavily on chemicals to produce an image, rather than taking a photograph using film and a camera. Some of these camera-less processes include photograms, chemigrams and cyanotypes. By treating the surface of light sensitive paper with chemicals, artists manipulate light and shadows to record traces of the world, at times producing abstract images. Artists that work in this manner will experiment with the enlarger, chemicals and paper to create photographs that are not always representative of what we can see with the naked eye.

TIP Look out for Anne Ferran's photograph *Untitled (blue wedding gown #1)* for which she has too used a camera-less technique.



RESPONDING

Varga describes photography as a central part of her life. What is the number one thing in your life that you are most passionate about?

Imagine if *Infection* could make a sound. What sound would it make?

Marks can often suggest a sense of movement in an image. What do the marks in Varga's photographs remind you of?

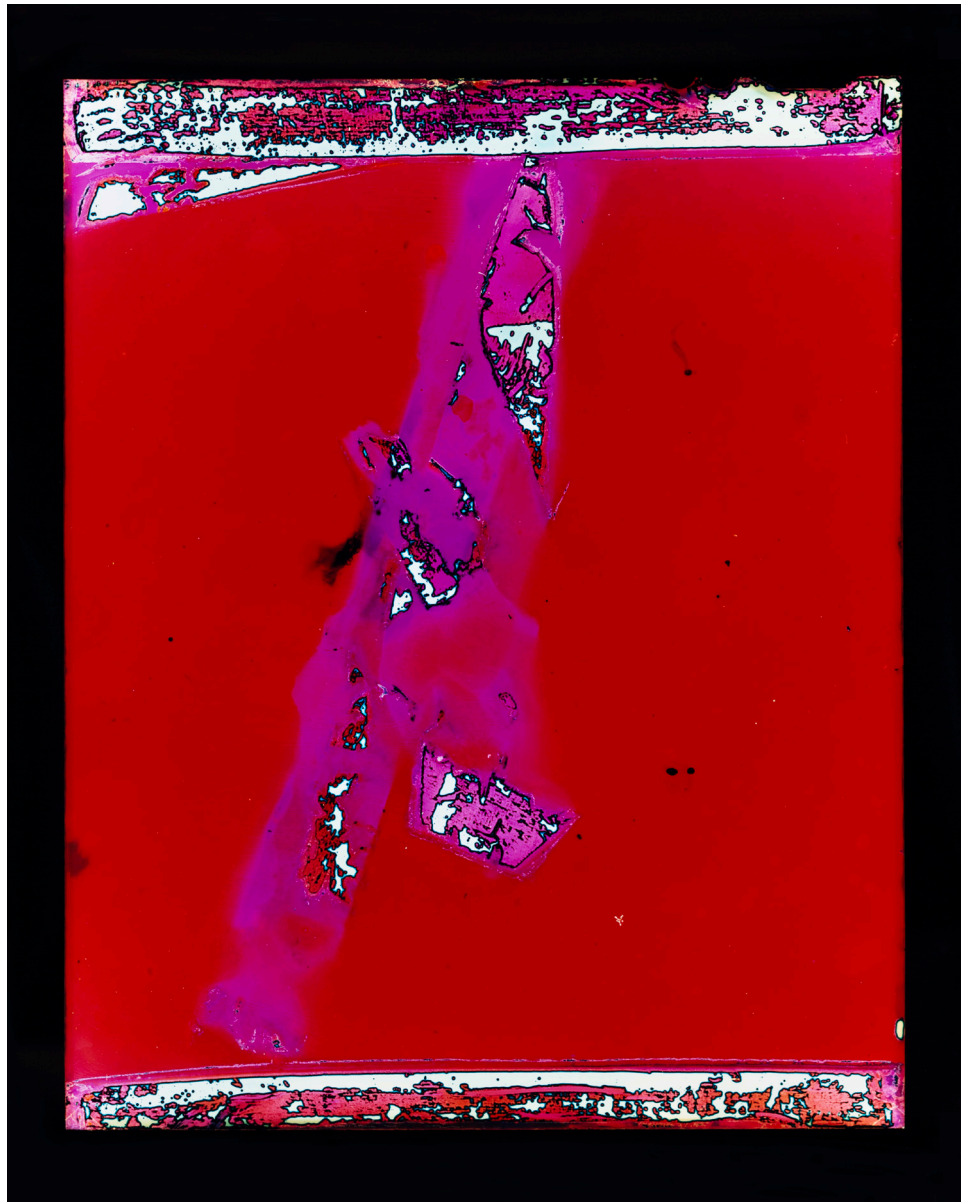
Slow down the pace at which you look at this work of art. Imagine this photograph was a door to a new world. Imagine stepping inside the image. What would the landscape look like? What would the atmosphere feel like?

Describe the colours that Varga has created in her work. Select a colour in one of Varga's photographs that appeals to you. On your journey home locate this hue in other things you see.

In small groups, make a list of as many words you can think of that are associated with photography. Play a 'round robin' game with each group sharing a different word.

Sometimes, Varga doesn't use a camera at all to create her works of art. Would you still consider her a photographer? Is everyone who owns a camera a photographer?

Justine Varga, Australia, born 1984, *Abrasion*, 2016, chromogenic photos, dimensions variable; Courtesy of the artist and Hugo Michell Gallery, Adelaide.



MAKING

Drawing was an important part of Varga's training at art school. She says that drawing, which she practiced daily while at art school, was the foundation of learning how to look. Initiate the habit of drawing every day for a month.

Varga often makes marks directly onto photographic paper. These marks can not be erased. Using a sheet of scratchboard, acrylic or aluminium, create marks on your surface. Experiment with a range of tools and pressures to create a variety of marks. What tool or material made the most unusual mark?

Varga's photographs register her surroundings. Create a series of prints that capture a variety of mark making onto a flat surface. Apply a thin layer of paint to a sheet of acrylic. Using a range of materials, make marks into the paint. Place a piece of paper over the acrylic while still wet to capture your mark making.

Justine Varga, Australia, born 1984, *Antidote*, 2016, chromogenic photos, dimensions variable; Courtesy of the artist and Hugo Michell Gallery, Adelaide.

RESPONDING

Look closely at the textures in Varga's photographs. Imagine dissecting Varga's photographs into separate layers. How many different marks or layers could you identify?

During the 1970s many art institutions in Australia began to collect photography. Debates ensued as to whether photography was considered art or whether it had a documentary function. What qualities does an image need to have to be considered art?

Artists are returning to the handmade print or experimental processes of art making. Traditional techniques such as 'wet' photography are seeing a resurgence in contemporary art. Investigate another contemporary photographer who relies on analog processes for creating an image, as opposed to digital. Compare their practice with Varga's. Artists to consider: Anne Ferran, Rosemary Laing, Trent Parke or Robyn Stacey.

Explain how Varga's work may be considered traditional and postmodern simultaneously.

Contemporary artist, Dale Frank is well known for his abstract paintings. His works are experimental and performative. As he drips, pours and manipulates the paint across the surface, his paintings evolve slowly over time. This process based approach to art making is similar to that of Varga's. Look at Dale Frank's paintings in the Gallery's collection (online). Discuss how Varga and Frank use similar processes, yet with different mediums.

By definition, an abstract expressionist creates works without defined figures or objects that are monumental in scale and use line, colour and shape to express big ideas. Explain how both Varga and Frank may be considered abstract expressionist.

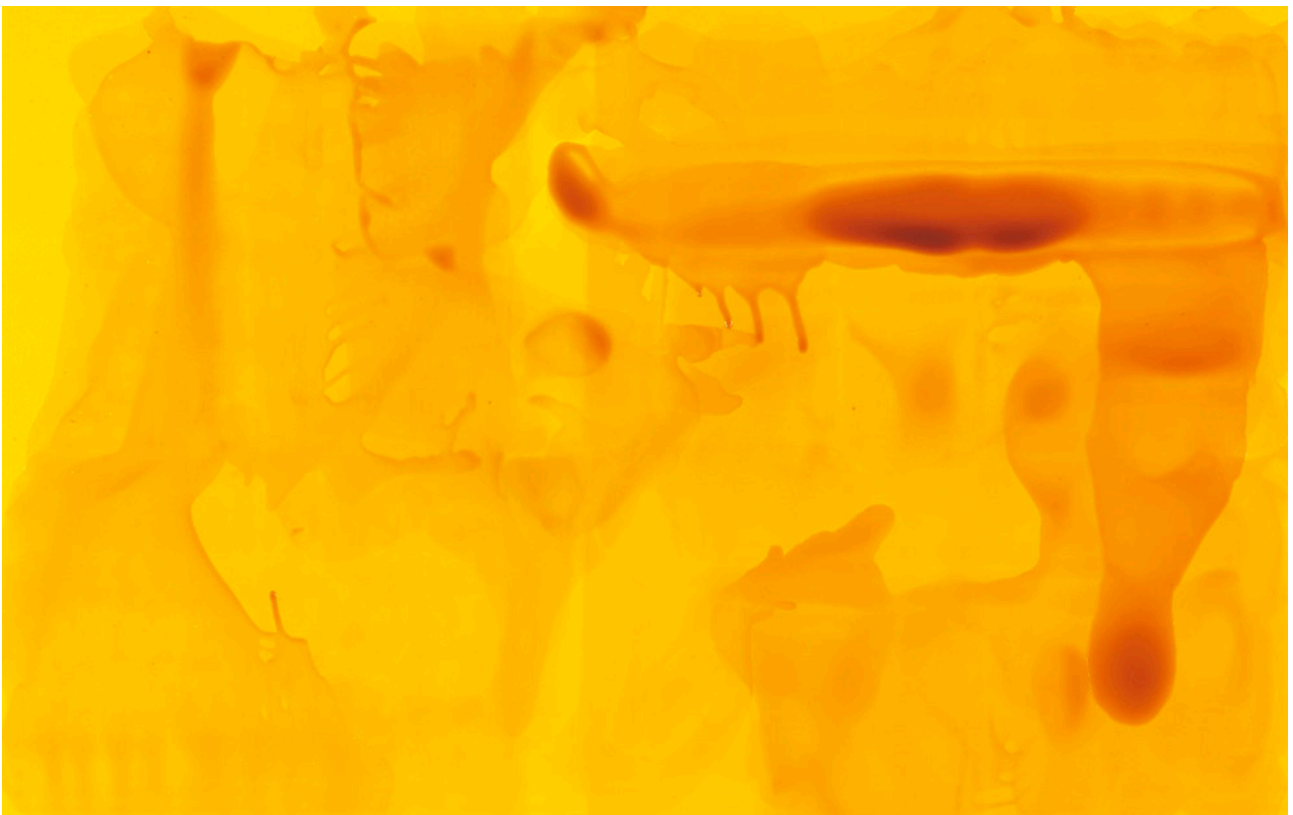


image: Dale Frank, Australia, 1959, *Paler Than Pale Custard Cream Moonlight Off White Old Ivory Irish Linen Cream Neutral Beeswax Cornsilk Falmouth Hawaiian Sunset Paloma Burnous (Pansy!)*, 1999, Bundaberg, Queensland, synthetic polymer paint & varnish on canvas, 220.0 x 360.0 cm; South Australian Government Grant 2000, Art Gallery of South Australia, Adelaide. © Dale Frank

SECONDARY

Varga acknowledges gestural abstract paintings by Australian artists John Peart and Roy Jackson as influences growing up. However, Varga describes the way she makes her photographs as a realist approach rather than abstract. Investigate Australian abstract art from the 1970s onwards. How did these artists challenge conventions of the past? What ideas about

photography does Varga challenge? Select an abstract painting by John Peart or Roy Jackson and compare to Varga's photographs.

Consider how Varga makes her work. How might this process be considered 'realist'?



image: John Peart, Australia, 1945, *Thornhill Blue*, 1973, colour lithograph on paper, 63.1 x 81.0 cm; South Australian Government Grant 1973, Art Gallery of South Australia, Adelaide

“When I look at Peart, I can see his hand in his marks, that the work is him. Since his passing, this has become even more apparent to me. His trace, a quality at once tangible and elusive, unites within layers of paint”

Justine Varga

SCIENCE FOCUS: SCIENCE UNDERSTANDING & CHEMICAL FUNDAMENTALS

Investigate how cameras work – draw diagrams to help with your response. What features does a camera need to have to define it as a camera?

Contact your school science teacher about the possibility of setting up a makeshift darkroom to produce a series of photograms. Investigate the chemistry involved in the photographic process. What function does a redox reaction have in making an image?

Varga notes that creating a photographic image is a challenging and time-consuming process, as she is faced with many variables such as paper stock, temperature, chemical formulations and power fluctuations. Investigate these variables when making an image. Explain how Varga might be classified a 'scientist' and an 'artist'. How different are these two roles?

MAKING

Varga uses the camera to collect the world. Moments in time are captured in layers on photographic paper. Explore your environment at home or school for places where a build-up of marks is present. Take notice of walls re-plastered with promotional posters, peeling paint, paths that are well worn or door frames and latches that show evidence of wear and tear. These observations may even be fleeting moments such as condensation forming and disappearing on a glass. Photograph these impressions to create an abstract image.

The process of making is at the core of Varga's art practice rather than the final product itself. With this in mind, use one colour with varying tints and shades to create a monochromatic painting. Laying a canvas flat, drip and pour diluted paint onto the surface. Experiment with different tools to manipulate the paint. This work may evolve over a series of days or weeks, as you experiment with different opacities of paint, and allow time for the paint to dry between layers.

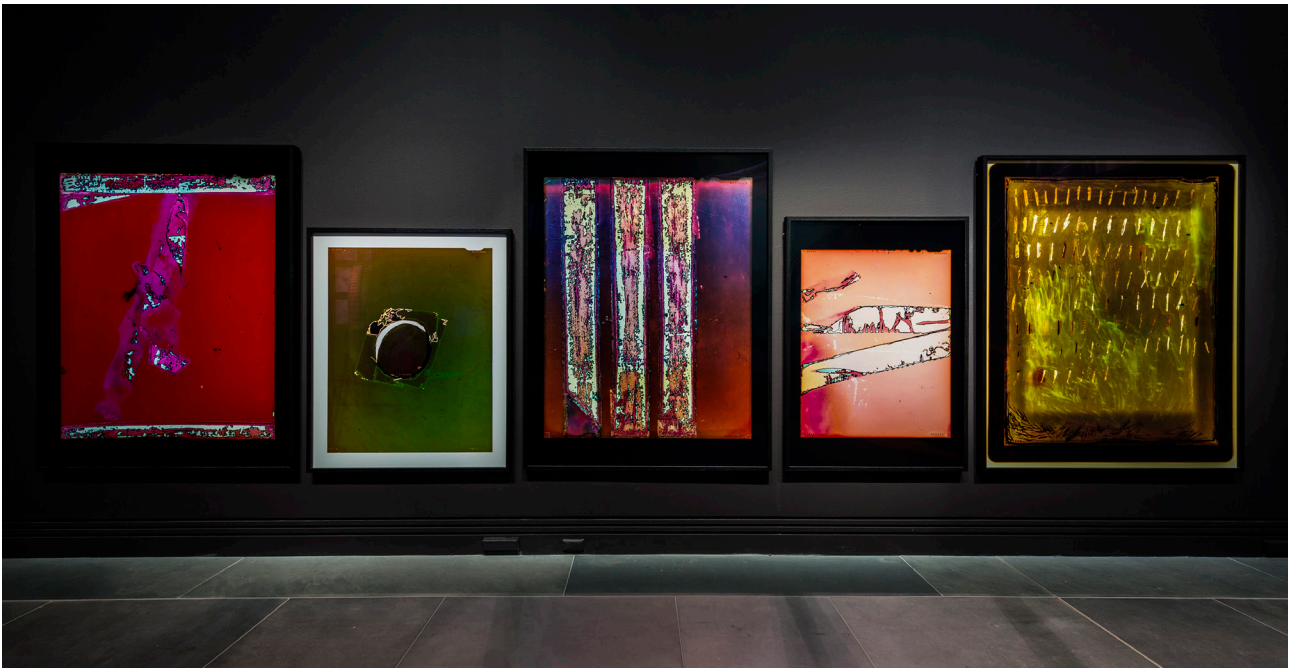
Although camera-less, Varga records the happenings of a time and place, collapsing them into a single image. Create a moving image or time lapse video of a single place over an extended period. What things did you capture that were unexpected?



image: Justine Varga, Australia, born 1984, *Ripe*, 2016, chromogenic photos, dimensions variable; Courtesy of the artist and Hugo Michell Gallery, Adelaide.

image: Justine Varga. Courtesy of the artist and Hugo Michell Gallery, Adelaide. photo: Steph Fuller





Geoffrey Batchen, *Emanations: The Art of the Cameraless Photograph*, Govett-Brewster Art Gallery/Len Lye Centre, New Zealand, 2016

WEBSITES

Art Gallery of New South Wales – Digital Natives in a Post Analog World
www.artgallery.nsw.gov.au/blog/posts/digital-natives/

Artist Profile – Justine Varga
www.artistprofile.com.au/justine-varga/

How to Create Chemigrams
www.lomography.com/magazine/178086-cameraless-photography-how-to-create-chemigrams

Justine Varga Website
www.justinevarga.com

Try Hard Magazine – Interview with Justine Varga
www.tryhardmagazine.com/interview_justine_varga

OTHER PHOTOGRAPHIC ARTISTS TO INVESTIGATE IN THE GALLERY'S COLLECTION:

Anne Ferran, *Untitled (blue wedding gown #1)*, 2003.

Trent Parke, *Moving bus*, 2003.

Darren Siwes, *Stand (monument)*, 1999. Robyn Stacey, *Fontaine de Vaucluse*, 2009, type c print, 110 x 146 cm

Robyn Stacey, *Lighthouse Wharf, Hotel, Port Adelaide*, 2016.

Samuel Sweet, *Second Waterfall, First creek*, 1870s.

DID YOU KNOW?

Justine Varga's series of photographs *Memoire* was selected as a finalist for the 2017 Ramsay Art Prize. You can see this work on display in Gallery 11 until the end of August.

KEY LITERACY WORDS

Analog
C-type print
Cibachrome
Chemigrams
Chemistry
Cyanotypes
Darkroom
Emulsion
Exposure
Film
Hue
Memoire
Monochromatic
Negative
Photogram
Redox
Texture



Fiona Hall is one of Australia's most well-known and innovative contemporary artists. She grew up in Sydney in a family with a keen sense of enquiry; most significantly her mother was a prestigious scientist and her brother pursued a career in mathematics. Hall's endeavours as an artist are parallel to that of a scientist; searching for understanding about humanity and the environment.

Hall works across a range of media including painting, photography, sculpture and installation. At times she uses unusual materials such as soap, sardine tins, aluminium cans, video tape, currency and beads. Hall uses these everyday objects to address contemporary issues associated with history, politics, conflict and the environment.

Occupied territory was Hall's first work about the British colonisation of Australia. The work consists of four native and four introduced plant specimens. The four introduced species are made from red and white beads; fig, pear, acorn and peach, while the 4 native species angophora, banksia, Norfolk pine and Sydney Wattle are constructed from black beads and nails. The choice of beads and nails refers to the 'gifts' offered to Aboriginal people by colonisers including Captain James Cook and Sir Joseph Banks.

image detail: Fiona Hall, Sydney 1953, *Occupied territory*, 1995, Adelaide, glass beads, nails, vitrine (wood, glass) 39.0 x 128.5 x 43.0 cm, Art Gallery of South Australia, Adelaide

DID YOU KNOW?

Fiona Hall's keen interest in science and natural history is also woven throughout her public commissioned works. Hall has made two site specific works for Adelaide: *Grove* (2009) at the Museum of Economic Botany in the Adelaide Botanic Gardens and *Different Forms of Intelligence* (2007) at the entrance of the University of South Australia's Samstag Museum on North Terrace. In 2012 Hall was also commissioned to create *Out of Mind* for the Queensland Brain Institute, responding to the work being undertaken by its research teams.

RESPONDING

Describe how Hall has made the fruit and seed pods in *Occupied territory* beautiful?

Imagine you are labelling the four native plants in *Occupied territory*. In what region of Australia are these plants usually found? Research plants native to the Adelaide Plains region and their Aboriginal names. Create a display in your classroom.

Hall's kitchen shelves are full of coral, bird nests and other objects from the natural world. What things do you like to collect? Why do you think people like to collect things?

Hall is deeply concerned about the impact humans have had on the environment. Many of Australia's plant and animal species are now extinct or nearing extinction as a result of colonisation. Investigate an Australian species of flora or fauna that is on the brink of extinction. Discuss ways we could prevent more species from becoming extinct. Write a letter to the Minister for the Environment and Energy outlining your concerns and including a list of recommendations.

Imagine you and your family arrive unexpectedly in a new country to live. What things would you need to learn?

The Indigenous and introduced plants represented in *Occupied territory* were grown on the grounds of Governor Phillip's house in Sydney. Governor Phillip (1788–1792) proposed that Aboriginal people be treated kindly and aimed to establish a harmonious relationship with them. Unfortunately, not all British settlers thought this way. Investigate interactions between Aboriginal people and European settlers at the time of first contact. How did these interactions change over time? What are some of the effects this has had on Aboriginal and Torres Strait Islander peoples today? If you could go back in time and change one specific moment in Australian history, what would it be and why?



image detail: Fiona Hall, Australia, 1953, *All the King's men*, 2014–15, Adelaide, 18 knitted military uniforms, wire, bone, horns, teeth, dice, glass and mixed media, (dimensions variable); Gift of Candy Bennett and Edwina Lehmann, Dr Peter and Sandra Dobson, David and Pam McKee, Simon Mordant AM and Catriona Mordant, John Phillips, and Tracey and Michael Whiting through the Art Gallery of South Australia Contemporary Collectors through the Fiona Hall Appeal 2015–16, Art Gallery of South Australia, Adelaide. Courtesy Fiona Hall.

**MAKING**

While in Adelaide, Hall used the gardens and research facilities at the Adelaide Botanic Gardens as inspiration for her work. Visit the Botanic Gardens to select an endemic plant to research, photograph and sketch. Create a series of botanical illustrations of this plant.

Hall uses a variety of non-traditional materials to create her works of art, often making new worlds from today's rubbish. The most recent work by Hall to come into the Gallery's collection is *All the King's men* (2014), in which she has used a variety of recycled objects collected over a long period of time. Using Hall as inspiration, create a work of art that uses only recycled and found materials.

image detail: Fiona Hall, Australia, 1953, *All the King's men*, 2014–15, Adelaide, 18 knitted military uniforms, wire, bone, horns, teeth, dice, glass and mixed media, (dimensions variable); Gift of Candy Bennett and Edwina Lehmann, Dr Peter and Sandra Dobson, David and Pam McKee, Simon Mordant AM and Catriona Mordant, John Phillips, and Tracey and Michael Whiting through the Art Gallery of South Australia Contemporary Collectors through the Fiona Hall Appeal 2015–16, Art Gallery of South Australia, Adelaide. Courtesy Fiona Hall. photo: Clayton Glen.

AUSTRALIAN CURRICULUM**SCIENCE FOCUS: SCIENCE UNDERSTANDING – BIOLOGICAL SCIENCES & SCIENCE AS A HUMAN ENDEAVOUR – NATURE AND THE DEVELOPMENT OF SCIENCE**

Consider the role of introduced species, hunting and land clearance.

How would modern day Australian food chains compare with those existing before colonisation?

Taxonomy is the science of classification. All the plant seeds listed in *Occupied territory* belong to the plant kingdom but they are grouped into more specific categories at lower classification levels. What features make them all members of the plant kingdom? Find out which family each of the seeds belong to. Why have they been classified in this way?

Observation is an important skill in art and in science. Locate other works of art in the Gallery's collection that depict plants or flowers. Look closely while completing a series of drawings based on your observation. Back in the classroom classify the plants and flowers and research the scientific names for your specimens.

RESPONDING

Consider the placement of Hall's objects. What is Hall suggesting by placing the black and white objects side by side inside this vitrine?

Hall stated in an interview with *The Canberra Times* 'I suspect I am not alone in thinking that many people are quite troubled by the madness and the badness and sadness of the world'. Think of either a social, political or environmental issue that you find troubling today. As a class, discuss your responses.

"Fiona Hall's works celebrate the wonder of nature but increasingly mourn the impact of humans on it"

Curator,
Vivienne Webb.

Discuss this statement using two examples of Hall's work to support your response.

Read *The Age* article 'Calls for curriculum to say Australia was invaded not settled'. Conduct a class debate over whether the Australian curriculum should replace 'settled' with 'invaded'.

Fiona Hall's work sometimes explores problems associated with colonisation and how many of these problems remain with us today. Locate other works of art in the Gallery's collection that explore similar themes. Compare signs and symbols employed in these works of art to those used in *Occupied territory*.

image detail: Fiona Hall, Australia, 1953, *All the King's men*, 2014–15, Adelaide, 18 knitted military uniforms, wire, bone, horns, teeth, dice, glass and mixed media, (dimensions variable); Gift of Candy Bennett and Edwina Lehmann, Dr Peter and Sandra Dobson, David and Pam McKee, Simon Mordant AM and Catriona Mordant, John Phillips, and Tracey and Michael Whiting through the Art Gallery of South Australia Contemporary Collectors through the Fiona Hall Appeal 2015–16, Art Gallery of South Australia, Adelaide. Courtesy Fiona Hall.
photo: Clayton Glen.

MAKING

Some of Hall's earlier works, including *Occupied territory*, both celebrate wonders of the natural world and explore how distressing it is to see it disappearing before our eyes as a result of human impact. Create a work of art that responds to a current environmental issue using materials and methods that incorporate a sense of beauty.

Each work of art by Hall is unique, made from a range of materials and methods to realise each idea. In this sense, the material and the idea are inextricably linked. Design a small sculpture that responds to a current political or social issue in Australia. Create three versions of your sculpture using different materials each time. How does your choice of materials alter the meaning of your piece?



THINK & DISCUSS

Writer Sasha Grishin described Australian art as having a distinctive voice. What distinguishes Australian art from art made by artists living in other countries?

RESOURCES

WEBSITES

ABC National Radio – Conversation with Fiona Hall (Different Forms of Intelligence, 2007, University of South Australia Collection)
www.abc.net.au/radionational/programs/artworks/jewel-fiona-hall/3055912

ABC News – Does Australia have one of the 'highest loss of species anywhere in the world'?
www.abc.net.au/news/factcheck/2015-08-19/fact-check-does-australia-have-one-of-the-highest-extinction/6691026

ABC Splash – Learn to count in Kurna
<http://splash.abc.net.au/home#!/media/2007357/learn-to-count-in-kurna>

Adelaide Review – *All the King's Men*
www.adelaidereview.com.au/festivals/sala/fiona-hall-all-the-kings-men-wrong-way-time-sala-2016/

Age, The – Calls for curriculum to say Australia was invaded not settled
www.theage.com.au/victoria/calls-for-curriculum-to-say-australia-was-invaded-not-settled-20160504-gom7dy.html

Australian Story – Fiona Hall
www.australia.gov.au/about-australia/australian-story/fiona-hall

Australian Government Department of the Environment and Energy
www.environment.gov.au/

Australian Government Department of the Environment and Energy – Threatened Plants Australia
www.environment.gov.au/system/files/resources/d947f8ec-dd8b-4e7f-bd3b-8246e0702547/files/plants.pdf

InDaily – An artistic response to the waging of wars
www.indaily.com.au/arts-and-culture/2016/07/26/an-artistic-response-to-the-waging-of-wars/

Lake Macquarie City Art Gallery
www.artgallery.lakemac.com.au/downloads/CA4BAF777331C2931F93606FDD307708E8E678D8.pdf

Santos Museum of Economic Botany
www.environment.sa.gov.au/botanicgardens/visit/adelaide-botanic-garden/santos-museum-economic-botany

Traditional Kurna Greetings
www.youtube.com/watch?v=sKJC3y6tKmM

BOOKS

Ewington, J, *Fiona Hall*, Piper Press, Annandale, Australia, 2005

Hansen, D, 'The Folding Stuff', *Wrong Way Time*, Australia Council for the Arts in association with Piper Press, 2015

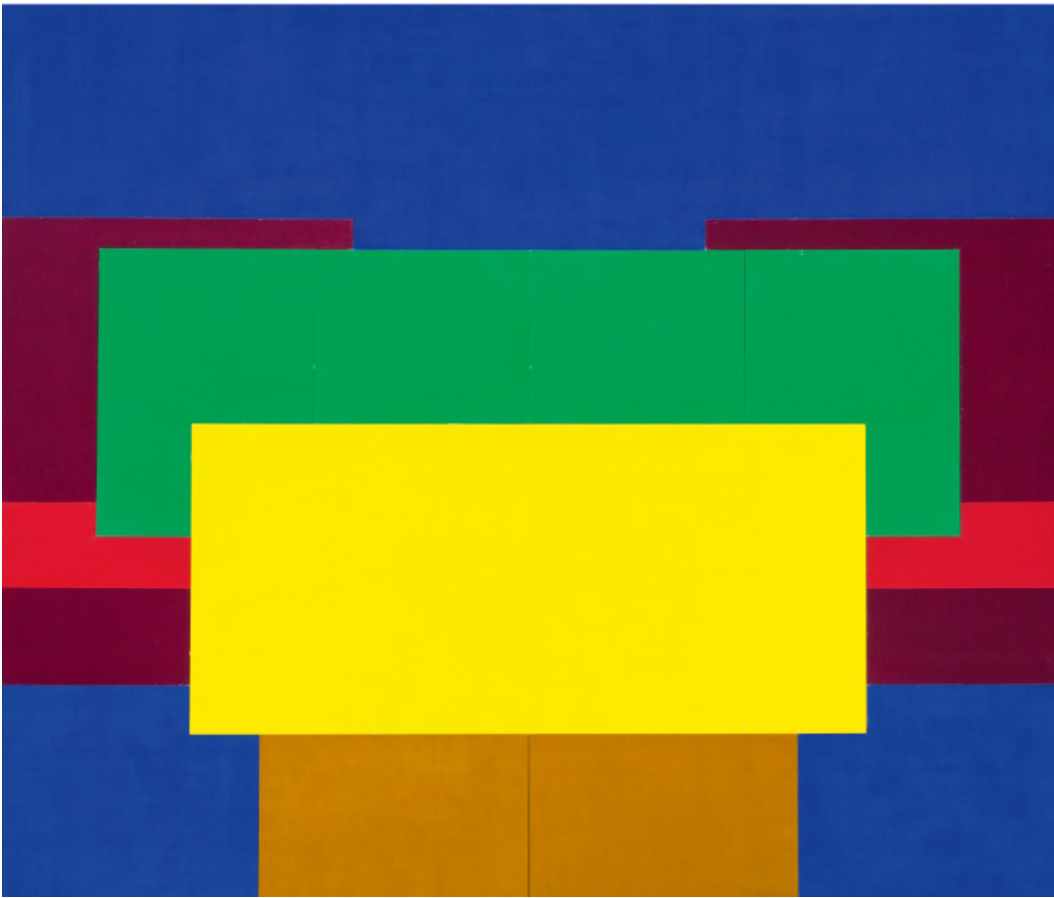
CATALOGUES

Fiona Hall: Force Field, Museum of Contemporary Art, Sydney, Australia, 2007

KEY LITERACY WORDS

Botany
 Classification
 Colonisation
 Endemic
 Installation
 Sculpture
 Symbolism
 Taxonomy
 Vitrine

SYDNEY BALL *Banyon Wall*



Born and raised in Adelaide, Sydney Ball (1933–2017) was one of Australia's leading colour abstract artists. He studied at the South Australian School of Art alongside artists Dora Chapman and James Cant. In 1962 he set his sights on New York, where he became acquainted with leading modernists Mark Rothko, Lee Krasner and Willem de Kooning. In 1965 he returned to Australia and later married artist Margaret Worth.

The late 1960s saw Ball gain significant critical success, though hostility remained around his international style of painting. Ball pursued pure form and colour relentlessly. He was not interested in depicting real objects, people or places; rather, he focused on

formal qualities, including materials and art elements. His abstract approach to making works of art was in line with such styles as Minimalism and Hard-Edge painting, where an abrupt transition between colours is present. Ball's oversized or oddly shaped canvases were technically difficult to paint and needed to be custom built. *Banyon Wall* is an example of this, with a variety of shaped canvases joined together to create planes of flat colour with crisp edges between colours.

image detail: Sydney Ball, Australia 1933–2017, *Banyon Wall*, 1967–68, Collinswood, South Australia, synthetic polymer paint on canvas (combination of separate panels), 330.2 x 396.2 cm, Art Gallery of South Australia, Adelaide

DID YOU KNOW?

Sydney Ball's *Strata span*, 1968 is also in the Gallery's collection. Here Ball focused on breaking out of the square or rectangular canvas. By joining irregular shaped canvases together Ball incorporated the negative space of the gallery walls into his paintings.

SYDNEY BALL

image: Sydney Ball, Australia, 1933, *Strata span*, 1968, Collinswood, South Australia, synthetic polymer paint on cotton duck, 228.0 x 441.0 cm (assembled, 2 piece); Gift of Michael Coventry under tax incentives for the Arts Scheme 1978, Art Gallery of South Australia, Adelaide



From the 1950s Colour-Field painters emerged in Britain and the United States. These artists did not depict recognisable subjects, instead painting stripes, targets and simple geometric patterns with colour being the main subject of a work of art. By manipulating a limited number of variables in a painting, abstract painting became a tool for analysing the visual effect of an image.

Sydney Ball designed the poster for *The Field* exhibition, held at the National Gallery of Victoria in 1968. Three of Ball's Persian paintings were exhibited alongside works by other artists such as Peter Booth, Janet Dawson, Clement Meadmore and John Peart. *The Field* exhibition is regarded as a significant landmark in Australian art history as it caused controversy by daring contemporary works of art by emerging Australian artists.

RESOURCES

A brief history of colour in art
www.artsy.net/article/the-art-genome-project-a-brief-history-of-color-in-art

Art Gallery of New South Wales Collection – Sydney Ball
www.artgallery.nsw.gov.au/collection/works/95.2014/

The Australian – Public Works by Sydney Ball
www.theaustralian.com.au/public-works-sydney-ball/news-story/0d99c060bead114bf044d4608620c2ef

Business Insider – No one could see the colour blue until modern times
www.businessinsider.com.au/what-is-blue-and-how-do-we-see-color-2015-2

Smithsonian Libraries – Colour in a new Light
<http://library.si.edu/exhibition/color-in-a-new-light>

Sydney Ball website
www.sydneyballart.com.au/

Windsor & Newton – A spotlight on colour
www.winsornewton.com/uk/discover/articles-and-inspiration/spotlight-on-ultramarine

Finlay, V. *Colour – A Natural History of the Palette*, Random House Inc, United States, 2002

Maloon, T, 'Painting in an expanded field: a homage to Sydney Ball', *Sydney Ball Modular and Infinex 1967 to now*, Sullivan + Strumpf, 2016

Sydney Ball: The Colour Paintings 1963–2007, Penrith Regional Gallery & The Lewers Bequest, Sydney, 2009

KEY LITERACY WORDS

Abstract
 Colour
 Colour-Field
 Complementary colours
 Conceptual
 Hard-Edge painting
 Light
 Minimalism
 Non-representational
 Pattern
 Pigment
 Prism
 Symmetry

EARLY YEARS

RESPONDING

What type of shapes can you see? How many different shapes can you see?

Ball's painting looks very flat and smooth. Find another work in the Gallery that has a bumpy or rough texture.

Which colours seem to come towards you, which seem farther away? Which colours seem brighter?

Some colours are known as warm colours and some colours are cool. Which colours in *Banyon Wall* are of warm colours? Which colours would be cool? What do these colours remind you of?

MAKING

Using different coloured A4 card, cut a variety of rectangular and square shapes to create a similar work of art that is the same on both sides.

Banyon Wall is a great starting point to introduce colour mixing! Which two colours mixed together become green? Which two colours mixed together become orange? What colours are missing from Ball's painting?

image: installation view Gallery 17, Art Gallery of South Australia, 2017



PRIMARY

RESPONDING

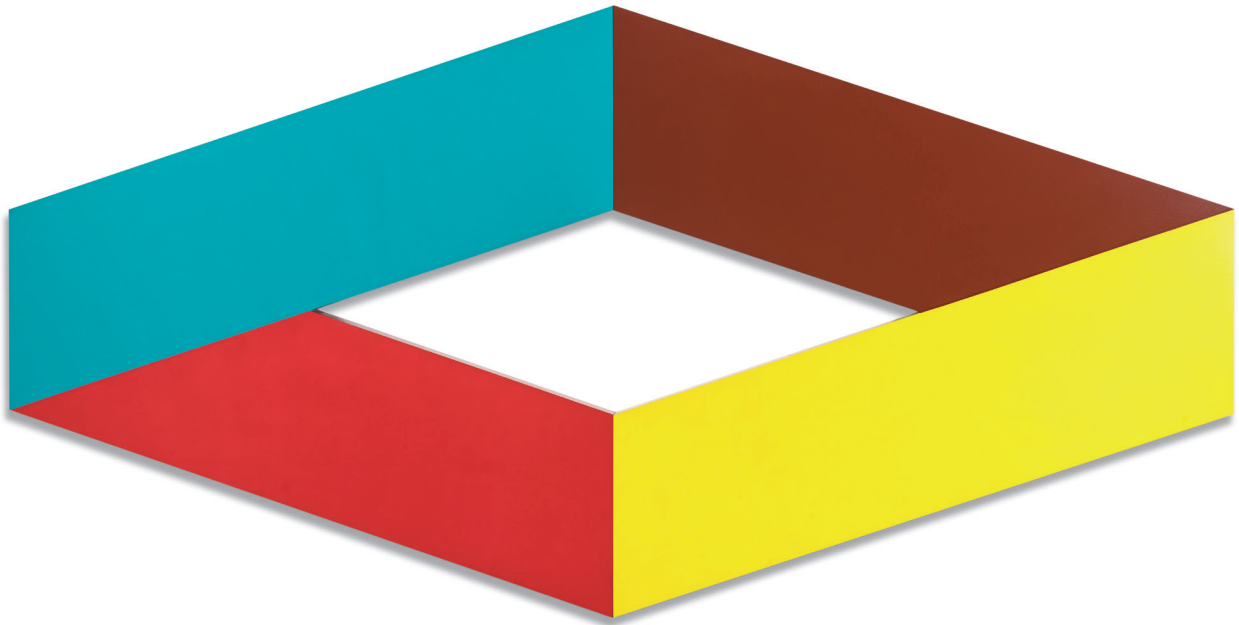
Ball wanted some of his paintings to lie flat on the floor so the viewer could look down on the work of art. What other works in the Gallery's collection would look interesting viewed from above?

Which colour in *Banyon Wall* did you notice first? Why do you think this colour stands out the most?

Identify each colour in *Banyon Wall*. Create a list of things you associate with each colour.

Pair *Banyon Wall* with one other work of art in the Gallery. Which would you choose and why?

Imagine your Principal has asked you to select an abstract work of art to be purchased for the school. Identify a work of art in the Gallery and write a short paragraph explaining why you think it is a good choice.



MAKING

In some abstract paintings, brushstrokes or the hand of the artist are not visible. In some ways abstract art can look machine made. Design a machine that creates an abstract work of art.

HINT Look at the recent work of South Australian artist James Dodd.

During the 1960s traditional shaped canvases gave way to odd shaped ones. Throughout your visit to the Gallery document canvases and sculptures with unusual shapes. Back in the classroom, cut these shapes out of coloured paper to create an abstract collage. Plan your composition so that you have a balanced and harmonious use of colour.

Look closely at *Banyon Wall* and see how each colour is placed next to another. Using the same six colours as Ball, recreate an alternative version of *Banyon Wall* using coloured paper. How many different combinations can you make?

Like science and art, mathematics and art can sometimes be very closely related. While *Banyon Wall* is symmetrical, *Genus I, No. 2*, by Margaret Worth has been inspired by the Mobius Strip. Create a collage with coloured paper that is inspired by mathematics and the Colour-Field painters.

image: Margaret Worth, Australia, 1944, *Genus I, No.2.*, 1968, Adelaide, synthetic polymer paint on plywood, 115.4 x 247.1 cm (trapezoidal irreg.); South Australian Government Grant 1991, Art Gallery of South Australia, Adelaide. Courtesy of the artist

RESPONDING

Abstract artists create works devoid of social content. What was happening in the world and in Australia in the 1960s to herald such a different style and method to making works of art?

Explain how technological and chemical processes changed the way artists created works of art after the second world war. Locate works of art on display to support your statement. How has technology continued to influence the way artists create works?

Discuss how works on display by Sydney Ball or Margaret Worth could be classified as minimalist.

Today social media has modified the way we communicate and has become a popular platform to share ideas and opinions. Write the perfect Tweet of 140 characters, summarising the works of art on display in this room.

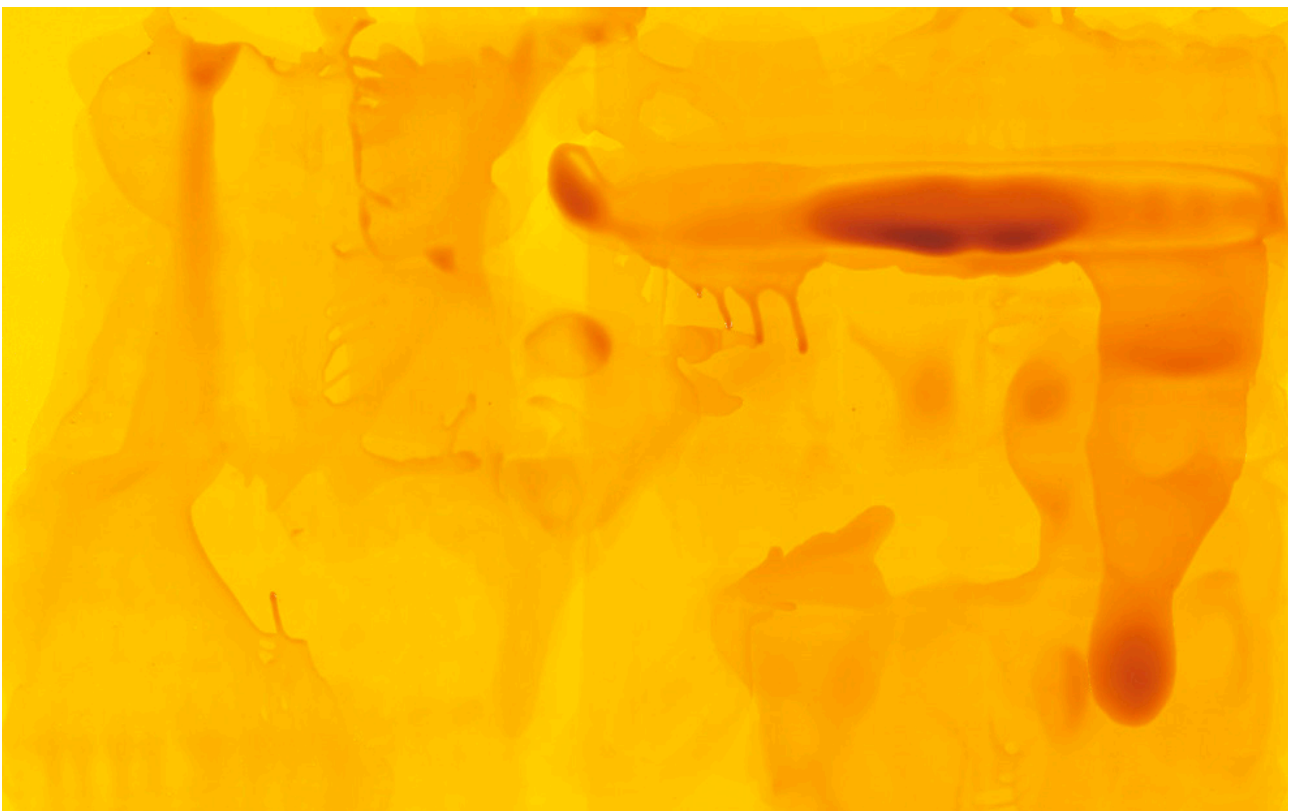
Investigate other contemporary artists working in abstraction. How are these abstract works of art different to Ball's.

TIP Look at works of art by Dale Frank and Angela Brennan.

The Field exhibition in 1968 was regarded as a significant landmark in Australian art history. Research another moment in Australian art history in which contemporary works of art caused controversy.

During the 15th century Indian yellow was a vibrant yellow pigment made from the urine of mango fed cows. The natural dye used to make Tyrian purple was obtained from the mucus of several species of sea snails. These practices have long been replaced by contemporary methods. Identify the colours Ball has used in his painting and research their historical origins.

image: Dale Frank, Australia, 1959, *Paler Than Pale Custard Cream Moonlight Off White Old Ivory Irish Linen Cream Neutral Beeswax Cornsilk Falmouth Hawaiian Sunset Paloma Burnous (Pansy!)*, 1999, Bundaberg, Queensland, synthetic polymer paint & varnish on canvas, 220.0 x 360.0 cm; South Australian Government Grant 2000, Art Gallery of South Australia, Adelaide. © Dale Frank



SECONDARY

MAKING

Investigate Ball's *Modular* and *Persian* series. Create a Hard-Edge, non-representational painting. Consider how you will create a painting without signs of brushstrokes. Experiment with different methods of applying paint to create flat colour and crisp edges.

Visit your local hardware store and collect a variety of paint swatches. Using Ball as inspiration, create a collage using only six of your colour swatches. Create these colours with acrylic paint, documenting the formulas you used to create each colour.

image: Sydney Ball, Australia, 1933–2017, *Transoxiana*, 1967, Adelaide, colour screenprint on paper, 81.2 x 61.0 cm; Bequest of Father Owen Farrell 1980, Art Gallery of South Australia, Adelaide



AUSTRALIAN CURRICULUM

SCIENCE FOCUS: SCIENCE UNDERSTANDING – CHEMICAL SCIENCES & PHYSICAL SCIENCES

Artists began using acrylic paint in the first half of the 20th century prompting American artists such as Helen Frankenthaler, Lee Krasner, Jackson Pollock, and Mark Rothko to experiment with pouring and dripping techniques. Investigate oil and acrylic paints and determine the chemical properties for both. Identify their key differences looking at works of art in the collection. What are the advantages and disadvantages of using acrylic instead of oil paint? How has making paint has changed over time?

A pigment is a finely ground solid particle used in oil and water based paints, printing inks and plastics. Pigments can be a natural material such as ochre, or an inorganic compound, which gives the paint its colour. Using natural pigments, binder and extender, recreate the colours used in Ball's painting.

Physics focuses on light and matter. English philosopher Isaac Newton (1642–1726) explained how rainbows worked and that light was responsible for colour by refracting white light with a prism to create its component colours of red, orange, yellow, green, blue indigo and violet. Newton's theory became useful for artists when he arranged colours around the outside of a circle, allowing primary colours to sit opposite their complementary counterpart. Investigate how we see colour and create your own Newton wheel experiment.

French chemist and colour theorist Michel-Eugene Chevreul (1786–1889) determined that when the eye sees two colours side by side, they appear to be vastly different in colour and strength. Do you think this happening in *Banyon Wall*? Are there other works of art where this occurs?

BERLINDE DE BRUYCKERE *We are all flesh*, 2011–2012

The human condition lies at the heart of the practice of Belgian artist Berlinde De Bruyckere. De Bruyckere's sculptures address notions of birth, love, mourning, courage, anguish and empathy. *We are all flesh* has been created in a spirit of compassion, and its process is entirely humane. De Bruyckere works closely with the veterinary clinic at Ghent University. When a horse passes away, the veterinarians contact De Bruyckere so that she can make plaster moulds of the horse's body. She then casts reconfigured sections of these moulds in resin to create sculptural forms, which she covers with horse skins acquired from a tanner in Brussels.



FUN FACT

Berlinde De Bruyckere's studio is in an old neo-Gothic Catholic school house located in Ghent, in Belgium.

image: Berlinde De Bruyckere, Belgium, 1964, *We are all flesh*, 2011-12, Ghent, Belgium, epoxy, iron, horse skin, steel, 750.0 x 175.0 x 150.0 cm; Gift of John and Jane Ayers, Candy Bennett, Jim and Helen Carreker, Cherise Conrick, James Darling AM and Lesley Forwood, Scott and Zoë Elvish, Rick and Jan Frolich, Andrew and Hiroko Gwinnett, Dr Michael Hayes and Janet Hayes, Klein Family Foundation, Ian Little and Jane Yuile, Dr Peter McEvoy, David and Pam McKee, Hugo and Brooke Michell, Jane Michell, Peter and Jane Newland, John Phillips, Dr Dick Quan, Paul and Thelma Taliangis, Tracey and Michael Whiting, GP Securities, UBS and anonymous donors through the Art Gallery of South Australia Contemporary Collectors Director's Project 2012, Art Gallery of South Australia, Adelaide

RESOURCES

Sculpture: Berlinde De Bruyckere Interview at ACCA <https://www.youtube.com/watch?v=ffzINeejOs0>

Animal Rights Activists Protest Damien Hirst Show in Venice <http://hyperallergic.com/365073/animal-rights-activists-protest-damien-hirst-show-in-venice-with-88-pounds-of-dung/>

A is for Animals <https://www.awm.gov.au/exhibitions/animals/>

War Horse Memorial <http://adelaide.sa.gov.au/things/war-horse-memorial>

KEY LITERACY WORDS

| | | |
|-----------|----------|---------|
| Memorial | Armature | Anatomy |
| Cast | Contour | Biology |
| Sculpture | Form | Zoology |

PRIMARY



RESPONDING

Think about where else you may have seen taxidermy animals. Suggest some reasons why it would be important to preserve animals in this way.

De Bruyckere was inspired to utilise horses in her art after reflecting on the horses who lost their lives during both world wars. Visit the War Horse Memorial in Rundle Park. Does this memorial adequately commemorate the thousands of horses that served in the First World War? Explain your answer. As a class, make a list of other animal memorials in Australia.

MAKING

Write a story about your own pet or a pet you would like to own one day. Design a sculpture that commemorates their life. Where would you place your work of art? What makes this animal special to you?

Complete a blind contour line drawing of *We are all flesh*. Back in the classroom, simplify your line drawing further. Using this design, carve sections of your drawing into a piece of fruit. Leave your work near a window and photograph its deterioration each day. As a class create video capturing the demise of each work of art.

HINT Research Simryn Gill's *Skin* for further inspiration.

Simryn Gill, Malaysia, 1959, *Skin*, 1994, Adelaide, mango skins, linen thread, 170.0 x 105.0 cm (approx); Faulding 150 Anniversary Fund for South Australian, Contemporary Art 1996, Art Gallery of South Australia, Adelaide. Courtesy the artist

AUSTRALIAN CURRICULUM

SCIENCE FOCUS:

SCIENCE UNDERSTANDING – THE USE AND INFLUENCE OF SCIENCE

Although horses have long been raised as pets, humans have also relied on horses for transport and farming during both world wars. Solutions to contemporary issues that are found using science and technology may involve ethical considerations. Investigate how animals are used for scientific research. Discuss the benefits and issues associated with animal research.

Investigate an example where the use of animals in research led to a scientific breakthrough.

RESPONDING

Works of art in the Melrose Wing are thematically hung. What similarities can you discover between *We are all flesh* and another work of art in Gallery 13.

Examine other artists who have used taxidermy as a part of their art making. Compare *We are all flesh* with *Untitled (Robert)*, a tattooed pigskin by Wim Delvoye. Research the process both artists use to create their works.

TIP You may like to investigate Damien Hirst or Julia deVille.

In Venice in 2017 a Damien Hirst exhibition was targeted by protestors from an animal rights group. Investigate Hirst's process of sourcing and using animals. Divide your class into two groups and debate the topic: *Using animals in art is always ethically and morally wrong*. Conduct further research and use artists' examples to support either argument.

MAKING

Take multiple macro photographs of your skin on your arms and legs. Print these images and cover with gel medium. Once dry remove the paper to reveal the semi-transparent remnants. With a partner, stitch your photographs together to create an item of 'skin-like' clothing. You may like to hang your work of art from an armature and distort it by twisting, tearing, overlapping, pulling and stretching the gel medium.

HINT Research Lady Gaga's meat dress designed by Franc Fernandez.

Create a work of art (2D or 3D) using a non-traditional material in response to one of de Bruyckere's core themes; love, suffering, loneliness, birth, death, or remembrance.



image: Wim Delvoye, Belgium, 1965, *Untitled (Robert)*, 2004, Beijing, China and Ghent, Belgium, tattooed pig skin, glass, frame, 190.0 x 138.0 cm; Roy and Marjory Edwards Bequest Fund 2011, Art Gallery of South Australia, Adelaide. © Studio Wim Delvoye