



EXPERIMENTA LIFE FORMS

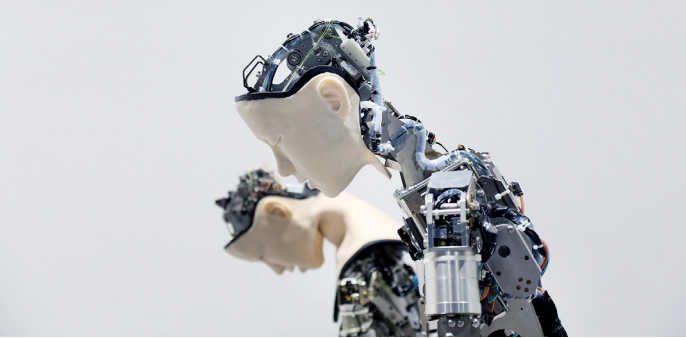
International
Triennial of Media Art



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& Scott Wiseman

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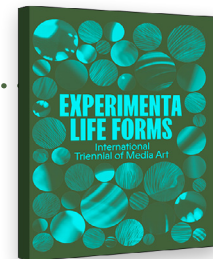
**STUDY
GUIDE**



About Experimenta

Experimenta is dedicated to the future of art: commissioning, presenting and touring contemporary art driven by technology.

The organisation's programs are quite unlike anything else and redefine what art can be, embracing the practices of bio art, creative coding, robotics, data-driven works, virtual and augmented reality.



CLOCKWISE TOP LEFT: 'TRANSplant [becoming Kin]' (2019-2020) by Donna Davis, mixed media installation. Image courtesy of the artist. • 'Itówapi Čík'ala (Little Picture)' (2018) by Kite and Devin Ronneberg. Photo by Bemis, Center For Contemporary Arts. • 'Soul Shift' (2018) by Justine Emard. Video still. Image courtesy of the artist.

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Experimenta commissions some of the world's most adventurous contemporary artists working on the periphery of convention; artists who work with technology in unexpected and original ways. It presents major touring exhibitions, partnerships with like-minded provocateurs, holds talks and symposiums, develops public programs and advocates on behalf of the sector.

Working with established and emerging artists, Experimenta provides a vital platform for unique and curious collaborations with experts in other fields (scientists, researchers, engineers, architects and technologists) realising ambitious, daring and complex projects.

Since its inception in 1986, Experimenta has developed a worldwide reputation for fostering creativity that extends the aesthetic, conceptual and experiential potential of art forms.

The organisation is not bound by traditional artforms and brings very different people into arts practice, championing new ideas about technology, exploring the creative possibilities and unearthing emerging artforms.

Experimenta presents art that often cannot be experienced elsewhere, imagining the future of art and exploring uncharted pathways towards it.



L-R: 'Smart Object' (2020) by Brad Darkson. Detail of Hand carved plongi with linseed oil. Photograph by Adam Murakami
• 'first forms' (2020) by Dominic Redfern. Video Still. Image courtesy of the artist.

An introduction to Experimenta Life Forms

Philosophers have wrestled with defining life for thousands of years. *Experimenta Life Forms* reveals how contemporary artists are approaching this perennial question, at a time when technological change and new research findings are making definitions of 'life' increasingly difficult to pin down.

What new life forms are emerging through technological and biological adaptation and invention? Are our definitions of life shifting because of new scientific discoveries? How do First Nations' epistemologies influence our ways of thinking and understanding life? How are notions of our place in the web of life changing now that research is identifying sentience in animals, plant-life, and maybe soon to be found in our machines?

Experimenta Life Forms is a timely exhibition featuring a range of artforms including robotics, bio-art, screen-based works, installations, participatory and generative art. The exhibition showcases 26 leading Australian and international artists whose work makes a significant contribution to current dialogues about the changing landscape of life as we know it.

Experimenta Life Forms is Experimenta's eighth national touring show. The exhibition officially opens in Hobart's Plimsoll Gallery from 19 March to 9 May 2021, and tours nationally until 2023. www.experimenta.org/lifeforms

Curators: Jonathan Parsons and Lubi Thomas.
Associate Curator: Jessica Clark

Curriculum links

This resource is designed to complement a visit to the *Experimenta Life Forms*, International Triennial of Media Art exhibition and has been developed for primary and secondary teachers and students to enable exploration and learning before, during and after their exhibition visit. This study guide expands on the exhibition themes, the artists, their artworks and the technology and techniques involved in their creation.

The *Experimenta Life Forms* exhibition and study guide offers many opportunities to promote Australian Curriculum Learning Areas, General Capabilities and Cross-curriculum Priorities.

Links can be made to the following Australian Curriculum Learning Areas:

- The Arts
- English
- Science
- Humanities and Social Sciences
- Technologies

Teachers are advised to access the [Australian Curriculum](#) website for relevant content descriptions and achievement standards or the senior curriculum syllabus documents for their state or territory.

Through viewing the exhibition students are encouraged to:

- visually analyse and respond to media art works in the exhibition;
- explore the range of media and materials available to contemporary artists and how the way artists use media and materials may contribute to our understanding of their work;
- consider the issues of display, presentation and context involved in the presentation of media art;
- use works in the exhibition as a starting point for their own creative investigations and production of artworks;
- research the work of other artists (both contemporary and past) whose work engages with similar mediums, themes and ideas.

The information, activities and discussion points in this guide, reference all of the artworks from

the *Experimenta Life Forms* exhibition. Teachers are encouraged to choose a range of artworks from the study guide for their students to engage with and to select from the suggested discussion points and activities those that best meet their students' interests, developmental and learning needs, and the focus of their curriculum. Teachers are also encouraged to adapt and build upon resources, activities and discussion points.

Observation sheets have been created to guide students' engagement with and exploration of the exhibition. Teachers should consider which observation sheets best needs the abilities of their students and the focus of their visit to the exhibition. Students should regard the observation sheets as a place to make written and visual records of their engagement with and understanding of the artworks. Teachers are advised to make multiple copies of the relevant observation sheets prior to visiting the exhibition.

Before visiting *Experimenta Life Forms* it is suggested that teachers contact gallery staff to determine the following:

- The suitability of exhibition content and subject matter for the year level they plan to bring.
- Whether staff are available to give an introductory or curatorial talk.
- Opening hours, transport and parking options, cloakroom facilities and whether admission fees apply.

If possible, teachers are advised to preview *Experimenta Life Forms* prior to bringing students to see the exhibition.

Before you visit Experimenta Life Forms

Experimenta Life Forms aims to be contemporary, inviting, interactive, leaving a lasting impression on people and encouraging contemplation and reflection.

Experimenta Life Forms explores many key concepts and ideas. These include:

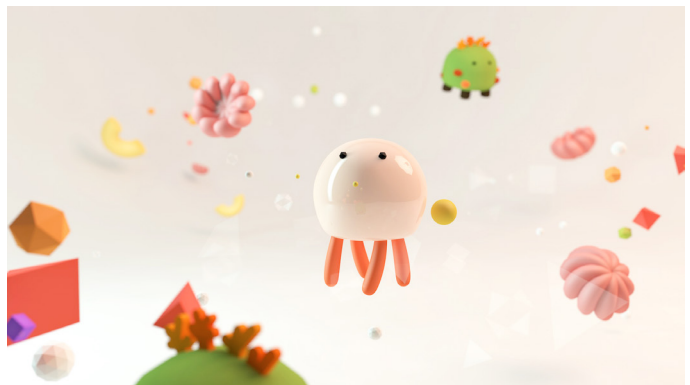
- the link between art, technology, science and society;
- the representation and transformation of intelligence;
- whether or not an artwork leads to new modes of consciousness;
- the role of the artist to change our understanding of the world.

The 8th *Experimenta* exhibition is titled *Experimenta Life Forms*.

- What does the phrase 'life forms' mean to you?
- Brainstorm as a class the meaning of the phrase 'life forms'.
- When do people use the phrase 'life forms'?
- Given the exhibition's title, what do you expect to see at the exhibition?



Experimenta Life Forms explores the idea of sentience in 21st century society. Many of the artworks question accepted definitions of sentience given contemporary understandings of intelligence and consciousness. Sentience means being able to feel or perceive. Sentient beings experience positive and negative wanted emotions. Eighteenth-century philosophers used the concept to distinguish the ability to think (reason) from the ability to feel (sentience).



TOP: 'Biomess' (2018) by The Tissue Culture & Art Project. Image courtesy of the artists. ABOVE L-R: 'Snow Rabbits' (2018/20) by Rebecca Selleck. Image courtesy of the artist. • 'You, Me, Things' (2020) by Uyen Nguyen, Max Piantoni and Matthew Riley. Image courtesy of the artists.

At the exhibition

Experimenta Life Forms provides an opportunity for students to explore diverse artworks by talented Australian and international artists. During the visit to *Experimenta Life Forms*, encourage students to observe how each artwork explores the exhibition's theme and how audiences interact with the artwork. Suggest that students think about what the artworks have in common and how they differ.

Suggest that students explore the placement of each artwork and think about how the placement of a work enhances or contributes to the audience's experience of

that work. Some questions to consider:

- Is the work near the entrance, in a separate room or placed in a particular way?
- What is near the work? How does the placement of one work in relation to other works affect your experience with each piece? Do they enhance each other or detract from one another?
- Do works that are placed near to each other have some relationship? If so, what is it?
- How and why do you think decisions were made about the placement of each work?

Observation Sheet – Primary

Note to teachers: These observation sheets have been designed for use with primary school students. Given the number of artworks in the exhibition, teachers might assign students or groups of students one or two artworks to analyse in this way. Time should also be allowed for students to observe the whole exhibition, interact with all the artworks and make their own connections.

I SEE... I THINK... I FEEL... I WONDER...

Use the wall text near the artwork to locate the following information:

Artist(s):

Title of artwork:

Date of artwork:

I see...

Describe or draw what you see and/or hear when you are looking at the artwork

I think...

Describe what you think the artwork is about and what the artist is trying to say

I feel...

Describe or draw how the artwork makes you feel

I wonder... (Describe how you think the artist created the artwork.)

Can you identify some art elements in the artwork? Circle which ones you can see using the list below:

Line

Form

Tone

Time

Texture

Light

Colour

Sound

Shape

Use the space below to describe or draw how one art element was used in the artwork.

The following information is intended for use by primary teachers and students. It provides a list of the artists and artworks featured in *Experimenta Life Forms* and a one sentence description of the artwork.

Artist name(s): Daniel Boyd
Gadigal Country, Sydney, NSW, Australia
Title and date of artwork: *History is Made at Night* (2013).
This artwork is about the universe.

Artist name(s): Anton Hasell
Djadjawurung Country, Mia Mla, VIC, Australia
Title and date of artwork: *3D Printed Difference Tone Bell* (2017).
This artwork is about sound vibrations.

Artist name(s): Michael Candy
Yugambah Country, Burleigh Heads, QLD, Australia
Title and date of artwork: *Little Sunfish* (2019).
This artwork is about a curious underwater robot.

Artist name(s): Floris Kaayk
The Hague, The Netherlands
Title and date of artwork: *The Modular Body* (2016).
This artwork is about the possibilities of 3D printing.

Artist name(s): Oron Catts and Ionat Zurr
Whadjuk Noongar Country, Perth, WA, Australia
Title and date of artwork: *Biomess* (2018).
This artwork is about the way we value all life forms.

Artist name(s): Kite and Devin Ronneberg
Muscogee (Creek) Nation & Tovaangar, Tulsa & Los Angeles, United States
Title and date of artwork: *Itówapi Čík'ala (Little Picture)* (2019).
This artwork is about the way we interact with nature and technology.

Artist name(s): Brad Darkson
Kurna Country, Adelaide, SA, Australia
Title and date of artwork: *Smart Object* (2020).
This artwork is about cultural exchange and the life force in objects.

Artist name(s): Thomas Marcusson
Gadigal Country, Sydney, NSW, Australia
Title and date of artwork: *DJ Moss* (2020).
This artwork is about the way we interact with nature and technology.

Artist name(s): Donna Davis
Yuggera and Ugarapul Country, Ipswich, QLD, Australia
Title and date of artwork: *TRANSplant [becoming Kin]* (2019 – 2020).
This artwork is about the survival of plant species.

Artist name(s): m0wson&Mowson
Wurundjeri Country, Melbourne, VIC, Australia
Title and date of artwork: *Feeler* (2019 – 2020).
This artwork is about the farming of octopuses and animal rights.

Artist name(s): Justine Emard
Paris, France
Title and date of artwork: *Soul Shift* (2018).
This artwork is about the way robots are designed.

Artist name(s): Uyen Nguyen, Max Piantoni and Matthew Riley

Wurundjeri Country, Melbourne, VIC, Australia

Title and date of artwork: *You, Me, Things* (2020).

This artwork is about creating virtual ecosystems.

Artist name(s): PluginHUMAN

Boonwurrung Country, Melbourne, VIC, Australia

Title and date of artwork: *PULSE: The Life Force of Trees* (2020).

This artwork is about trees from different countries.

Artist name(s): Helen Pynor

Gadigal Country, Sydney, NSW, Australia

Title and date of artwork: *Habitation* (2020).

This artwork is about the use of technology in repairing the human body.

Artist name(s): Dominic Redfern, Dja Dja Wurrung

Taungurung & Wurundjeri Country, Macedon Ranges, VIC, Australia

Title and date of artwork: *first forms* (2020).

This artwork is about living fossils.

Artist name(s): Theresa Schubert

Berlin, Germany,

Title and date of artwork: *Sound for Fungi. Homage to Indeterminacy* (2020).

This artwork is about how sound can promote growth in fungi.

Artist name(s): Rebecca Selleck

Ngunnawal & Ngambri Country, Canberra, ACT, Australia

Title and date of artwork: *Snow Rabbits* (2018/2020).

This artwork is about how rabbits have adapted to a new environment.

Artist name(s): Agat Sharma

Jaipur, India; Amsterdam, The Netherlands

Title and date of artwork: *Brachiation on the Phylogenetic Tree* (2020).

This artwork is about microorganisms.

Artist name(s): Miranda Smitheram

Tiohtiá:ke, Montreal, Canada,

Tāmaki Makaurau, Auckland, Aotearoa New Zealand

Title and date of artwork: *Macro/Micro_Whakapapa* (2019).

This artwork is about the connection between people and place.

Artist name(s): Laura Woodward

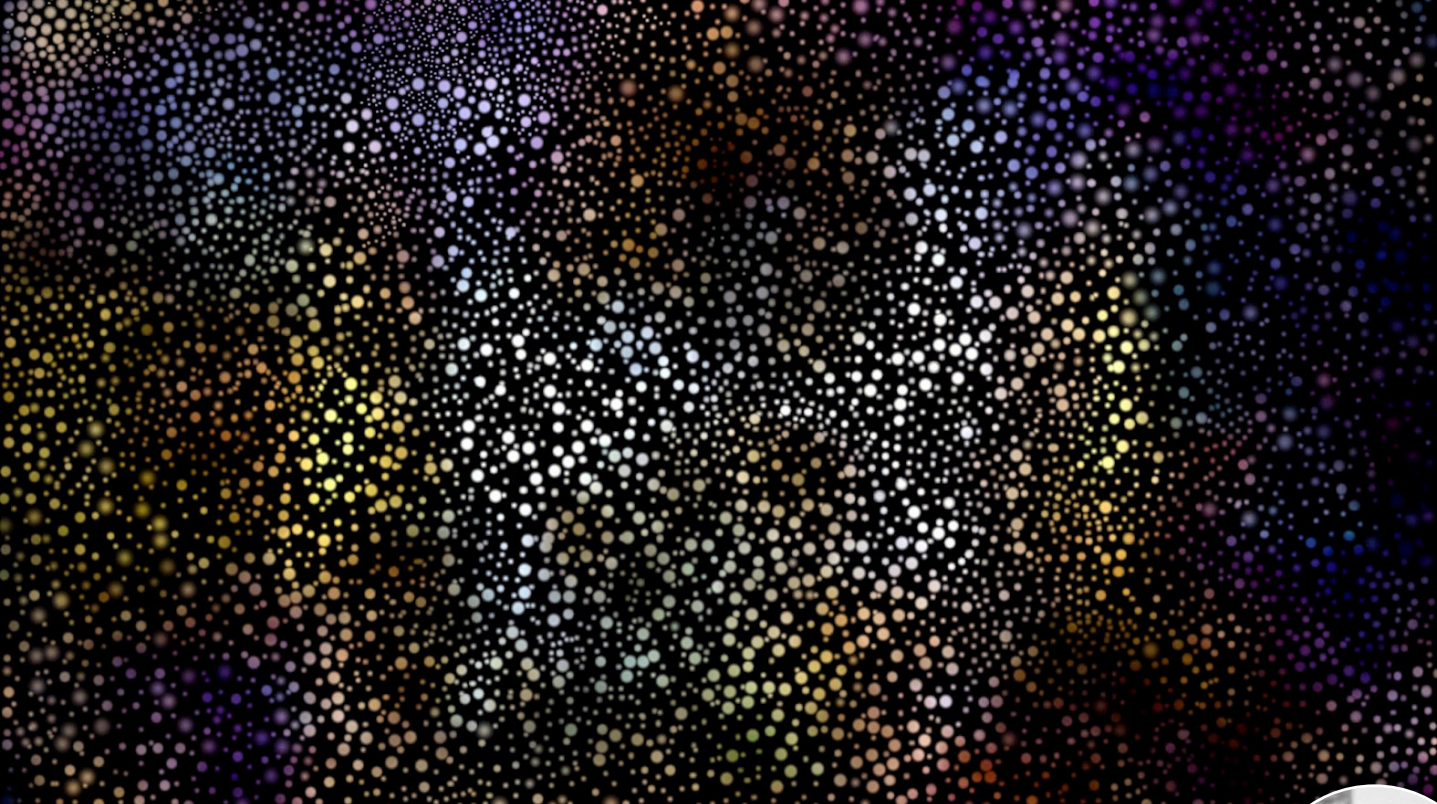
Djadjawurung Country, Castlemaine, VIC, Australia

Title and date of artwork: *Planet* (2019).

This artwork is about the elements of life.

Observation sheets – Secondary

Note to teachers: These observation sheets have been designed for use with secondary students in Years 7 – 10. Given the number of artworks in the exhibition, teachers might assign students or groups of students one or two artworks to analyse in this way. The observation sheets are a space for students to make dot points and sketches about the artworks. These notes and sketches can be further developed during lessons. Time should also be allowed for students to observe the whole exhibition, interact with all the artworks and make their own connections.



History is Made at Night
2013. 2 channel HD video installation with sound.
Dimensions: Variable. Duration: 10 mins 21 secs

'History is Made at Night' by Daniel Boyd.
Photo courtesy of the artist and Roslyn
Oxley9 Gallery, Sydney.



Daniel Boyd

Gadigal Country, Sydney, NSW, Australia

Sydney-based artist Daniel Boyd draws on his Aboriginal heritage as a Kudjla and Gangalu man from North Queensland, interrogating the legacies of colonisation and repatriation of displaced histories. Traversing an archaeology of lost and suppressed histories, his artistic practice questions romanticised ideas that dominate the historical canon. Boyd reinterprets artistic and archival material across art, science, history and geography through painting and video, unearthing Eurocentric perspectives of Australia.

History is Made at Night draws upon philosophical and scientific advancements relating to the existence of dark matter. Informed by the Big Bang – the scientific, mathematical and observational theories of how the universe came to be – Boyd transposes the Indigenous Western Desert aesthetic into an animated reimagining of the universe. The two-channel video engages in the varying histories of the tangible influence of the stars, in particular our sun, on life forms and life-forming on earth. The work reintroduces the universe as a mechanism for navigating an expanded sense of history and future trajectory.

This piece points to the limitations of our understanding of the dynamics of the universe: of what is known, what is unknown and what is yet to be discovered. This video experience gives expression to the universe as an infinitely expanding and interconnected system. As the universe incrementally expands, our capacity to define its origin, and implicitly our own, is confounded by our inability to

determine its full definition. Just as gazing up at the Milky Way from the vast desert landscapes of Central Australia makes a mockery of humanity's anthropocentric notions, this work reminds us that we are just a small part of complex, ever changing systems.

Central to Boyd's painting practice is his technique of partially overpainting imagery. This technique, adapted to the video format, functions to both reveal and conceal information and is designed to question the authority of perceived knowledge. By destabilising imagery and the viewer's perception of it we are asked to acknowledge the incomprehensible. The work reminds us that on earth we do not have a comprehensive understanding of life and all its forms, let alone what life forms may exist in the vast ever expanding universe.

ACKNOWLEDGEMENTS

Sound by Ryan Grieve

KEY THEMES, CONCEPTS AND VOCABULARY

Anthropocentric – Eurocentric – the Milky Way – the Big Bang – dark matter – the Dreaming – painting – First Nations epistemologies

DID YOU KNOW?

In Indigenous Australian astronomy the origin of the universe and the creation of the physical world goes back to a time called the Dreaming – the stories and beliefs behind creation.

Aboriginal and Torres Strait Islander peoples are known as the ‘first astronomers’ because of their understanding of the positions and movements of the stars, planets and galaxies. This knowledge inscribed in painting and passed on through word and dance plays an essential role in Aboriginal and Torres Strait Islander society and culture.

Like other aspects of Aboriginal and Torres Strait Islander cultures, astronomical traditions vary across the country and between different language groups.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- Have you ever been stargazing? What stars, constellations and planets can you identify? Why is it useful to have a knowledge of how the sky works?
- What is the Big Bang?
- What is dark matter?
- Use the Internet to research why Aboriginal and Torres Strait Islander peoples can be called the ‘first astronomers’.
- Use the Internet to research Indigenous Australian astronomical traditions. In what ways are Aboriginal and Torres Strait Islander views of astronomy similar to and different from European views of astronomy?

EXPERIENCE

- Describe your immediate response to *History is Made at Night*. Explain your response by making specific reference to art elements and/or principles.

- Identify the materials and techniques used by Daniel Boyd to create *History is Made at Night*.

- Describe the way *History is Made at Night* has been installed in the exhibition space. How does the placement of the artwork affect your response?

- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

- Watch *History is Made at Night* in silence for at least three minutes. In the table below make notes about what you see and hear.
- As the images move, what is concealed and what is revealed?

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- How does the sound used in *History is Made at Night* make you feel?

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CONNECT

- Drawing on the information provided by the wall text and online research about *History is Made at Night*, what is the intended meaning and message of the artwork?

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- Why do you think that Daniel Boyd titled this artwork *History is Made at Night*?

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See

Hear

See	Hear

- Explain how *History Is Made at Night* connects with the main themes of *Experimenta Life Forms*.

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- A recurring motif in Boyd's practice is the use of resin dots. Describe and explain Boyd's use of dots in *History Is Made at Night*. What do you think is the meaning of the space between the dots?

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- How does Boyd's use of video allow him to introduce an Indigenous perspective to Western and scientific understandings of the universe?

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- Use the internet to research Boyd's life and art. Drawing on this research, explain how *History Is Made at Night* is representative of his life experiences and his art?

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- *3D Printed Difference Tone Bell* is another artwork in the exhibition that is about our understanding of the universe? What do the artworks have in common? How do the artworks differ?

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MAKE

A planisphere is a flat map of the stars that can be used as a guide to help identify stars and constellations in the night sky. You can make a paper planisphere by using online templates. There are also many apps that you can use to locate stars, constellations, planets and other celestial objects. Stellarium is software that allows people to access a virtual planetarium. It can be downloaded as an app but can also be accessed through the web at < <https://stellarium-web.org/>>.

Useful link: <https://museumsvictoria.com.au/museum-at-home/learning/stars-and-galaxies-and-the-universe/make-your-own-planisphere/>

Take some time to look up at the night sky. What can you see? Based on your observations, paint, draw or use digital software to create an artwork about the night sky.

LINKS

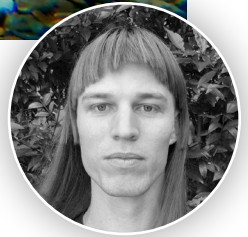
<https://experimenta.org/artists/daniel-boyd/>
<https://experimenta.org/artworks/history-is-made-at-night/>
<https://www.abc.net.au/news/science/2017-04-04/a-beginners-guide-to-finding-planets-and-constellations/8373718>
<http://www.aboriginalastronomy.com.au>



Little Sunfish

2019. 1-channel video. 3d Printed plastic, brass, stainless steel, acrylic, foam, electronic components
Dimensions: 270x200x200 (in glass dome). Duration: 9 mins 31 secs

'Little Sunfish' (2019) by Michael Candy. Video still. Image courtesy of the artist.



Michael Candy

Yugambeh Country, Burleigh Heads, QLD, Australia

Michael Candy works with a vocabulary of robotics, hardware hacking, intervention and video. This didactic practice seeks to mediate the liminal realm that technology oppresses on the physical world. His installations and projects often emerge as social experiments or ecological interventions in public space.

In *Little Sunfish* the artist has created a speculative story about an underwater robot that escapes its human masters to roam the Pacific Ocean. The film begins at the Fukushima Daiichi Nuclear Power plant where the robot is searching for radioactive debris after the nuclear accident triggered by flooding as a result of the 2011 Tohoku tsunami in Japan. The work is an imaginative leap from real life events, inspired by the ways that Tokyo Electric Power Company (TEPCO) have used robots to investigate damage inside the Fukushima Daiichi reactors.

Little Sunfish taps into a long history of robotic representation in popular culture and the narrative trope where robots develop their own agency. Typically, this leads to the robot turning against their masters such as in *R.U.R. (Rossum's Universal Robots)*, an internationally successful Czech play written by Karel Capek in 1920 that introduced the word 'robot' to the English language.

Candy's video takes a more nuanced approach as here the robot is seen exploring the world, keen for new experiences beyond its human-built purpose, but inadvertently spreading radioactive material along its way and placing the very world it seeks to discover at risk.

Alongside this video work is a fully functioning scale replica, fabricated by the artist, of the original Toshiba built ROV (Remotely Operated Vehicle) robot that is featured in the video. Engineering and construction processes required to build robots and kinetic sculptures are central to Candy's artistic practice. The robot is presented in a glass display case reminiscent of the types of display techniques found in natural history museums. This asks us to consider the implications of a future where there is robotic sentience and whether we will accept, reject or subjugate the life forms that we create.

ACKNOWLEDGEMENTS

Soundtrack by BURAGO
Supported by HOTA Creative Development Fund
A QAGOMA Commission

KEY THEMES, CONCEPTS AND VOCABULARY

Water – nuclear power – radioactive – robots – sentience – ecology – technology – speculative fiction – video art

DID YOU KNOW?

In 2011, a tsunami devastated parts of Japan's coastline, killing more than 18,000 people. It also hit the Fukushima nuclear power plant, triggering the most serious nuclear accident since Chernobyl. Swimming robots are playing a crucial role in documenting the extent of the damage and locating radioactive waste.

Little Sunfish is the name of the swimming robot developed by the Tokyo Electric Power Company (TEPCO). The robot is engineered to operate underwater, in total darkness and amid intense radiation. Operated by a team of scientists, Little Sunshine collects data that facilitates the removal of radioactive waste.

The robot was first sent into the Unit 3 reactor on 19 July 2017. Unlike the other robots that had been sent in to investigate the damage, Little Sunfish successfully completed the mission and even made a return journey.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- Use the Internet to research the Fukushima Daiichi nuclear disaster. Use a 5Ws and 1H table to organise your notes.
- What is a robot? How can robots help us? Can you think of any negative impacts of robots on society?
- How are robots usually depicted in popular culture?

EXPERIENCE

- Describe your immediate response to *Little Sunfish*. Explain your response by making specific reference to art elements and/or principles.

- Identify the materials and techniques used by Michael Candy to create *Little Sunfish*.

- Describe the way *Little Sunfish* has been installed in the exhibition space. How does the placement of the artwork affect your response?

- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

See

Hear

- Watch *Little Sunfish* from beginning to end. In the table above make notes about what you see and hear.
- Candy has described Little Sunfish as both 'adorable' and 'toxic'. What adjectives do you think best describe Little Sunfish? Explain your choices by making specific references to the artwork.

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- Identify and describe the settings that are part of *Little Sunshine*. Explain why each setting is important.

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- Why do you think Little Sunfish escapes?

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CONNECT

- Drawing on the information provided by the wall text and online research about *Little Sunfish*, what is the intended meaning and message of the artwork?

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- Why do you think that Michael Candy titled the artwork *Little Sunfish*?

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- Explain how *Little Sunfish* connects with the main themes of *Experimenta Life Forms*.

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- Why is *Little Sunfish* displayed in a glass presentation case as if it is an exhibit in a museum?

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- What comment does *Little Sunfish* make about the relationship between ecology and technology?

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- Do you think *Little Sunfish* is a cautionary tale? Why or why not?

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MAKE

Little Sunfish is a speculative story. At its most simple speculative storytelling, asks the question, 'What if?'. As a literary genre, speculative fiction offers us stories inspired by the real world in which the author speculates about the consequences of changing what is possible. The stories challenge us to re-examine the way we see things.

Write your own speculative short story about technology. Think about the technology that you use every day. What if this technology, like *Little Sunfish*, developed a mind of its own? What might happen? How might your everyday life change?

- Use the Internet to research Candy's life and art. Drawing on this research, explain how *Little Sunfish* is representative of his life experiences and his art?

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- *Soul Shift* is another artwork in the exhibition that is about robot sentience? What do the artworks have in common? How do the artworks differ?

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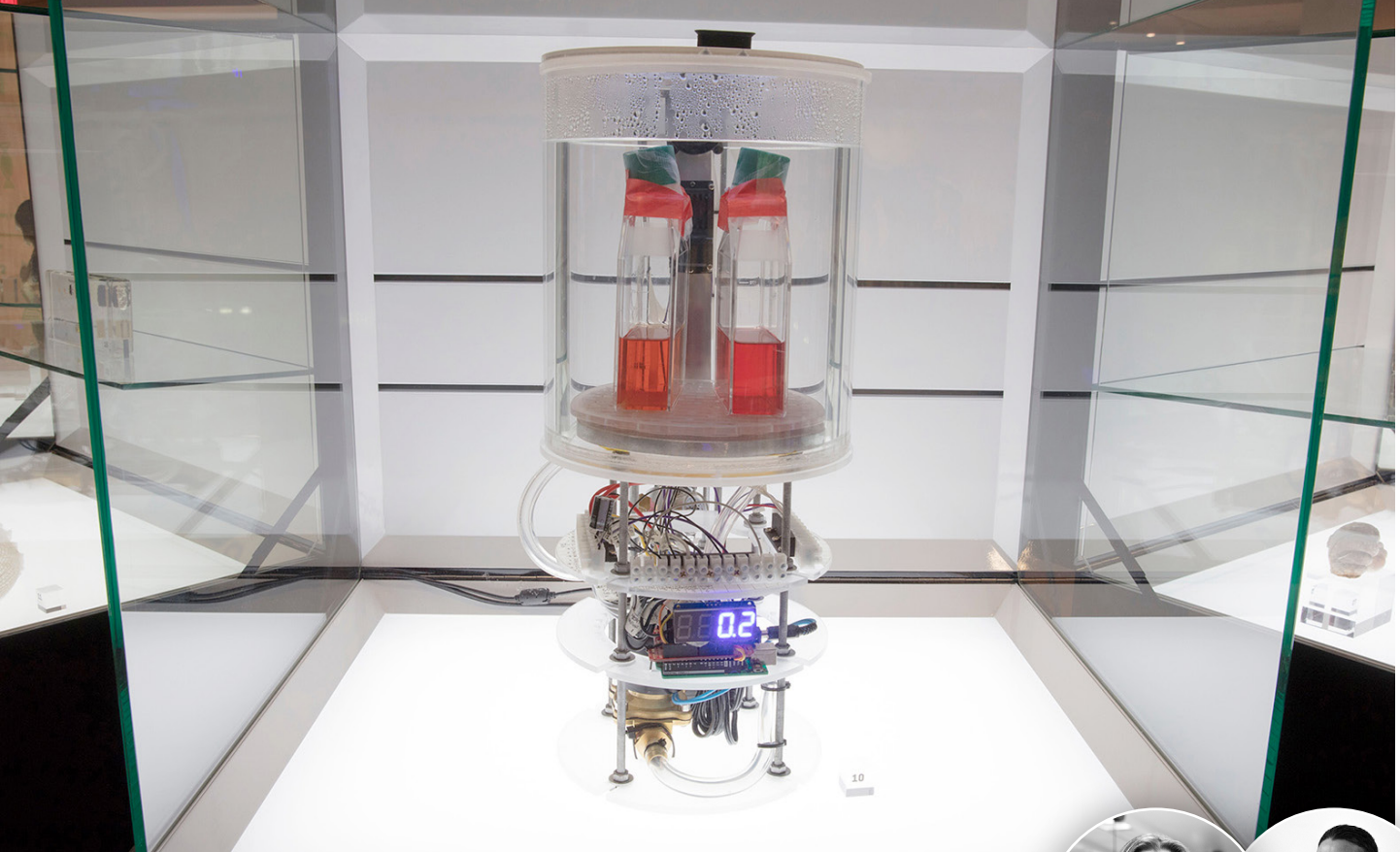
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LINKS

<https://experimenta.org/artists/michael-candy/>
<https://experimenta.org/artworks/little-sunfish/>
<https://michaelcandy.com/>
<https://www.youtube.com/user/Michaelcandyart/videos>
<https://www.bbc.com/news/in-pictures-40298569>



Biomess

2018. Natural History specimens, such as taxidermy, fixed and in formaldehyde. Luxury display cases. A bioreactor holds a flask with hybridoma cells. Dimensions: Varied

'Biomess' (2018) by The Tissue Culture & Art Project. Image courtesy of the artist.



Oron Catts & Ionat Zurr

Whadjuk Noongar Country, Perth, WA, Australia

Award winning artists, researchers and curators, Oron Catts and Dr Ionat Zurr formed the internationally renowned Tissue Culture & Art Project in 1996. Catts and Zurr's interest is life, more specifically the shifting relations and perceptions of life in the light of new knowledge and its applications. Often working in collaboration with other artists and scientists, they have developed a body of work that speaks volumes about the need for new cultural articulations of evolving concepts of life.

Biomess celebrates the diversity of life and challenges our perceptions of its strangeness by transforming life forms into objects of desire.

The artwork is part of a significant body of work by Catts and Zurr whose practice centres on working with life or living systems as a medium for artistic expression both as a material and as subject matter. In this installation, natural history specimens sourced in collaboration with curators of natural history collections are encased within immaculate luxury retail display cases. Over the course of the three year national tour of this exhibition, these specimens will be replaced with new specimens sourced from local natural history collections on the tour itinerary. Alongside the cases, an unfamiliar apparatus – a bioreactor – holds a flask with hybridoma cells, which are a type of lab-made hybrid cell line used for research and the production of

antibodies.

There are many naturally occurring organisms that do not conform to human notions of identity, self, individuality, gender, sex and reproduction. Through biotechnology, new constructed lifeforms defy scientific and cultural classification systems and escape the lab to become a medium for artistic and consumer products. The frequent allusions to 'natural' and 'unnatural' in cultural debates of identity and gender seem entirely unwarranted when confronted with the incredible diversity of natural and artificial life forms. The specimens on display within the high-end retail cabinets point to the increasing commodification of all life forms whether naturally occurring or lab-made alluding to extractive approaches humans exercise towards life and living systems.

By placing these exquisite cabinets and the bioreactor in the gallery context the artists ask us to consider our attitudes to and the implications of life forms as art. The installation's 'monstrous' hybrid of cultures, aesthetics and values acts as both a loose narrative and a critique of the anthropocentric and consumerist view of life.

ACKNOWLEDGEMENTS

The Tissue Culture & Art Project (Oron Catts & Ionat Zurr)
Developed at SymbioticA, School of Human Sciences, The University of Western Australia.

Bioreactor designed by Nathan Thompson
Luxury display system designed by MasterPlanners, Australia

KEY THEMES, CONCEPTS AND VOCABULARY

Natural and artificial life forms – natural history – biotechnology – taxidermy – formaldehyde – bioreactor – hybridoma cells – consumerism – museology - bioart

DID YOU KNOW?

One of the materials used to create *Biomess* are hybridoma cells. Hybridomas are hybrid cells. They are produced by the fusion of an antibody-producing lymphocyte (a type of white blood cell) with a tumour cell.

Hybridoma technology was discovered in 1975 by two scientists, Georges Köhler and Cesar Milstein. They wanted to create a method for producing large numbers of monoclonal antibodies. Monoclonal antibodies are identical copies of one type of antibody.

Köhler and Milstein's technique for creating monoclonal antibodies has led to many medicine and biomedical applications, from creating more reliable probes for blood and tissue typing tests, to designing completely new therapeutic strategies for diseases such as cancer.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- How are art and science related? Can you think of any artists and/or artworks inspired by science?
- What is biological art?
- What is the classification of living organisms? Why do we classify living organisms?
- What is an object of desire?

EXPERIENCE

- Describe your immediate response to *Biomess*. Explain your response by making specific reference to art elements and/or principles.

- Identify the materials and techniques used by Oron Catts and Ionat Zurr to create *Biomess*.

- Describe the way *Biomess* has been installed in the exhibition space. How does the placement of the artwork affect your response?

- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

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- Catts has said that *Biomess* is about confusing people.¹ Do you find *Biomess* confusing? Explain why or why not.

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- Describe the life forms that you can see and the way that these life forms are displayed.

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- List the challenges of working with living specimens as a medium for art both as a material and as subject matter.

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- Throughout history artists have drawn inspiration from and represented the natural world. This shows itself in images of plants, animals and landscape. How do Catts and Zurr represent the natural world in *Biomess*?

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CONNECT

- Drawing on the information provided by the wall text and online research about *Biomess*, what is the intended meaning and message of the artwork?

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- Why do you think that Oron Catts and Ionat Zurr titled this artwork *Biomess*?

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- Explain how *Biomess* connects with the main themes of *Experimenta Life Forms*.

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- 'There are no clean neat answers, especially when it comes to life.'² – Oron Catts

How does *Biomess* challenge the way we view life?

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How does *Biomess* challenge the way we view art?

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- How and why does *Biomess* commodify the life forms featured in the artwork?

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- Use the internet to research Catts' and Zurr's life and art. Drawing on this research, explain how *Biomess* is representative of their life experiences and their art?

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- *The Modular Body* is another artwork in the exhibition that is about natural and artificial life? What do the artworks have in common? How do the artworks differ?

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LINKS

<https://experimenta.org/artists/the-tissue-culture-art-project/>
<https://experimenta.org/artworks/biomess/>
<https://tcaproject.net/>
<https://tcaproject.net/portfolio/biomess/>
<https://www.symbiotica.uwa.edu.au/>

MAKE

Natural history collections are an important extensive and irreplaceable record of life. These collections form the basis of our understanding of biodiversity on our planet. The Science Faculty at your school probably has a natural history collection. Your task as a

class is to create an exhibition of these specimens, along with other specimens that you decide to add to the Science Faculty collection.

Working as an individual, you are required to use a natural history specimen to create an

artwork. Once you have decided on a specimen and how it will be exhibited, write the wall text for the specimen. The wall text should draw on the language of the taxonomic classification system and art elements and principles terms to describe the specimen.



Smart Object

2020. Western Myall wood, charcoal, linseed oil, steel, 3D animation. Dimensions: Various. Duration: 3 mins 10 secs
An ANAT and Experimenta Commission

'Smart Object' (2020) by Brad Darkson.
 Character animation development image
 courtesy Brett Walter.



Brad Darkson

Kaurna Country, Adelaide, SA, Australia

Brad Darkson is a South Australian visual artist currently working across various media including carving, sound, sculpture, multimedia installation, and painting. Darkson's practice is regularly focused on site specific works. His current research interests include seaweed, surveillance, ritualised human behaviour, and the pitfalls of neo-capitalism, as well as reconnecting with culture. Conceptually Darkson's work is often informed by strong ties to both his Narungga First Nations and Anglo Australian heritage.

'Why do we strive to create a sentient form of Artificial Intelligence, or to find sentient life elsewhere in the universe?...The quest for sentience has become a distraction from the urgent need for us all to form kinship with Country and the objects of our creation, to reconnect with the spirit of Country and culture that already exists'. – Brad Darkson, 2020

Smart Object is a multi-media installation that questions humanities obsessive pursuit of technology, in particular the ambition to create an Artificial General Intelligence – a machine as smart as a human and potentially self-evolving and sentient.

The artwork reveals two simultaneous processes; a wooden plongi (club) hand-carved by the artist with guidance from Allan Sumner and Ngarrindjeri Elder Uncle Moogy, and a looped 3D animation of the artist's

avatar performing the carving process, generated from sophisticated motion capture technologies under the guidance of creative digital technologists. The dialogue between the physical and digital components of *Smart Object* explore notions of time, cultural knowledge transfer, and the innate spirit or life force of and within all things.

Darkson critiques humanity's reliance on the digital that serves to sever our spiritual connection to Country and encourages us to reconnect with the sentient Country we are all a part of, in the real world.

'Uncle tells me that everything has a spirit because everything came from the Earth, just as we did. I sit down outside in front of a stump, the sun on my face, and as I slowly chip away at the block I think about how different it feels to staring at a computer.' – Brad Darkson, 2020

ACKNOWLEDGEMENTS

The artist acknowledges the Country he works on to be the unceded land of the Kurna people, and pays respect to Kurna elders past and present.

Uncle Moogy Sumner – cultural and technical advisor

Allan Sumner – cultural and technical advisor

Brett Walter – character artist/CG lead

Arthur Ah Chee – modelling/assistant digital artist

Supported by Aboriginal Contemporary Arts (ACA Studios),

Aldinga SA; Flinders University Motion Capture Studio;

Hackerspace Adelaide; Cake Industries.

KEY THEMES, CONCEPTS AND VOCABULARY

Knowledge – artificial intelligence – kinship – country – technology – sentience – plongi – avatar – First Nations epistemologies – wood carving – digital vs analogue

DID YOU KNOW?

Country is a word used by Aboriginal and Torres Strait Islander peoples to refer to the Land to which they belong and their place of Dreaming.

- Aboriginal and Torres Strait Islander peoples have a special connection to and responsibility for Country.
- Ownership of Country is hereditary.
- Knowledge of Country is learnt through cultural exchange including ceremony, song, and stories.
- Connection to Country is important whether a person lives in the city or in a rural area.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- Why is the word ‘smart’ often used to describe technology?
- When do you depend on technology? When can you live without it? Do you think that you are too reliant on technology?
- Do you think an artwork can influence the way people behave?

EXPERIENCE

- Describe your immediate response to *Smart Object*. Explain your response by making specific reference to art elements and/or principles.

- Identify the materials and techniques used by Brad Darkson to create *Smart Object*.

- Describe the way *Smart Object* has been installed in the exhibition space. How does the placement of the artwork affect your response?

- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

- Watch *Smart Object* from beginning to end. In the space below make notes about what you see and hear.

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- Describe Darkson's avatar. How does the artist depict himself?

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- In the table below, draw a Venn diagram comparing the two components of the artwork – the wooden plongi and the looped 3D animation of the carving process.

Use your notes to describe the dialogue between the physical and digital components of *Smart Object*.

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CONNECT

- Drawing on the information provided by the wall text and online research about *Smart Object*, what is the intended meaning and message of the artwork?

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- Why do you think that Brad Darkson titled this artwork *Smart Object*?

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- Explain how *Smart Object* connects with the main themes of *Experimenta Life Forms*.

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- What comment does *Smart Object* make about humanity's reliance on digital technology?

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How does Darkson use digital technology to critique the use of digital technology?

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- *Smart Object* was influenced by Darkson's conversations with Uncle Moogy and Alan Sumner about practising culture. Darkson also relied on the expertise of animators Brett Walter and Arthur Ah Chee.

What does *Smart Object* suggest about the value of collaborative artistic practice?

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- Use the internet to research Darkson's life and art. Drawing on this research, explain how *Smart Object* is representative of his life experiences and his art?

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MAKE

'The slower you experience something in the real world, the more you learn from the experience. The longer you sit with an object, the more that object reveals itself to you.'¹³ – Brad Darkson

Have you ever tried to teach yourself something by watching a YouTube video or using other types of online instructions? Thinking about your experience of remote schooling, did the online learning environment prove more challenging in some subjects than others because of the way knowledge is communicated and applied in these subjects?

Smart Object is an artwork inspired by the passing of cultural knowledge and learning from Elders. The artist's wood carving lessons with Uncle Moogy and Alan Sumner were interrupted by COVID-19. While Darkson resorted to video conferencing calls to continue his lessons, he found the process more difficult. He arrived at a greater understanding and appreciation of real rather than virtual experiences.

Like Darkson, ask a family member or a friend to teach you a new skill. Use digital technology to document the process. Create an artwork like *Smart Object* that consists of two components – an object (the physical) and a portrayal of the process of creating the object (the digital). Write the wall text for your artwork.

- *Itówapi Čík'ala (Little Picture)* is another artwork in the exhibition that explores the connection between human and non-human entities from an Indigenous perspective? What do the artworks have in common? How do the artworks differ?

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LINKS

<https://experimenta.org/artists/brad-darkson/>
<https://experimenta.org/artworks/smart-object/>
<https://www.darkson.art/>



TRANSplant [becoming Kin]

2019 – 2020.

ELEMENT 1: [Multispecies files] Sculpture: timber, acrylic, digital prints, brass, recycled components, magnifying glass and plinth.

Dimensions: 155 (h) x 40 (w) x 40 (d) cm

ELEMENT 2: [Family Portrait] Digital assemblage: Queensland State Archives Item ID1250578 (H275: *Flindersia brayleyana*, NQ., 1930) with images by artist of *Flindersia oppositifolia* sapling and digital mount. Digital print. Dimensions: 76(h) x 50(w) x 2(d) cm

ELEMENT 3: [TRANSplant] Animation: 0:40sec (looped video) Dimensions: 35(h) x 55(w) cm. Duration: 0:40 sec (looped video)

'TRANSplant [becoming Kin]' (2019-2020) by donna davis, mixed media installation. Video still. Image courtesy of the artist.



Donna Davis

Yuggera and Ugarapul Country, Ipswich, QLD, Australia

Donna Davis is a multi-disciplinary artist whose work explores intersections between art and science with a particular focus on natural and social ecosystems. Often collaborating with ecologists, botanists and mycologists, Davis explores new ways to creatively interpret ecological data. By providing new ways of 'seeing', Davis aims to challenge ecological discourse and promote environmental conservation and stewardship.

TRANSplant [becoming Kin] is a three-part work that imagines adaptations that flora may require to survive the ecological upheavals wrought through climate change. The work tells the tale of ten flora refugee species whose tropical mountain home is under threat from rising temperatures. The plants are forced to leave home, travelling through varied landscapes as they search for a place and renewed sense of belonging. This speculative fiction work draws its inspiration from the Tropical Mountain Plant Science Project, a real-time environmental flora rescue mission led by the Australian Tropical Herbarium.

Atop a plinth sits a device echoing early 20th century

archival tools, yet the content points to a future where analogue has been replaced by digital due to its stability and accessibility. The device contains a series of fictitious records: applications for citizenship submitted by specific plant species. Adjacent to the device sits a large digital print – an altered version of a photo originally taken in a North Queensland forest in 1930. It reflects the original; a man standing close to an ancient *Flindersia* genus tree. In the man's hands is a young displaced sapling, seeking new roots, conjuring an alternate narrative about resource exploitation and interspecies relationships. The third element of this installation is a projected animation that reveals a mobile plant searching for its kin in the Queensland State Archives.

The work considers the plight of flora as plants uproot and navigate the anthropogenic landscape to find more favourable environments. What might a new paradigm look like where all species are considered as equal and valued life forms, perhaps even global citizens?

The survival strategy woven through *TRANSplant [becoming Kin]*'s three interconnected elements, references moves already afoot by environmental activists seeking to effect change within our anthropocentric Western legal systems. In 2017, New Zealand's Whanganui River was granted the same legal status as its human citizens, consistent with other legislative changes in other jurisdictions such as the ACT government's recognition of animals as sentient beings in 2019.

ACKNOWLEDGEMENTS

Artwork created as part of Queensland State Archives Creative in Residence program 2019 with reference to the Tropical Mountain Plant Science Project; an art/science residency led by the Australian Tropical Herbarium at James Cook University, supported by the Wet Tropics Management Authority. Proudly supported by the Australian Tropical Herbarium.

KEY THEMES, CONCEPTS AND VOCABULARY

Ecology – flora – climate change – adaptations – upheaval – refuge – citizenship – survival – interspecies relationships – analogue vs digital – art and science collaborations – speculative fiction

DID YOU KNOW?

'Many species of plants of Australia's tropical mountaintops are found nowhere else on Earth, and are threatened by climate change – urgent precautionary conservation action is required. Conservation in their natural habitat (in-situ) is untenable for these species as climate change is rapidly eliminating this habitat.' - Prof. Darren Crayn, Director, Australian Tropical Herbarium

TRANSplant [becoming Kin] draws its inspiration from the Tropical Mountain Plant Science Project. The Tropical Mountain Plant Science Project is an environmental flora rescue mission led by the Australian Tropical Herbarium.

The project will collect, propagate and safeguard up to 20 species of climate-threatened tropical mountaintop flora, to avert their extinction. While the preferred conservation outcome is to protect species in their original habitat, this is not possible. The species to be rescued range from tiny orchids to huge trees and include Australia's only native rhododendrons. Many of the species are not found anywhere else on Earth, which is one of the reasons Queensland's Wet Tropics were recognised as a World Heritage Area in 1988.

Once the plants are safe in cultivation, research will assess the physical limitations of these species. The information will be used to improve information management of living collections and will also help scientists predict what will happen to the species diversity of the Australian wet tropics in the coming decades.

The plants will be propagated at the Australian National Botanic Gardens and then distributed to participating botanic gardens along the East Coast of Australia where they will be grown in well managed, living collections with micro-climates as close as possible to their original habitat.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- Using the school garden as your case study, write a description of the habitat area. Survey the plant species currently growing in this habitat. Collect specimens. With the help of your science teacher and the school gardener, identify the specimens. Are they native or introduced species? Are the plants thriving or struggling to survive? Identify the threats to plant life in the school garden. How could these threats be curbed?

EXPERIENCE

- Describe your immediate response to *TRANSplant [becoming Kin]*. Explain your response by making specific reference to art elements and/or principles.

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- Identify the materials and techniques used by Donna Davis to create *TRANSplant [becoming Kin]*.

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- Describe the way *TRANSplant [becoming Kin]* has been installed in the exhibition space. How does the placement of the artwork affect your response?

- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

- *TRANSplant [becoming Kin]* tells a story. Based on your viewing of the artwork compile a story map. Your story map should provide information about the following elements of the story:
 - setting (time and place)
 - characters
 - the problem
 - the goal
 - the action
 - the outcome

Use the space below to make notes.

- Describe the relationship between the three elements of the artwork.

- Take a close look at the digital print of a photograph of a man standing next to an ancient tree. What connections can you make between the photograph and the intention of *TRANSplant [becoming Kin]*?

CONNECT

- Drawing on the information provided by the wall text and online research about *TRANSplant [becoming Kin]*, what is the intended meaning and message of the artwork?

- Why do you think that Donna Davis titled this artwork *TRANSplant [becoming Kin]*?

- Explain how *TRANSplant [becoming Kin]* connects with the main themes of *Experimenta Life Forms*.

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- Why does Davis portray the flora species depicted in *TRANSplant [becoming Kin]* as refugees?

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Drawing on the thoughts and feelings that you experienced when exploring the artwork, evaluate the intellectual and emotional impact of Davis' use of anthropomorphism.

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- Use the Internet to research Davis' life and art. Drawing on this research, explain how *TRANSplant [becoming Kin]* is representative of her life experiences and her art?

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MAKE

TRANSplant [becoming Kin] advocates for a future where all species are valued and considered equal.

Your task is to make an artwork about an endangered species or an endangered place.

Your artwork should be reflective of your research and/or experiences. It should portray the beauty and vulnerability of the endangered plant species or the place and the seriousness of the threat to the species' or place's survival. Your aim should be to trigger an emotional response for the viewer and a call to action.

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- *PULSE: The Life Force of Trees* is another artwork in the exhibition that is about the sentience of flora? What do the artworks have in common? How do the artworks differ?

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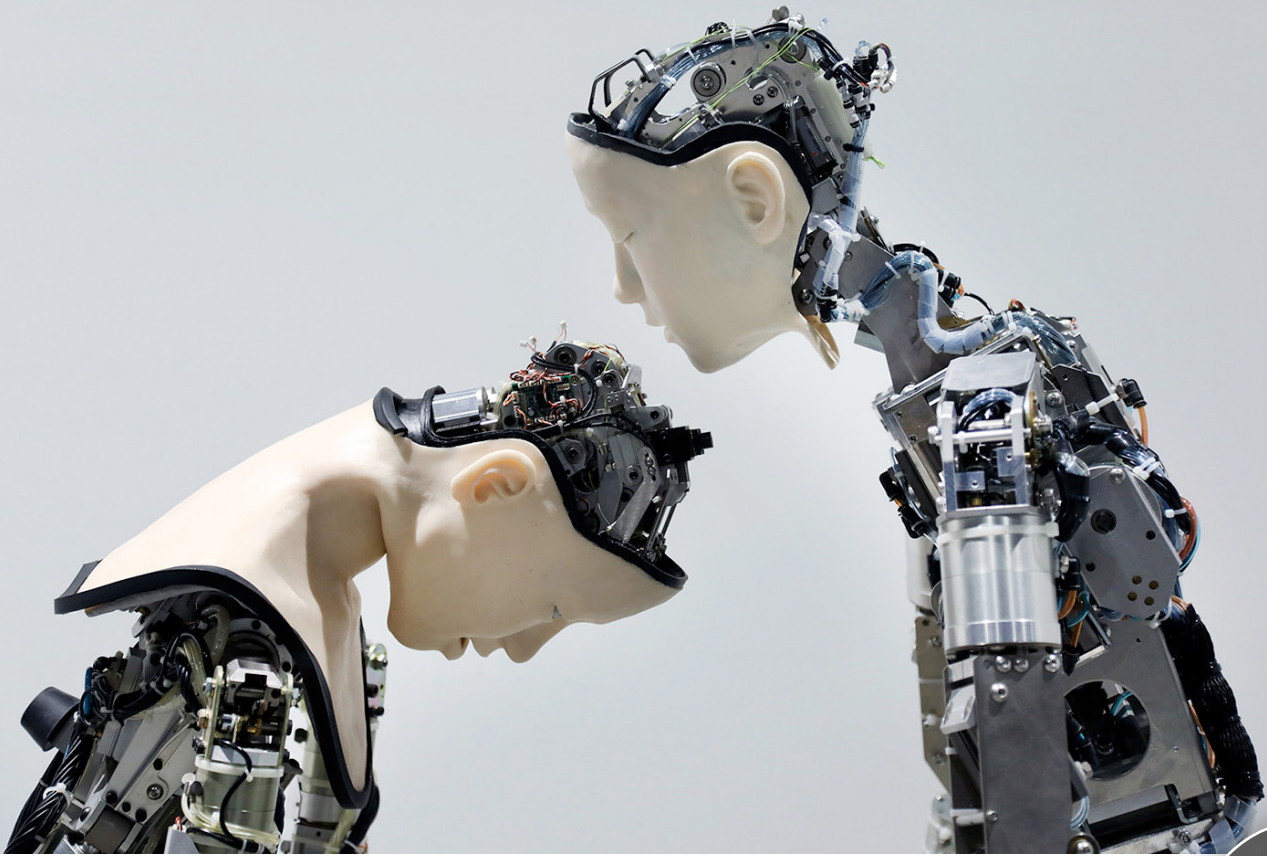
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LINKS

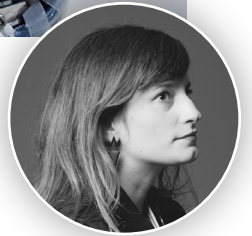
<https://experimenta.org/artists/donna-davis/>
<https://experimenta.org/artworks/transplant/>
<https://donnadavisartist.weebly.com/>



Soul Shift

2018. Video. Dimensions: Variable. Duration: 6 mins

'Soul Shift' (2018) by Justine Emard. Video still. Image courtesy of the artist.



Justine Emard

Paris, France

Justine Emard is a visual artist who lives and works in Paris. Her work explores the new relationships that are being established between our lives and technology. By combining different image media – from photography to video and virtual reality – she situates her work at the crossroads between robotics, objects, live 3D prints, organic life and artificial intelligence.

Justine Emard's practice explores the emerging relationship between human life and technology. *Soul Shift* is one of a number of artworks created in Japan since 2016, in collaboration with the renowned scientists Hiroshi Ishiguro (Osaka University) and Takashi Ikegami (Tokyo University). In this video, we witness the possible meeting of two generations of the same ground-breaking robot design called *Alter*.

The robotics research laboratories at Osaka and Tokyo universities are partners in the *Alter* project, aiming to understand what it means to be 'life-like'. These robots have complex neural networks that model a system of 1,000 nerve cells and are able to 'learn' life-like actions based on signals received through their sensors. *Alter*'s physical movements may at first appear haphazard – constantly changing because of underlying algorithms – but through close observation over time, 'life-likeness' emerges.

Soul Shift responds to this research paradigm, by pondering the implications of the transference of *Alter*'s data – developed from its 'learnt experiences' – to the next generation, *Alter 2*. How might this transference of 'knowledge' be experienced or understood by *Alter 2*? Is there a memory in its code, a spirit transferred to *Alter 2*? A form of reincarnation but without flesh?

Emard creates and captures the encounter between the two generations of robot. By remembering that the actions of the robot are not externally controlled, we are left to wonder if the reactions from *Alter 2* are ones of intrigue or even approach recognition and affection to the earlier version of itself.

ACKNOWLEDGEMENTS

Alter and *Alter 2* programmed by Ishiguro's Lab, Osaka University and Takashi Ikegami, Tokyo University

KEY THEMES, CONCEPTS AND VOCABULARY

Robot – Artificial Intelligence – Artificial Consciousness – knowledge – transference – video art

DID YOU KNOW?

A robot is a machine capable of carrying out a series of actions that replaces human effort. Robots can be guided by an external control or the control may be embedded within the machine.

While there is evidence of mechanised human-like figures in ancient civilisations and writers since the early 19th century have imagined artificial life forms, the first digitally operated and programmable robot was conceived in 1954 by American inventor George Devol.

Devol created the first digitally operated and programmable robot called Unimate. He sold Unimate to General Motors in 1960 and in 1961 Unimate joined the assembly line at a General Motors plant in New Jersey.

In contemporary society, robots are a part of daily life. They can be found everywhere and perform a range of tasks that improve the quality of human life.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- What is Artificial Intelligence (AI)?
- What is Artificial Consciousness (AC)?
- *Soul Shift* is an artwork about how knowledge is passed from one generation to the next. Make a list of ways that knowledge is passed from one generation to the next

Write about a personal experience of the exchange of knowledge from one generation to the next? Was it only knowledge that was exchanged?

EXPERIENCE

- Describe your immediate response to *Soul Shift*. Explain your response by making specific reference to art elements and/or principles.

- Identify the materials and techniques used by Justine Emard to create *Soul Shift*.

- Describe the way *Soul Shift* has been installed in the exhibition space. How does the placement of the artwork affect your response?

- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

See

Hear

- Watch *Soul Shift* from beginning to end. In the table above make notes about what you see and hear.
- Make notes about the interactions between *Alter* and *Alter 2*.

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- What happens when *Alter* discovers its lookalike? How do the robots interact with each other?

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- Use your notes to describe *Alter* and *Alter 2*'s relationship.

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CONNECT

- Drawing on the information provided by the wall text and online research about *Soul Shift*, what is the intended meaning and message of the artwork?

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- Why do you think that Justine Emard titled this artwork *Soul Shift*?

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- Explain how *Soul Shift* connects with the main themes of *Experimenta Life Forms*.

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- What is sentience?

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- What comment does *Soul Shift* make about AI (Artificial Intelligence) and AC (Artificial Consciousness)?

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- How does Emard use art elements and principles to challenge the audience's understanding of sentience?

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- Use the Internet to research Emard's life and art. Drawing on this research, explain how *Soul Shift* is representative of her life experiences and her art?

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- *Smart Object* is another artwork in the exhibition about the transference of knowledge? What do the artworks have in common? How do the artworks differ?

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LINKS

<https://experimenta.org/artists/justine-emard/>
<https://experimenta.org/artworks/soul-shift/>
<https://justineemard.com/>
<https://justineemard.com/soul-shift-2/>

MAKE

What skills and knowledge you learnt from your Elders – parents, grandparents and guardians?

How was this knowledge exchanged?

Depict a personal experience of the transference of knowledge using the format of an artificial neural network (ANN). An ANN is the piece of a computing system designed to simulate the way the human brain analyses and processes information. It is composed of a series of algorithms and is formatted as a flowchart.

Begin by making an IPO chart

that documents the exchange of intelligence and consciousness. An IPO chart is a tool that programmers sometimes use for designing and documenting functions. IPO stands for input, processing, and output, and an IPO chart describes the input, processing, and output of a function.

You can find examples of IPO chart templates online or you can use an IPO generator: <https://creately.com/diagram/example/i5efjl7m1/IPO%20chart>.

Construct a series of algorithms based on your IPO. Think about how the algorithms interact. You will need

to show these interactions on your flowchart.

Use the IPO chart to draw your ANN. Make sure that your ANN conveys the exchange of intelligence and consciousness. Remember, you are not only required to show the exchange of knowledge and skills. Your flowchart should show the hidden layer associated with the process of learning something new such as joy, frustration and pride.

Use art elements and principles to transform your flow chart into an artwork. Write the wall text that will be displayed next to your artwork.



3D Printed Difference Tone Bell
2017. 3D print in 316 stainless steel/tin bronze by Exone in the USA. Dimensions: 1150mm high x 470mm diameter

'3D Printed Difference-Tone Bell'
(2017) by Anton Hasell. Image courtesy of the artist.



Anton Hasell

Djadjawurung Country, Mia Mla, VIC, Australia

Anton Hasell is an artist living in Central Victoria exploring the use of both traditional and digital tools in the design of bells, interactive public-space installation, sculpture and printmaking. He is best known for the co-creation of the Federation Bells Carillon in Melbourne, and the design and casting of Longnow Foundation's 10,000-year clock bells.

Hasell's professional practice is a long-term research project into pathways that non-indigenous Australians might connect with Country, and tune into the resonant frequencies of the Australian landscape, through listening for its ambient sonorities. He invents new forms, new sounds and participatory public space experiences in the conviction that a sustainable future requires us to connect with each other and share sublime connections to this ancient country.

'If you want to know the secrets of the universe, think in terms of energy, frequency and vibration.' – Nikola Tesla.

This *3D Printed Difference Tone Bell* pushes the boundaries of traditional bell fabrication and was developed after the artist was commissioned to invent, cast and tune 10 difference tone bronze bells for the 10,000 year clock project in the USA. The artist achieved this innovation in design through research into bell acoustic effects of 3D printing in direct-metals in an ANAT Synapse residency with Dr Daniel East at CSIRO's Lab 22. The resulting difference-tone bell generates a pitch an octave below the lowest frequency of the bell from which it is fabricated, and is therefore half the scale of other bell designs at every pitch.

In many cultures bells mark the beginning or ending of

something. English speakers may be familiar with the phrase 'for whom the bell tolls' penned in a poem written by the 17th century writer John Donne and popularised through the publication of Ernest Hemingway's 1940 book whose title borrowed the phrase from Donne's poem. The tolling refers to funeral bells, and Donne's poem suggests that whatever affects one person affects us all. In this exhibition's wider examination of life, the striking of the bell asks us to consider, in the midst of the sixth great extinction, for whom does the bell toll and reminds us that all life forms are interdependent.

The bell also points to more recent scientific understandings of the makeup of the universe. Quantum physics reassesses the Newtonian universe of a world assembled of physical parts. Through the pioneering work of Albert Einstein, Max Planck and Werner Heisenberg, among others, the world of quantum entanglement

containing photon, quark, lepton and boson particles has emerged. These discoveries have been expressed more recently through String Theory, the idea that everything in the universe, every particle of light and matter, is composed of miniscule vibrating strings.

At its core all matter shares this state of vibration, made perceptible by resonance and here given expression by this unique bell. This artwork invites us to contemplate the very foundations of life, beyond our human scale.

ACKNOWLEDGEMENTS

Design concept by Danny Hillis
Bell invention by Dr Anton Hasell with digital engineer Ryan Adams
3D printing by Exone Company, USA
Project Collaborator: Dr Daniel East CSIRO Lab 22
Supported by Australian Network Art and Technology (ANAT) Synapse Residency.
CSIRO Lab 22

KEY THEMES, CONCEPTS AND VOCABULARY

Tone – octave – pitch – frequency – Difference-tone bell – 3D printing – sound sculpture – acoustics – vibration

DID YOU KNOW?

The Federation Bells is a public space artwork installed at Birrarung Marr Park in Naarm (Melbourne). It is an interactive and participatory installation consisting of 39 upturned bells celebrating 100 years of Australian Federation.

In designing the Federation Bells, Neil McLachlan and Anton Hasell of Australian Bell set out to bridge the ancient Asian and European bell-making traditions. The bells are controlled by a computer which allows the curators to schedule different musical pieces at various times.

Visit <http://federationbells.com.au/> to learn about the design of the Federation Bells.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- In many cultures bells mark the beginning or ending of something. What part do bells play in your everyday life?
- How does a bell make a sound?
- Research the origin and use of the phrase 'for whom the bell tolls'. Later you will be asked to use this phrase to write an analysis of *3D Printed Difference Tone Bell*.
- What is a difference-tone bell?

EXPERIENCE

- Describe your immediate response to *3D Printed Difference Tone Bell*. Explain your response by making specific reference to art elements and/or principles.

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- Identify the materials and techniques used by Anton Hasell to create *3D Printed Difference Tone Bell*.

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- Describe the way *3D Printed Difference Tone Bell* has been installed in the exhibition space. How does the placement of the artwork affect your response?

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- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

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- *3D Printed Difference Tone Bell* is an artwork that requires you to listen. Describe the sound the bell makes.

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- Why do you think the bell is placed upside-down?

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CONNECT

- Drawing on the information provided by the wall text and online research about *3D Printed Difference Tone Bell*, what is the intended meaning and message of the artwork?

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- Why do you think that Anton Hasell titled this artwork *3D Printed Difference Tone Bell*?

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- Explain how *3D Printed Difference Tone Bell* connects with the main themes of *Experimenta Life Forms*.

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- Why can *3D Printed Difference Tone Bell* be described as an acoustic illusion?

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Explain how 3D printing allowed Hasell to achieve this acoustic illusion?

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MAKE

Sound art is art which uses sound both as material and as its subject. *3D Printed Difference Tone Bell* is an example of sound sculpture. Working with your peers, plan and make a piece of sound art. Your artwork should be inspired by your understanding of the phrase 'for whom the bell tolls'. Like Hasell, you can use traditional and digital tools to create your sound artwork. Write the wall text that will be displayed next to your sound art.

Or

The Federation Bells Composer is a website that lets you compose music for Melbourne's Federation Bells. Using an intuitive drag and drop timeline, you can create a virtual multi-track composition using the 39 distinctive bells.

<http://federationbells.com.au/play-the-bells/composing-for-the-bells>

- Use the phrase 'for whom the bell tolls' to write an analysis of *3D Printed Difference Tone Bell*.

- Use the Internet to research Hasell's life and art. Drawing on this research, explain how *3D Printed Difference Tone Bell* is representative of his life experiences and his art?

- *Itówapi Čík'ala (Little Picture)* is another artwork in the exhibition that explores our relationship with sound? What do the artworks have in common? How do the artworks differ?

LINKS

<https://experimenta.org/artists/anton-hasell/>
<https://experimenta.org/artworks/3d-printed-difference-tone-bell/>
<https://www.antonhasell.com/>
<http://www.ausbell.com.au/>



Ellen ter Gast
BIOETHICIST

The Modular Body

2016. Video. If we could 3D print working organs, would we use this technology to create totally new bodies?

'The Modular Body' (2016) by Floris Kaayk. Video still. Image courtesy of the artist.



Floris Kaayk

The Hague, The Netherlands

Floris Kaayk (born in 1982) is a Dutch digital artist. Kaayk graduated from the animation department of AKV St. Joost School of Fine Art and Design in Breda, and gained a Master of Fine Arts degree from the Sandberg Institute in Amsterdam. His work focuses on futuristic concepts and fantasies, and visualises technological progress, demonstrating both its advantages and disadvantages.

Kaayk first became known to a wider audience with his fictional 'semi-documentaries' *The Order Electrus* and *Metalosis Maligna*. In 2011, Kaayk made headlines with a number of social media videos posted on the weblog of his alter ego, Jarno Smeets, who claimed to be the first human able to 'fly like a bird'. The following year he revealed it as fiction and part of his art practice.

The Modular Body is a speculative fiction video work that asks us to consider the ethical questions involved in biotechnology research and development. The protagonist in *The Modular Body* is Cornelis Vlasman, a versatile biologist for whom the path well-travelled is the most uninteresting one by definition. He sets up an independent lab with a like-minded team to extend current technical and ethical limitations. Vlasman's experiments with organic materials leads to the creation of a primitive and vulnerable organism called OSCAR. This man-made biological prototype is made up of clickable 'on and off' organ modules grown from human cells. OSCAR is kept alive by

blood taken from Vlasman and is continually vaccinated against infections, as it has no immune system.

Spring boarding from historic narratives such as Mary Shelley's *Frankenstein*, this work references contemporary scientific research in synthetic biology, wet tech and mechanical systems seeking to build new life formations via biological 3D printing. The artwork points to a possible future where the body is no longer a closed circuit but an open modular system, designed to have interchangeable limbs, spare-lungs and an electronic brain. This design blurs the lines between what we are born with and what

we can create, problematising the borders between the natural and artificial.

Originally conceived as an online project comprising 56 interconnected documentary clips, the artist has drawn on this material to create a multi-channel gallery version of the work. By initially presenting the work online the artist is interested in exploring the power of the visual to blur the lines between truth and fiction, a concern increasingly apparent in our online environments.

Playfully using documentary tropes, *The Modular Body* asks us to consider the ethics of human manipulation of life by bringing us back to the core question of what defines life.

ACKNOWLEDGEMENTS

VPRO
Mediafonds
Creative Industry Fund NL
Fonds 21
STROOM Den Haag

KEY THEMES, CONCEPTS AND VOCABULARY

Biotechnology – open system – closed system – modular system – biological 3D printing – prototype – ethics – speculative fiction – video art

DID YOU KNOW?

Floris Kaayk's work is inspired by real events – scientific advancements in the field of biotechnology. Biotechnology is technology that utilises biological systems, living organisms or parts of this to develop or create different products.

Bioprinting uses 3D printers and techniques to fabricate the three-dimensional structures of biological materials, from cells to biochemicals, through precise layer-by-layer positioning. The ultimate goal is to replicate functioning tissue and material, such as organs, which can then be transplanted into human beings.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- What is an open system?
- What is a closed system?
- What is a modular system?
- Is the human body an open or closed system?
- How many systems are there in the human body?

EXPERIENCE

- Describe your immediate response to *The Modular Body*. Explain your response by making specific reference to art elements and/or principles.

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- Identify the materials and techniques used by Floris Kaayk to create *The Modular Body*.

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- Describe the way *The Modular Body* has been installed in the exhibition space. How does the placement of the artwork affect your response?

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- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

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- Describe the protagonist of *The Modular Body* – Cornelis Vlasman. Who is he? What is his motivation? How does he view his work?

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- What is OSCAR?

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- How does Vlasman ‘build’ OSCAR?

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CONNECT

- Drawing on the information provided by the wall text and online research about *The Modular Body*, what is the intended meaning and message of the artwork?

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- Why do you think that Floris Kaayk titled this artwork *The Modular Body*?

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- Explain how *The Modular Body* connects with the main themes of *Experimenta Life Forms*.

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- What does *The Modular Body* suggest are the potential advantages and disadvantages of advances in biotechnology?

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MAKE

'I thought: Why would we print an organ exactly in the same shape as the one we already have? Why wouldn't we use this opportunity to improve it?...Or even more extreme: if we can print organs and body parts, why not completely redefine and redesign the human body? That's when I started approaching the current human body as a closed system. Difficult to repair or adapt, maybe even obsolete. An open, modular system could become immortal, and adaptable.'⁴ – Floris Kaayk

Inspired by *The Modular Body*, this collaborative art project requires you to complete a textile project. Work with a peer to design and produce a new and improved body part. You may approach the project from a serious perspective. For example, imagine lungs that were not susceptible to respiratory illness or bones that did not fracture. You may like to take a more playful approach. For example, wisdom teeth that are really wise or an appendix that actually has a purpose. You could even make a heart that will never break.

The textile item needs to demonstrate a clear link to the inspiration and reflect appropriate choice of fabrics and construction techniques. The supporting documentation should include:

- sources of inspiration;
- generation of final design ideas;
- samples of resources;
- experimentation and justification of equipment and construction.

- What comment does *The Modular Body* make about the ethics of biotechnology research and development?

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- How and why does Kaayk blur the boundaries between fact and fiction in *The Modular Body*?

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- Use the internet to research Kaayk's life and art. Drawing on this research, explain how *The Modular Body* is representative of his life experiences and his art?

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- *Biomess* is another artwork in the exhibition that explores the potential of biotechnology? What do the artworks have in common? How do the artworks differ?

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LINKS

- <https://experimenta.org/artworks/the-modular-body/>
- <https://experimenta.org/artists/floris-kaayk/>
- <http://www.floriskaayk.com/>
- <https://www.themodularbody.com/>



Itówapi Čík'ala (Little Picture)
 2019. Immersive installation. Song, power, sound, processors, machine learning decisions, handmade circuitry, gold, silver, copper, aluminium, silicon, fibreglass.
 Dimensions: Adjustable. Duration: 8 mins

'Itówapi Čík'ala (Little Picture)' (2018) by Kite and Devin Ronneberg.
 Photo by Bemis Center For Contemporary Arts.



Suzanne Kite and Devin Ronneberg

Muscogee (Creek) Nation & Tovaangar. Tulsa & Los Angeles, United States

Musicians and multimedia artists Suzanne Kite and Devin Ronneberg have long collaborated on work that brings together sculpture, sound, moving image and performance to represent the complexities of First Nations identities in the United States.

Kite is an Oglala Lakota performance artist, visual artist, and composer. Her research is concerned with contemporary Lakota ontologies, which include non-human beings and the development of protocols and relations for stones, metals, and Artificial Intelligence.

Ronneberg is a multidisciplinary artist of Kanaka Maoli (Hawaiian), Okinawan and European heritage. Through sculpture, sound art, computational media and design his practice is currently concerned with emergent technologies and their unseen implications.

'The human brain is a station on the radio dial; parked in one spot, it is deaf to all the other stations [. . .] the animals, rocks, trees, simultaneously broadcasting across the whole spectrum of sentience.' – Leroy Little Bear, 2018

Itówapi Čík'ala (Little Picture) is an interactive installation that reveals an Oglála LakȚóta (a First Nations people of North America) world view of the relationships between human and non-human entities and intelligences. Through Oglála LakȚóta ontologies, even materials such as

metals, rocks, and minerals can be capable of volition. By considering the 'hearing' and 'listening' capabilities of non-human entities, a method of engagement reliant upon mutual respect and responsibility becomes possible.

Long brown braids intertwined with interconnecting wires extend from a circular fixture in the gallery ceiling, with each braid activated by electrical pulses threaded through and responsive to touch. *Itówapi Čík'ala (Little Picture)* speaks, with audiences invited to intimately engage with

the braided strands by bending and moving them in different ways to affect a sound response. It is through this interaction that a conversation between human and non-human entities takes place.

Central to Kite and Ronneberg's practices are bringing a First Nations perspective to our relationships with non-humans, especially technology and artificial intelligence. Kite is interested in developing protocols for these interrelationships.

'Humans are already surrounded by objects which are not understood to be intelligent or even alive, and seen as unworthy of relations. How can humanity create a future with technology without an ethical-ontological orientation with which to understand what is worthy of relation and what is not? In order to create relations with any nonhuman entity, not just entities which seem human, the first steps are to acknowledge, understand, and know that the non-human are 'being' in the first place. Indigenous ontologies already exist to understand forms of 'being' which are outside of humanity.' – Kite, 2017

ACKNOWLEDGEMENTS

Translation by Alex Firethunder
Sensory Entanglement a SSHRC Project.

KEY THEMES, CONCEPTS AND VOCABULARY

First Nations – ontology – non-human entities – sentience – volition – immersive installation – interspecies relationships – hearing and listening – interactive artwork

DID YOU KNOW?

Itówapi Čík'ala (Little Picture) offers a First Nations world view of the relationships between human and non-human entities.

Lakȱóta ontology recognises the hearing and listening capabilities of nonhuman entities and acknowledges that even inanimate objects such as metals, rocks, and minerals can be alive with spirit and capable of volition.

The artwork was inspired by a story often told by Kite's grandfather of seeing a man, a woman, and a horse with endless flowing hair and an infinity of constellations bursting through the strands. He suggested she make art about his vision.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- What is hearing?

- What is listening?
- What is active listening and why is it important?
- Spend some time in a natural environment. It could be in the school yard, your backyard at home or a park or the beach. Listen. What can you hear? How does spending time in this place make you feel? How does spending time in this place change your thought process? How do you demonstrate that you respect this space? How do you demonstrate your responsibility for this space? Make notes about this experience in the space below.

EXPERIENCE

- Describe your immediate response to *Itówapi Čík'ala (Little Picture)*. Explain your response by making specific reference to art elements and/or principles.

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- Identify the materials and techniques used by Kite and Devin Ronneberg to create *Itówapi Čík'ala (Little Picture)*.

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- Describe the way *Itówapi Čík'ala (Little Picture)* has been installed in the exhibition space. How does the placement of the artwork affect your response?

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- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

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- *Itówapi Čík'ala (Little Picture)* is responsive to touch. Spend three to five minutes observing what happens when you touch the braids. Does the way you move the braids affect the way the artwork responds?

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- What does the artwork make you think? What does the artwork make you feel? Use these questions to help you describe how you are affected by your interaction with the artwork.

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CONNECT

- Drawing on the information provided by the wall text and online research about *Itówapi Čík'ala (Little Picture)*, what is the intended meaning and message of the artwork?

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- Why do you think that Kite and Devin Ronneberg titled this artwork *Itówapi Čík'ala (Little Picture)*?

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- Explain how *Itówapi Čík'ala (Little Picture)* connects with the main themes of *Experimenta Life Forms*.

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- What comment does the artwork make about the importance of listening?

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- How do Kite and Devin Ronneberg use technology to challenge the audience's understanding of sentience?

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- Use the internet to research Kite and Devin Ronneberg's life and art. Drawing on this research, explain how *Itówapi Čík'ala (Little Picture)* is representative of their life experiences and their art?

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- *You, Me, Things* is another artwork in the exhibition that relies on audience participation? What do the artworks have in common? How do the artworks differ?

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MAKE

For Kite and Devin Ronneberg making as much of the sculpture as possible by hand was important because it allowed them to develop a direct relationship with the materials. They were able to arrive at an understanding of the materials and how they interact with each other. Their intention was to use digital technology to create an equal and respectful dialogue between the participant and the materials.

Like Kite and Ronneberg, make an artwork that depicts a network of interactions between human and non-human entities. Return to the natural environment that you spent time in prior to viewing *Itówapi Čík'ala (Little Picture)*.

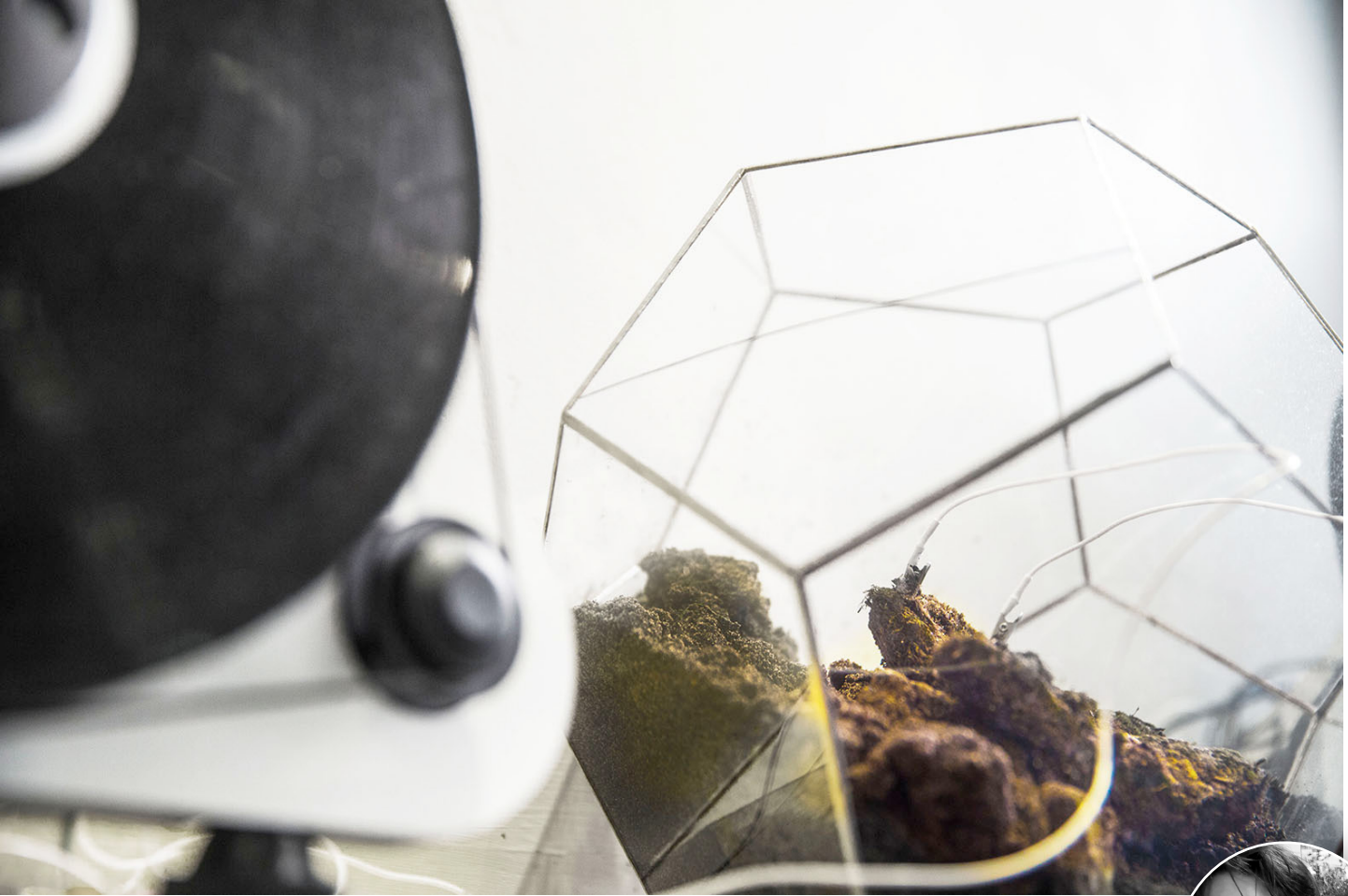
Draw or photograph the natural environment. Using a contrasting medium, draw a network topology showing the interactions in this ecosystem. For example, if you used watercolours to depict the natural environment, use a coloured pencil or pastel or felt tip pen to draw the network topology. You will need to think about how the network topology will overlay the drawing or photograph, so that both systems are visible to the audience of the artwork.

*A network topology is how computers, printers, and other devices are connected over a network. It describes the layout of wires, devices, and routing paths. There are six different common topologies: Bus, Ring, Star, Extended Star, Hierarchical, and Mesh.

You can find information about network topologies online. A recommended starting point is: <https://www.dnsstuff.com/what-is-network-topology>.

LINKS

- <https://experimenta.org/artists/kite-and-devin-ronneberg/>
- <https://experimenta.org/artworks/itowapi-cikala/>
- <http://kitekitekitekite.com/portfolio/items/inyan-iyee/>
- <https://www.devinronneberg.net/telling-rock/>
- <https://vimeo.com/358686816>



DJ Moss

2020. Moss, Terrarium, 4 Plinths, Laptop, Audio Mixer/
Pre-amp, Cables, 2 x Turntables, Microchip cards (Arduino,
KL25Z), Directional Speaker
Dimensions: 2.5 x 2.5 x 1.75 meters (flexible)
An Experimenta Commission

'DJ Moss' (2020) by
Thomas Marcusson. Image
courtesy of the artist.



Thomas Marcusson

Gadigal Country. Sydney, NSW, Australia

Born in Sweden and now based in Australia, Thomas Marcusson is an interactive and online artist creating mixed media artworks that talk about culture, science and identity, often inviting visitors to engage in different kinds of ways. By including various interactive elements, the artwork invites audience participation.

After having studied mathematics in Gothenburg, Marcusson went on to complete a Bachelor of Arts at the University of Technology in Sydney, graduating with first class honours. He is now a practising artist in Australasia, Europe and the Americas.

Machine-learning is increasingly used in the music scene, whether to generate song suggestions for our playlists or to compose new melodies and beats for artists. Yet when it comes to live DJ events, it seems that audiences are not ready to hand the decks over to non-human entities. Even though A.I. systems have the capability of curating and delivering perfect beats, the 'feel' between DJ and audience – an intangible, emotional feedback loop - is perceived as absent. This continuing demand for human DJs speaks more to the social nature of humans and music's ability to bond us together, than to any lack on the

part of a digital system to deliver technically optimal music.

DJ Moss is a playful response to the artist's observations of the ever-evolving spectrum of machine vs human-made entertainment by introducing another protagonist to the mix – living, breathing moss. Being neither algorithm nor person, *DJ Moss* brings an alternative type of living entity to the decks. The work is a living system in and of itself.

The moss, a plant that sits in a unique taxonomic division of Bryophyta, exhibits basic internal communication

systems. Its micro-signals are made perceptible to the audience via special sensors made visible through interactive graphs. Different signals can trigger a range of classic DJ moves, mixing in new sounds or changing the rhythm of the music. The turntables spin vinyl engraved with nature sounds, juxtaposing the artificial electronic output of the laptop with the analogue natural sounds of the records.

This strange and haphazard performance prompts us to reflect on the agency of plant life, their societal networks and systems of communication, as well as our relationship with non-human and non-biological systems.

KEY THEMES, CONCEPTS AND VOCABULARY

Moss – machine-learning – DJ – micro-signals – analogue – digital – communication systems of plants - installation

DID YOU KNOW?

Charles Darwin believed that musicality was a capacity of all animals, human and non-human, with a clear biological basis.

Zoomusicology is the study of the music of animals, or rather the musical aspects of sound or communication produced and received by animals. The most well-known form of music found in animals is birdsong.

Aside from birds, what other animals do you equate with the making of music?

DJ Moss prompts conversations about the musicality of plants. While there has long been an interest in how music can enhance a plant's growth, how digital technology can be used to translate a plant's biological processes into sound.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- What is moss?
- What is a DJ?
- How do you listen to music?
- How has digital technology changed the way that music is made? How has digital technology changed the way that music is listened to?
- In interviews, Thomas Marcusson has said that the rapport between musical artist and audience is almost as important as the music itself.⁵ Do you agree?

EXPERIENCE

- Describe your immediate response to *DJ Moss*. Explain your response by making specific reference to art elements and/or principles.

- Identify the materials and techniques used by Thomas Marcusson to create *DJ Moss*.

- Describe the way *DJ Moss* has been installed in the exhibition space. How does the placement of the artwork affect your response?

See

Hear

- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

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- Watch and listen to *DJ Moss*. In the space above make notes about what you see and hear
- Describe the relationship between the moss and the analogue and digital technology.

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CONNECT

- Drawing on the information provided by the wall text and online research about *DJ Moss*, what is the intended meaning and message of the artwork?

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- Why do you think that Thomas Marcusson titled this artwork *DJ Moss*?

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- Explain how *DJ Moss* connects with the main themes of *Experimenta Life Forms*.

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- What comment does *DJ Moss* make about the agency of plant life?

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- How does Marcusson use humour in *DJ Moss*?

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- Use the internet to research Marcusson's life and art. Drawing on this research, explain how *DJ Moss* is representative of his life experiences and his art?

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- *Pulse: the Life Force of Trees* is another artwork in the exhibition that is about the sentience of plants? What do the artworks have in common? How do the artworks differ?

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LINKS

<https://experimenta.org/artists/thomas-marcusson/>
<https://experimenta.org/artworks/dj-moss/>
<http://www.thomasmarcusson.com/>

MAKE

Fifty years ago, how did people listen to music? How do people listen to music today? How do you think people will listen to music in fifty years?

Imagine if DJ Moss had its own

music video. Your task is to compile the storyboard for a DJ Moss' music video.

A storyboard is a graphic representation of how a video will unfold, shot by shot. It is made up of

a number of sequential squares with illustrations representing each shot. Notes beneath each square provide information about the action, camera and audio during the shot. You can draw your own storyboard or use an online template.



feeler

2019 – 2020. Latex, string, hangers, LED light strips, electronics

Dimensions: Various

'feeler' (2019-2020) by m0wson&MOwson. Photo by Rémi Chauvin.



m0wson&MOwson

Wurundjeri Country. Melbourne, VIC, Australia

m0wson&MOwson (Lynn mowson and Bruce Mowson) collaborate on sculpture and sound/light projects focusing on human/non-human animal interactions.

Lynn Mowson is a sculptor whose practice is driven by the entangled relationships between human and non-human animals, in particular those animals we consume.

Bruce Mowson works with sound and listening, with adventures into light, installation/sculpture, text and participatory art. He aims to make art that is broadly accessible and has in recent years been involved with the community sector.

feeler forms part of m0wson&MOwson's ongoing artistic research into motherhood and the reproductive manipulation and control of non-human life forms.

Current research into breeding octopuses is being driven by the potential to intensively farm them for meat. There are few welfare considerations for fish, and practically none for invertebrates. Octopuses are highly intelligent and sensitive creatures with a very particular process of motherhood: the octopus mother nurtures her eggs and dies shortly after they hatch.

Intensive agricultural systems have been linked to the emergence and amplification of disease. Large scale antibiotic use and the misuse of antiviral drugs can lead to the emergence of drug resistant species strains. Increasingly we are under threat from zoonotic pathogens [germs, viruses, bacteria, parasites etc]. Many recent viral infections have arisen through intensive farming, through contact forced by the spatial expansion of agriculture, or through captive wildlife contact and consumption.

This work responds to these issues. Dismembered octopus tentacles suspend from the gallery ceiling, the colour and their arrangement reminiscent of drying deli meat. The tentacles emit contrasting and pulsating lights creating an animate effect. The skin is embedded with patterns that are inspired by microscopic images of agricultural and zoonotic pathogens, clusters of papilla (protrusions on octopus skin) and papule (pustules).

feeler asks us to consider the nature of human relationships with other animals and the ethics of intensive farming practices.

KEY THEMES, CONCEPTS AND VOCABULARY

Intensive agricultural farming – zoonotic pathogens – invertebrate – papilla – papule – reproduction manipulation – non-human lifeforms (animals) – motherhood – animal welfare and rights – human relationships with other species

DID YOU KNOW?

An octopus has few hard body parts (beak and eyes only), making its body infinitely malleable. It can thread itself through a hole not much larger than the diameter of its eyeball. They have nine brains which is why they are regarded as the most intelligent invertebrate alive. An octopus also has three hearts that pump blue-green blood around its body which enables them to move extremely fast. Their eight tentacles are covered in suckers that enable it to move, probe and manipulate with great dexterity.

Octopuses have multiple strategies to defend themselves against predators including the expulsion of ink, the use of camouflage and the ability to jet quickly through the water and hide. All octopuses are venomous, but only Australia's blue-ringed octopuses are known to be deadly to humans.

Octopuses have a relatively short life expectancy with some species living for as little as six months and others that can live for as much as five years. An octopus' lifespan is limited by reproduction as males can live for only a few months after mating, and females die shortly after their eggs hatch.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- Have you ever seen an octopus in the wild? What about at an aquarium?
- Often in Western popular culture octopuses are depicted as alien-like creatures who squirt ink and use their tentacles to latch onto things and not release. Is this true of what you know about octopuses? What are

your initial thoughts regarding octopuses?

- Use the Internet to research what 'intensive farming' practices are, why they exist and what animals are generally farmed this way.
- Use the Internet to research what zoonotic pathogens are, how they are transmitted and what effect that they have on farming and the wider community.

EXPERIENCE

- Describe your immediate response to *feeler*. Explain your response by making specific reference to art elements and/or principles.

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- Identify the materials and techniques used by m0wson&MOwson to create *feeler*.

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- Describe the way *feeler* has been installed in the exhibition space. How does the placement of the artwork affect your response?

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- *feeler* asks us to consider the nature of human relationships with other animals and the ethics of intensive farming practices. After viewing this artwork has your relationship with animals changed? What about your views regarding intensive farming practices?

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- The tagline on Lynn Mowson’s website (<https://lynnmowson.com/>) is *Sculpture, Animals, Empathy, Witnessing*. Explain how these titles are reflected in the artwork *feeler*.

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MAKE

feeler asks the audience to consider the nature of human relationships with other animals.

Create an artwork that reflects your relationship with an animal of your choice. Use any medium that you have access to (painting, drawing, photography, sculpture, etc).

You may also like to explore and create an artwork that reflects the ethics of intensive farming practices.

- In a previous artwork by mOwson&MOwson titled *speaking meat* which was part of the *Why Listen to Animals?* exhibition, they installed Bluetooth speakers into lumps of meat so that the meat could ‘speak’ when it was handed around the audience. If sound was added to the artwork *feeler*, what sound or sounds might be used? Justify your suggestions.

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LINKS

- <https://experimenta.org/artists/mowsonm0wson/>
- <https://experimenta.org/artworks/feeler/v>
- <https://lynnmowson.com/>
- <https://www.brucemowson.com/>



You, Me, Things
2020. Playable sound installation
Dimensions: Variable
An Experimenta Commission

'You, Me, Things' (2020) by Uyen Nguyen, Max Piantoni and Matthew Riley. Image courtesy of the artist.



Uyen Nguyen, Max Piantoni & Matthew Riley

Wurundjeri Country. Melbourne, VIC, Australia

Uyen Nguyen, Max Piantoni and Matthew Riley create experimental playable works using games, art, animation and installation for exhibitions, festivals, events and research. They have received international recognition for Yomeci, a series of works that explores listening and making sounds as a form of play – investigating how our sonic world can be harnessed creatively to construct new perceptions and interpretations.

The collaboration brings together each of their respective practices. Nguyen is an animator, designer and filmmaker investigating the playful potential of sound in animation, games and interactive media. Piantoni is an artist, developer and designer specialising in the creation of interactive experiences and creative tools. Riley is a designer, academic and researcher who has developed pervasive games, public art, interactive environments, generative systems and mixed reality experiences.

You, Me, Things is a playable, sound-responsive installation that invites audiences to 'feed' a fantastical virtual world with their non-verbal sounds. Different sounds generate distinct digital animations, and the more that audiences interact the more dynamic the virtual ecosystem becomes.

The participant triggers the work to 'listen' to sounds that are made into the microphone. Non-verbal expressions such as whistling, laughing and humming are recognised and categorised as a form of audio input, and then

visualised in this virtual environment as an animated 'lifeform'. Each 'lifeform' has its own sonic and visual identity appearing as strange flora, fauna and fungi, which establishes a diverse ecology of movement, animation and sound as each digital entity is called into this world. As the world becomes increasingly populated, unique relations and assemblages between the digital entities are formed. Sounds made by one type of entity layer and converge with others to form different compositions and atmospheres. Participants build the work's sonic relationships through their choices with each sound input

changing the audio-visual composition of the work. The world propagates, thrives and decomposes – its multiple lifecycles creating diverse and ever-changing relations and connections. Sounds and movements of the entities and the human interactors who call them into existence layer and converge with one another, turning the gallery into a dynamic and playful performance space.

You, Me, Things draws on the opportunities afforded by computational systems to learn and adapt autonomously with data sets. The installation invites physical participation where our bodies bring the work into being through interaction, encouraging affinities and bonds, joy and affection through play. This work also reminds us of the impact we are having upon real world ecosystems around us. *You, Me, Things* is a playful world, but also a precarious one.

ACKNOWLEDGEMENTS

Uyen Nguyen: Director and Animator
 Max Piantoni: Interactive Software Development
 Matthew Riley: Producer
 Sound Designer: Rod Price
 Engineer: Duy Phuong Nguyen
 School of Design, RMIT University

KEY THEMES, CONCEPTS AND VOCABULARY

Interactive media – Artificial Intelligence (AI) Technology
 – animation – sound-responsive installation – virtual ecosystem – computational systems – data sets – sonic – machine learning

DID YOU KNOW?

As a society, we depend on healthy ecosystems to do many things such as purify the air so we can breathe properly, decrease the amount of carbon in the atmosphere, cycle nutrients so we have access to clean drinking water, and pollinate crops so we don't go hungry.

The largest existing ecosystem on our planet is the World Ocean. It covers more than 71% of the Earth's surface and through marine plants it releases more oxygen into the atmosphere than all the forests in the world. It also absorbs 30% of the carbon dioxide produced by humans.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- What is an ecosystem? What is a virtual ecosystem?
- Have you ever played an interactive computer game? If so, which one(s) and how did you interact with the game. If you have never played one, think about how

you interact with websites or social media apps you use on a regular basis.

- Use the Internet to research what AI (Artificial Intelligence) is and how it works.
- What is a data set? Can you give an example? If you don't know, use the internet to research and write your own definition and give an example.

EXPERIENCE

- Describe your immediate response to *You, Me, Things*. Explain your response by making specific reference to art elements and/or principles.

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- Identify the materials and techniques used by Nguyen, Piantoni and Riley to create *You, Me, Things*.

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- Describe the way *You, Me, Things* has been installed in the exhibition space. How does the placement of the artwork affect your response?

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Flora

Fauna

Fungi

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- Use the space above to draw an example of each of the different types of characters in the virtual ecosystem.

- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public?

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- Describe the way you interacted with *You, Me, Things*. What sounds did you make and what element of the virtual ecosystem did you help to create?

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- Spend some time watching other people interact with the artwork. Describe the way they interacted with *You, Me, Things*. How did they respond when they saw the effect that they had on the virtual ecosystem?

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CONNECT

- Drawing on the information provided by the wall text and online research about *You, Me, Things*, what is the intended meaning and message of the artwork?

- Why do you think that Nguyen, Piantoni and Riley titled this artwork *You, Me, Things*?

- Explain how *You, Me, Things* connects with the main themes of *Experimenta Life Forms*.

- *You, Me, Things* is a collaborative piece of artwork. Discuss what you think are the advantages and disadvantages of collaboration when creating artwork.

- AI (Artificial Intelligence) is often defined as intentionality, intelligence, and adaptability. Using these terms can you explain how AI was used to create the artwork?

- Another artwork in the exhibition is Theresa Schubert's *Sound for Fungi. Homage to Indeterminacy*. What do the artworks have in common? How do the artworks differ?

MAKE

The characters in *You, Me, Things* are representations of flora, fauna and fungi.

Create your own flora, fauna and fungi characters.

If you have access to some animation software you might like to try to animate your characters and give each character a specific sound.

You might even be able to code your characters to respond to a series of commands. There are lots of different coding programs You might like to use Scratch which is a coding application that allows you to program your own interactive stories, games and animations: <https://scratch.mit.edu/>.

LINKS

<https://experimenta.org/artists/uyen-nguyen-max-piantoni-and-matthew-riley/>
<https://experimenta.org/artworks/you-me-things/>
<https://experimenta.org/news/experimenta-life-forms-in-development-interview-uyen-nguyen-max-piantoni-and-matthew-riley/>
<http://www.uyeng.com/you-me-the-city>



PULSE: The Life Force of Trees
2020. LEDs, Recycled acrylic, aluminium
Dimensions: 2.5m x 3.5m x 1.5m. Duration: 7 mins
An Experimenta Commission

'PULSE: The Life Force of Trees'
by PluginHUMAN (2020). Image
courtesy of the artist.



PluginHUMAN

Boonwurrung Country. Melbourne, VIC, Australia

PluginHUMAN is a multi-award-winning art duo led by Dr Betty Sargeant and Justin Dwyer.

PluginHUMAN are at the progressive edge of their field, providing audiences with new cultural, environmental and scientific perspectives. Their artworks address the leading questions and concerns of our times.

PluginHUMAN's work centres around the art of illumination. They create projection mapping, LED and video artworks; and sculptural immersive multi-sensory environments. They use the medium of light to translate complex data into meaningful audience experiences.

PluginHUMAN has an acute understanding of the role that technology plays in contemporary society. They reimagine new technologies to produce artistic innovations, creating meaningful large and small-scale audience experiences for indoor spaces and outdoor public arenas.

PULSE: The Life Force of Trees is a light sculpture whose shifting light and sound scape is driven by environmental data collected while observing significant trees in the Amazon, Panama, Taiwan, India and Australia. The title of this artwork refers to both the electronic activation of the sculpture while also pointing to recent scientific research that identifies sophisticated communication systems within and between trees.

The LEDs at the core of the work are controlled by environmental data collected from each tree's location. This includes recordings of soil moisture levels,

temperatures, barometric qualities, movement and light. The different trees and their locations provide a broad international perspective, speaking to the interconnections between global ecosystems and the ways they can be represented as a single, living breathing entity. Each of the five studied trees were photographed at a microscopic level. The images were then printed onto the recycled acrylic that encases the sculptural forms. The sonic element of the work was developed through environmental field recordings of the trees and the ecosystems that support them. This includes recordings of the internal sounds of trees and underwater recordings from significant

waterways adjacent to some of the studied trees. These juxtaposed recordings form an evocative audio score that transports the audience into the centre of each of these unique landscapes.

PULSE is entwined in the research and discoveries of molecular biology and biotechnology, which has made remarkable steps in revealing the sophistication and interconnectedness of flora, fungi and microbes. The work ruminates on the sentience of trees and, by extension, all flora and other living organisms, asking us to contemplate our relationship to the complex landscape in which we live.

ACKNOWLEDGEMENTS

PluginHUMAN gratefully acknowledge the support of the Exertion Games Lab, Monash University, Australia

KEY THEMES, CONCEPTS AND VOCABULARY

Molecular biology – Biotechnology – environmental data – soundscape – communication systems of flora – sustainability in arts practice

DID YOU KNOW?

There are approximately three trillion trees growing today, however, 15 billion are felled, die, or are lost in wildfires each year. As the biggest plants on the planet, they give us oxygen, store carbon, stabilise the soil and give life to the world's wildlife. They also provide us with the materials for tools and shelter. If we do not look after the trees we have or plant more it is estimated that our planet will lose its last tree in roughly two hundred years. Without trees all life will expire as the world will become inhospitable.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- Why are trees important to you or your community?
- Try to identify the native and introduced tree species in your community? You might need to ask someone to help you with this or use the internet to find out what native trees can be found in your area.
- Collect your own environmental data for a tree at your school. You could include soil moisture levels, temperatures, barometric qualities, movement and light. You may need the help of a science or biology teacher.
- Research what a soundscape is and how you can make your own.

EXPERIENCE

- Describe your immediate response to *PULSE: The Life Force of Trees*. Explain your response by making specific reference to art elements and/or principles.

- Identify the materials and techniques used by PluginHUMAN to create *PULSE: The Life Force of Trees*.

- Describe the way *PULSE: The Life Force of Trees* has been installed in the exhibition space. How does the placement of the artwork affect your response?

- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

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- Each sculptural form represents a tree from a different location and conditions. Microscopic photographs were taken to create their unique patterns. Spend some time looking at each tree's pattern and describe their similarities and differences.

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- Environmental data collected from each tree's location controls the LED lights. Focus on one of the sculptural forms and try to identify what the light changes represent.

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- Describe the soundscape for this artwork. Can you identify any individual sounds? How does the soundscape work in conjunction with the lights?

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CONNECT

- Drawing on the information provided by the wall text and online research about *PULSE: The Life Force of Trees*, what is the intended meaning and message of the artwork?

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- Why do you think that PluginHUMAN titled this artwork *PULSE: The Life Force of Trees*?

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MAKE

PULSE: The Life Force of Trees asks us to contemplate our relationship to the complex landscape in which we live.

Create an artwork about a significant tree in your local area and the ecosystems that surround it.

Use any medium or techniques that you have access to (painting, drawing, photography, sculpture, tree rubbings, etc).

- Explain how *PULSE: The Life Force of Trees* connects with the main themes of *Experimenta Life Forms*.

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- In an Interview Betty Sargeant from PluginHUMAN said,

‘By placing the environment front and center, perhaps we as people can learn to adapt more to the needs of our natural world, rather than having the expectation that it will continue to adapt to us.’⁶

What do you think Sargeant means by this and how does the artwork achieve this?

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- Reflecting on the artwork has your relationship or your understanding of the importance of trees changed?

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- What other artworks in the exhibition rely on light and sound to express the artist’s intention? What do the artworks have in common? How do the artworks differ?

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LINKS

- <https://experimenta.org/artists/pluginhuman/>
- <https://experimenta.org/artworks/pulse/>
- <https://experimenta.org/news/experimenta-life-forms-in-development-interview-pluginhuman-and-pulse-the-life-force-of-trees/>
- <https://pluginhuman.com/>



Habitation

**Artwork A: *Capacity* (2020) Artwork B: *Loading* (2020)
Artwork C: *Habitation* (2020). Materials: Archival pigment
prints, lightboxes
*An Experimenta and SymbioticA Commission***

Image Credit: 'Capacity' from the
'Habitation' series (2020) by Helen Pynor.
Archival pigment print, lightbox. 120 x 67.5
cm. Edition of 5 + 1AP



Helen Pynor

Gadigal Country. Sydney, NSW, Australia

Dr Helen Pynor is a Sydney and London-based artist and researcher whose practice explores philosophically and experientially ambiguous zones, such as the life-death boundary. Her work is informed by in-depth residencies in scientific institutions, most recently The Francis Crick Institute, London and The Max Planck Institute of Molecular Cell Biology and Genetics, Dresden.

Habitation explores the animate-inanimate boundary collapse we are currently witnessing due to the widespread use of prosthetics, and was prompted by hip replacement surgery Pynor recently undertook to address a congenital hip abnormality. The installation takes up Monika Bakke's notion of 'lithic intimacies': life's diverse, intimate relationships of exchange and inter-species companionship with minerals.

Navigating medical prohibitions, Pynor gained permission to retain the bone material removed from her body during surgery, raising important questions about ownership and personal agency over 'life forms' excised from the body, and what happens to them after removal. To honour the material, symbolic and spiritual potential embedded in her excised bone, Pynor has used the bone to make a series of bone china objects, modelled from CT scan data of her pelvis and femur bones. Bone china clay contains up to 50% animal bone and during its production, soft tissues are burnt off to leave only the mineral content of the bones – calcium, iron and mineral trace elements. This transformation releases the minerals that afford bone china its strength and capacity for delicacy, and makes manifest the inherent minerality of our skeletons. Coral-shaped forms are attached to the bone china objects. The intimate relationships of material exchange taking place in coral between soft-bodied organisms and their calciferous structures, offers an analogy to the osteo-integration of human bone cells into the mineral structure of prostheses.

Adjacent to the bone china works are two lightbox images that reference the absent bone and the transformational processes following surgery. The imagery is drawn from Pynor's archive of CT scans and X-rays, which trace her bone's dynamic adaptation to change over the course of her life.

Habitation seeks to challenge perceptions of the body as a passive recipient of human-engineered implants. Pynor's titanium hip implant is 'cementless,' meaning no adhesives are used to attach the implant to bone. Rather, it has a hydroxyapatite coating that stimulates the patient's own bone cells to grow into fissures in the coating, thus holding the implant in place for decades. Pynor is interested in the molecular and atomic exchanges that inevitably take place between living and prosthetic 'tissues' at this dynamic interface. She will re-stage this exchange in the lab during a residency at SymbioticA, The University of Western Australia, where she will use tissue culture techniques and microscopy to image this cellular integration.

ACKNOWLEDGEMENTS

Artwork A: CT Scan Data, 2D Output: Zoe Hart, Corin; CT Scan Data Postproduction: Sam Sobey; Digital Image Postproduction: Richard Luxton; Graphic Design: Fiona Hudson, Otis Design; Printing: High Res Digital; Framing: Graphic Art Mount; Photographer's Model:

Brett Adrien; Photographer's Assistant: Tim Simon. Artwork B: Bone China Ceramics Consultant: Jan Guy; Post-Surgery Bone Collection and Medical Legal Research: Jaden J.A. Hastings; Bone China Ceramics Assistants: Allyson Adeney, Bea Maddock; CT Scan Data, 3D Output: Zoe Hart, Corin; 3D Digital Modelling and CNC Routing: Andrew Southwood-Jones, Kink Fabrication; Pelvis Bone Mould: Claire Tennant, Claire Tennant Workshop; Metal Casting; Display Cabinet Design: Anna Tregloan Artwork C: Artist Residency Host: SymbioticA, The University of Western Australia. Grateful thanks to Dr Michael O'Sullivan, Canbora Bayraktar

KEY THEMES, CONCEPTS AND VOCABULARY

Prosthetics – bone china – CT Scan – molecular and atomic exchanges – hydroxyapatite coating – lightboxes

DID YOU KNOW?

The adult human skeleton is made up of 206 bones. These include the skull, spine, ribs, arms, hands, legs and feet. The skeleton supports and shapes the body and protects internal organs such as the brain, heart and lungs.

The majority of our body's calcium supply can be found in our bones. Healthy bones need a balanced diet, regular weight-bearing exercise and the right levels of various hormones. When you break a bone a blood clot forms around the broken bone to protect it and deliver the cells to create a healing tissue around the broken bone that eventually joins the broken bones together.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- Have you ever broken a bone in your body? If so, which one and how did it feel when it happened? If not, do you know someone who has broken a bone?
- Do you know what a prosthetic is?
- Have you heard of the material bone china? Investigate what it is, how it is made and what it is generally used for.
- Do you know what a lightbox is? Use the internet to research what one is and you could even try to make your own.

EXPERIENCE

- Describe your immediate response to *Habitation*. Explain your response by making specific reference to art elements and/or principles.

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- Identify the materials and techniques used by Helen Pynor to create *Habitation*.

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- Describe the way *Habitation* has been installed in the exhibition space. How does the placement of the artwork affect your response?

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- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

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- *Habitation* is made up of a number of individual pieces. Discuss the relationship between each of the pieces and how they work together to form a single artwork.

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- How do you feel knowing that the bone china objects are made of Helen Pynor's own bone?

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- Use the space below to sketch one or all of the bone china objects and the coral-shaped forms that are attached.

CONNECT

- Drawing on the information provided by the wall text and online research about *Habitation*, what is the intended meaning and message of the artwork?

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- Why do you think that Helen Pynor titled this artwork *Habitation*?

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- Explain how *Habitation* connects with the main themes of *Experimenta Life Forms*.

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- Explain how *Habitation* seeks to challenge perceptions of the body as a passive recipient of human-engineered implants.

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- Pynor’s work is often informed by in-depth residencies in scientific institutions however *Habitation* is a more personal experience. After looking at her website (<http://www.helenpynor.com/>), discuss how *Habitation* relates to her previous work.

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- *Blomess* and *The Modular Body* are other artworks in the exhibition that explore the potential of biotechnology? What do these artworks have in common? How do the artworks differ?

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LINKS

<https://experimenta.org/artists/helen-pynor/>
<https://experimenta.org/artworks/habitation/>
<https://experimenta.org/news/experimenta-life-forms-in-development-interview-helen-pynor-and-habitation/>
<http://www.helenpynor.com/>

MAKE

Habitation consists of both archive CT scans and X-rays that trace the change and adaption of Helen Pynor’s bones over the course of her life.

In a small group or as an individual create a skeleton of the human body using acetate sheets or wax paper that you can tape onto a window so that they look like an x-ray image. Use a black marker to draw the skeleton keeping the outline of the bones simple. You might like to use one sheet for each body part if you have a really large window or draw your skeleton over a number of sheets to fit your window or just use one sheet for the whole skeleton.

You can then use another acetate or wax paper sheet to draw the changes to the skeleton using a different colour marker. The changes can be whatever you want to make. You might replace the bone with another object such as a metal rod or wooden spoon or you could mend the bone with a giant safety pin or some chewing gum. Have some fun with your choices. Again, keep your drawings simple. You can then stick your second sheet over the existing skeleton. By using a second sheet you can keep changing your skeleton when you want as you don’t have to change all the parts at once.



first forms

2020. 6-channel video installation, with sound

Dimensions: Variable. *An Experimenta Commission*

'first forms' (2020) by
Dominic Redfern. Video
Still. Image courtesy of
the artist.



Dominic Redfern

Dja Dja Wurrung, Taungurung & Wurundjeri Country.
Macedon Ranges, VIC, Australia

Dominic Redfern's video practice addresses the entangled relationships between natural and social histories. He uses studies of plants, insects, microbes and human detritus to examine often overlooked elements of the environment illuminating important stories of how we are enmeshed within ecosystems.

first forms is a multi-screen installation exploring cyanobacteria, the single-celled life form that created the conditions for complex life to arise on earth 800 million years ago.

Redfern's practice is engaged with urban waterways, and the investigation of the relationship between human and non-human histories. Continuing to work with water but taking a deep dive into pre-history, *first forms* stretches beyond human life and toward the history of all multi-celled life forms. Cyanobacteria, when left to their own devices, slowly build-up sedimentary forms known as stromatolites – often referred to as 'living fossils'. Formerly covering large areas of the planet, with the rise of grazing herbivores who devoured cyanobacteria, they have become restricted to highly saline environments beyond the threat of predators. Australia, is one of the few places on earth where stromatolites can still be seen in the environment.

The installation combines location recordings of the stromatolites of Lake Thetis and Shark Bay, Western Australia with a cosmological soundtrack that places these unique creatures at the centre of life. The footage climbs up the wall from the gallery floor, displayed across a series of six screens. The multiple screens are suggestive of stepping-stones, or building blocks, harking to the evolutionary processes essential to the formation of multi-celled organisms. Collectively, they act as pieces to the puzzle to explain life's originary source. *first forms* presents an animated and tangible account of the pre-Cambrian stirrings of biological life on this planet, while offering us insights into the simple beauty of this very rare environment.

ACKNOWLEDGEMENTS

University of Western Australia
Western Australian Department of Mines

KEY THEMES, CONCEPTS AND VOCABULARY

Cyanobacteria – stromatolites – cosmological soundtrack
– saline environments – pre-Cambrian – urban waterways –
origins of life – documentary photography

DID YOU KNOW?

Scientists have calculated that the Earth is 4.5 billion years old, with an error range of 50 million years by studying and dating rocks found around the world. After discovering that isotopes of some radioactive elements decay into other elements at a predictable rate, they are now able to calculate the initial quantity of radioactive element by examining the existing elements and therefore determine the age of the rock.

Research groups in Australia have found the oldest mineral grains on Earth. These tiny zirconium silicate crystals have been dated as old as 4.3 billion years, making them the oldest materials found on Earth. So far their source rocks have not yet been found.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- What is a living fossil?
- What are stromatolites?
- Do you think it is important to know how the world was created? What benefit could it have?
- Find the locations Lake Thetis and Shark Bay in Western Australia. What type of areas are these? Why do you think that stromatolites are still found in these areas?

EXPERIENCE

- Describe your immediate response to *first forms*. Explain your response by making specific reference to art elements and/or principles.

- Identify the materials and techniques used by Dominic Redfern to create *first forms*.

- Describe the way *first forms* has been installed in the exhibition space. How does the placement of the artwork affect your response?

- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

- Watch *first forms* in silence. Identify the different types of shots and sounds that Redfern uses to capture the environments of Lake Thetis and Shark Bay.

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- How do the six different screens work together to form one artwork? Are you able to focus on all the screens or just one at a time?

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CONNECT

- Drawing on the information provided by the wall text and online research about *first forms*, what is the intended meaning and message of the artwork?

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- Why do you think that Dominic Redfern titled this artwork *first forms*?

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- Explain how *first forms* connects with the main themes of *Experimenta Life Forms*.

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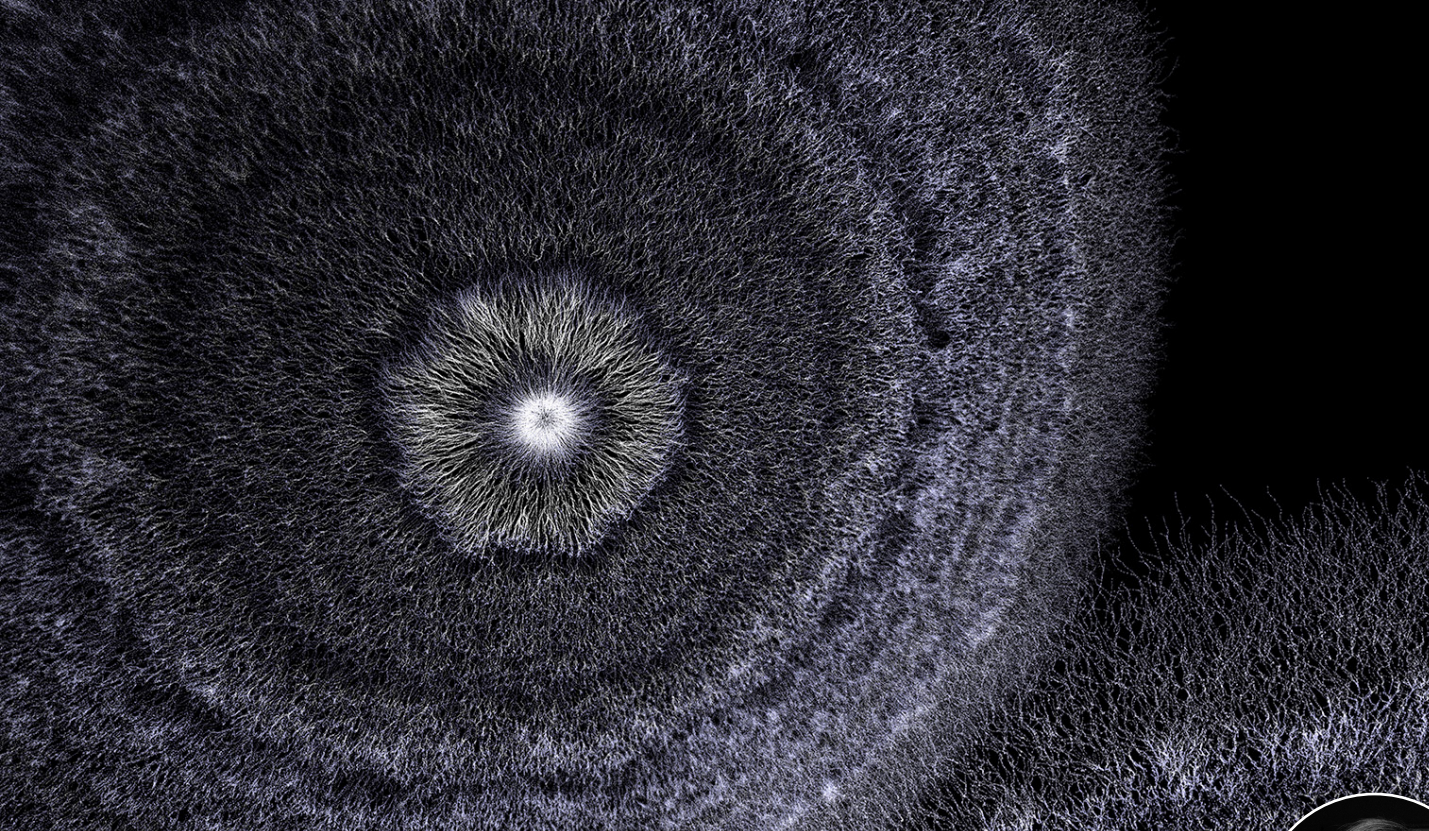
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Sound for Fungi. Homage to Indeterminacy
2020. 4K interactive video with sound and photographs
Dimensions: Screen variable, photo 45cm x 30cm, photo
45cm x 80cm

'Sound for Fungi. Homage to
Indeterminacy' (2020) by Theresa
Schubert. Screenshot.



Theresa Schubert

Berlin, Germany

Theresa Schubert is a Berlin-based artist exploring unconventional visions of nature, technology and the self. Her work spans audiovisual and biomedica to conceptual and immersive installations and performances. By means of interdisciplinary methods – such as biohacking, theoretical analysis, performative interpretation and material experimentation – her works question the relation of humans to their environment.

Sound for Fungi. Homage to Indeterminacy began as a laboratory experiment where Schubert played sinus frequencies to fungi mycelia she collected from forests near her home in Germany. After several weeks of observing these collected specimens housed in custom-built sound-insulated boxes, most showed a positive response to the influence of sound by growing faster and denser than samples grown in silence.

This interactive video installation simulates Schubert's laboratory experiment where sound impacted on fungi mycelium growth. Audiences can explore this biological process by using a tracking sensor where hand movements simulate the role of a sound frequency and change the fungi's growth in real time. The digital 3D environment shifts between macro and cellular level perspectives, revealing fragile topologies that are comprised of multiple nodes and connections, offering a glimpse into the complexity of the underground network of

microbes that connect the 'Wood Wide Web'.

The work's title, *Sound for Fungi. Homage to Indeterminacy* draws reference to American music composer John Cage's development of 'indeterminacy' as an improvisational technique where aspects of a composition are left open to chance and free-choice. A further reference is the work of Anna Tsing and mycologist Alan Ryner who have linked mushrooms to this notion of indeterminacy on account of their shape-shifting gestalt. Some fungi keep expanding and growing through different life cycles and therefore, in theory, are immortal.

Improvisation – not so much as a musical process but understood as a natural life phenomenon – represents a condition of existence itself. This state of being without intention enables spontaneity and emergence, and has been a guiding principle through Schubert's artistic practice. By allowing many pathways and experiences of

the fungi data in this work, Schubert applies the same open-ended codes to audience engagement – facilitating an interspecies experience which works best when the visitor brings tranquility and patience to their interaction with this work.

ACKNOWLEDGEMENTS

Sage Jenson: simulation development
This work has been developed within “Mind the Fungi”, a research project (2018-20) between the Institute of Biotechnology TU Berlin and Art Laboratory Berlin funded by the *Citizen Science* Initiative of TU Berlin. Supported by the Goethe-Institut

KEY THEMES, CONCEPTS AND VOCABULARY

Fungi – interactive video installation – tracking sensor – sound frequencies – macro and cellular level perspectives – fungi mycelium growth – topologies – Wood Wide Web – improvisation – interspecies relationships

DID YOU KNOW?

Despite what a lot of people think fungi are not plants in fact they belong to their own kingdom just like plants and animals. They are actually more closely related to animals than they are plants. Fungi includes microorganisms such as yeasts and moulds, as well as the more familiar mushrooms.

Fungi are found all over the world from deserts to the ocean floor.

Currently around 148,000 species of fungi have been described by taxonomists but it is believed that more than 90% of fungi remain unknown. This is mostly because of their small size, their structure and their ability to hide or camouflage themselves in soil or on dead matter.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- What types of fungi are you familiar with and do you know what conditions are best for their growth?
- What is a laboratory experiment?
- What are sound frequencies? Can you give examples of a high, a middle and low frequency sound?
- Use the internet to research what the ‘Wood Wide Web’ is and why it is an important scientific concept.

EXPERIENCE

- Describe your immediate response to *Sound for Fungi. Homage to Indeterminacy*. Explain your response by making specific reference to art elements and/or principles.

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- Identify the materials and techniques used by Theresa Schubert to create *Sound for Fungi. Homage to Indeterminacy*.

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- Describe the way *Sound for Fungi. Homage to Indeterminacy* has been installed in the exhibition space. How does the placement of the artwork affect your response?

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MAKE

Sound for Fungi. Homage to Indeterminacy draws reference to American music composer John Cage's development of 'indeterminacy' as an improvisational technique where aspects of a composition are left open to chance and free-choice.

As an individual or in a small group source some creative commons time lapse footage of an act of nature such as a leaf growing, clouds moving across the sky or rain falling. The clip only needs to be between 15 – 30 seconds. If you have access to a camera or an app that records time lapse footage you might like to record your own.

Once you have your footage improvise a soundtrack using either traditional instruments or found objects to reflect the action of the clip. Present your work to your class or record your performance and share it with your class.

You might also like to swap clips with another group and see how they create a soundtrack using their instruments or objects.

- Explain how *Sound for Fungi. Homage to Indeterminacy* connects with the main themes of *Experimenta Life Forms*.

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- Some fungi keep expanding and growing through different life cycles and therefore, in theory, are immortal. How does this concept relate to *Sound for Fungi? Homage to Indeterminacy* ?

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- What does *Sound for Fungi. Homage to Indeterminacy* suggest about the relationship between nature and technology, now and in the future?

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- Another artwork in the exhibition that uses sound and fungi is Nguyen, Piantoni and Riley's *You, Me, Things*. What do the artworks have in common? How do the artworks differ?

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LINKS

- <https://experimenta.org/artists/theresa-schubert/>
- <https://experimenta.org/artworks/sound-for-fungi/>
- <http://theresaschubert.com/>
- <https://vimeo.com/channels/artscience>



Snow Rabbits

2018/2020. Used rabbit fur coats, found objects, eucalyptus pauciflora, cast polyurethane resin, epoxy resin, steel, motors, electrics, padding, enamel paint
Dimensions: 200 x 140 x 140cm

'Snow Rabbits' (2018/20)
by Rebecca Selleck. Image
courtesy of the artist.



Rebecca Selleck

Ngunnawal & Ngambri Country. Canberra, ACT, Australia

Rebecca Selleck is a Canberra-based emerging artist focusing on interactive sculpture and installation, blending animatronics, assemblage, and casting. She completed her Bachelor of Visual Arts at the ANU SOA with First Class Honours, receiving the Peter and Lena Karmel Anniversary Prize for best graduating student. She uses her practice to reciprocally investigate and challenge her own perceptions within a culture of conflicting truths. Her work overlays time and place to express the need for human accountability and the painful complexity of animal and environmental ethics in Australia.

'I've always been entranced by the inconsistent relationships humans have with other animals.' – Rebecca Selleck, 2020.

Snow Rabbits is part of an ongoing series that deliberates on our fraught colonial history with introduced species, in this case rabbits, and reflect on the complexity of

animal and environmental ethics. Australia's capricious relationship with rabbits led to a tug-of-war between a booming fur trade and the obliteration of farming land for colonists. Despite the eventual success of man-made viruses to reduce their numbers, we continue to see the devastating impacts of rabbits on Australia's ecosystems. More recently they have adapted to survive on the toxic leaves of snow gum saplings in the Snowy Mountains, allowing them to survive altitudes above 1500 metres, which was their previous natural limit.

The installation includes a group of rabbit-like forms that have been made from used rabbit skin coats – each containing animatronics that suggest life by simulating the appearance of 'breathing'. The rabbits 'breathe' using makeshift camshafts driven by geared motors that push and pull, and are arranged huddled together at the centre of a section of carpet in the safety of a wooden chair merged with a cast resin Snow Gum replica. These uncanny rabbits allude to the evolutionary processes of adaptation to new environments. Combined with the Eucalypt elements, they highlight the tension between invasive and endemic species continuing from colonisation. The merging of a familiar domestic scene with its external landscape point to the human culpability of these environmental changes.

KEY THEMES, CONCEPTS AND VOCABULARY

Introduced species – colonial history – animatronics – human culpability – evolutionary processes – invasive and endemic species - installation

DID YOU KNOW?

Australia's European rabbit problem was the result of Thomas Austin who in 1859 had 13 European rabbits sent to him that he released on his property. From these 13 rabbits it took only 50 years for these invasive animals to spread across the whole of Australia.

European rabbits are prolific breeders producing large quantities of offspring. They are able to breed at an early age and reproduce all year round having more than four litters each year, with between two to five offspring each time.

Rabbits are extremely adaptable animals requiring suitable soil to burrow in and something to eat, hence why they can be found in just about all areas of Australia from desert plains to snowy mountains. They have been responsible for destroying crops and land, leading to soil erosion and have contributed to the decline of native plant and animal species.

PREPARE

Your teacher may ask you to complete the following

questions in your art folio/visual diary or as an online document before you visit the exhibition.

- Define the term introduced species and give an example.
- Investigate whether there is a rabbit problem in your local area.
- What do you think can be done to minimise the effect of introduced species on the environment? Do some research and share your findings with your class.
- Research five other animals (besides rabbits) that have been introduced to Australia and who have adapted to their new environment. Briefly describe why they needed to adapt and what they did to adapt.

EXPERIENCE

- Describe your immediate response to *Snow Rabbits*. Explain your response by making specific reference to art elements and/or principles.

- Identify the materials and techniques used by Rebecca Selleck to create *Snow Rabbits*.

- Why do you think that Rebecca Selleck titled this artwork *Snow Rabbits*?

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- Explain how *Snow Rabbits* connects with the main themes of *Experimenta Life Forms*.

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- Rabbits are not usually known for climbing trees but they can. What might be the meaning behind the rabbit in the gum tree?

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- What does Rebecca Selleck mean when she talks about ‘the inconsistent relationships humans have with other animals’? How is this apparent in *Snow Rabbits*?

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- Rebecca Selleck has used the combination of furniture and animals in previous installations (<http://www.rebeccaselleck.com.au/sculpture.html>). Why does she do this? What message is she trying to convey to the audience?

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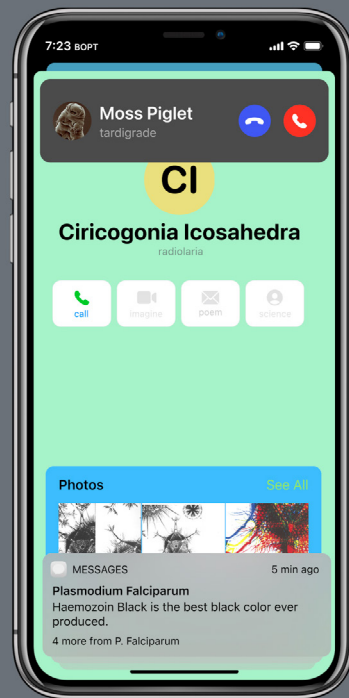
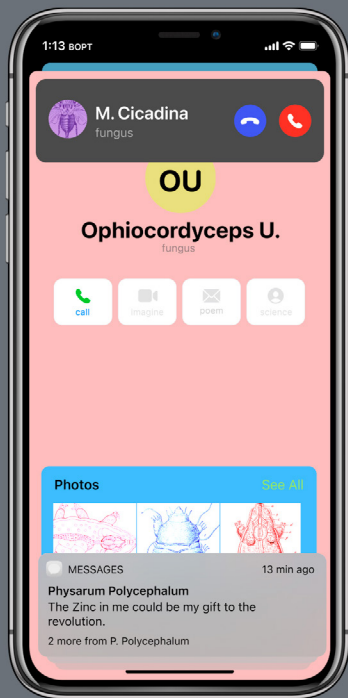
LINK

<https://experimenta.org/artists/rebecca-selleck/>
<https://experimenta.org/artworks/snow-rabbits/>
<http://www.rebeccaselleck.com.au/>

MAKE

Create an installation artwork that reflects the struggles of a particular Australian animal due to the destruction of their habitat by humans or other animals in your local area.

Use any medium that you have access to (painting, drawing, photography, sculpture, found objects etc).



Brachiation on the Phylogenetic Tree
2020. Interactive voice response system
Duration: Variable, 3 – 12 mins

'Brachiation on the Phylogenetic Tree' (2020) by Agat Sharma.
 Visual representation courtesy of the artist.



Agat Sharma

Jaipur, India. Amsterdam, The Netherlands

Agat is a theatre maker and artist based in Jaipur/Amsterdam. He studied Communication Design at NIFT, New Delhi. His work is a never-ending exploration of the connections between the uncanny and the banal, the natural and the modern. He is interested in science, philosophy and speculative fiction.

Sharma's recent projects include *Fungus Sub Rosa*, a collaborative story writing performance that imagines the end of humans and *Sonic Sabarmati*, a series of interventions at the Indian Institute of Technology to explore the intersections of ecology, art and science. He has set up a biodynamic urban farm, a shared space for dialogue about agriculture, design and sustainability which he also considers as a long term multi-species performance.

A feature of contemporary life is the labyrinthine-like automated call centre services we navigate when making enquiries to businesses or government departments. *Brachiation on the Phylogenetic Tree* adapts this pervasive technology to playfully create an interactive work of speculative fiction about the entanglements between humans and the world of microorganisms.

The title of the work points to a more poetic, personalised experience than is usually felt when navigating these systems. A 'phylogenetic tree' or 'evolutionary tree' is a branching diagram that reveals the evolutionary relationships among various biological species, and 'brachiation' describes the swinging motion used by primates to move from tree limb to tree limb.

The *Brachiation on the Phylogenetic Tree* journey begins

in the gallery with a call-to-action: using your mobile to phone the toll-free number stencilled across the gallery wall. The conspicuously displayed phone number is a reference to the cost-effective advertising campaigns often found on the hoardings of building sites in many Indian cities. When audiences call the toll-free number, they are greeted by a welcome message that leads them into an imaginary space, quite unlike the false service promises of a typical automated Call Centre system. As the caller selects options, each choice made forks the narrative path. The caller takes on the role of a writer entering his own archive, invited to explore the worlds of twelve species of microorganisms ranging from fungi to Tardigrades. In the archive fragments of narrative material are scattered; fragments about microorganisms that shine like stars in petri dishes, and those that stink like the rotten depths of our worst imagined hell. Dialling into *Brachiation on the*

Phylogenetic Tree is an invitation to twist together delicate narrative strands weaving your own story.

At the conclusion of the gallery-based encounter, over the following weeks visitors are invited to discover more stories. These opportunities arrive as part of an automated call back service. Audiences engage with the work at their own pace, long after leaving the gallery. The call back service delves deeper into the story threads, forming narratives that draw on a combination of scientific fact and poetic fiction.

ACKNOWLEDGEMENTS

Technology and production management by Ambika Joshi, Nanditi Khilnani and Shailendra Paliwal.

KEY THEMES, CONCEPTS AND VOCABULARY

Brachiation – phylogenetic tree – call-to-action – welcome message – imaginary space – microorganisms – narrative path – evolution – interactive artwork – archives – automated phone systems – interspecies relationships – knowledge exchange

DID YOU KNOW?

Microorganisms are generally so small that you require a microscope to see them. They are all around us, bacteria, viruses, algae and fungi. Some microorganisms are beneficial to humans and the environment but others can make us extremely sick.

Our bodies have more microbes than human cells. We are born bacteria free and acquire them over the first few years. There is more bacteria in a person's mouth than the entire population of the world and there are around 1458 bacteria in your belly button.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- Define the terms brachiation and phylogenetic tree in your own words.
- Use the internet to find an example of a phylogenetic tree of microorganisms. How many types of organisms do you already know or have heard of?
- Have you ever called or spoken to someone from a call-centre or used an automated phone service? What was the purpose and how would you describe the interaction?
- Have you ever read a story where your choices determine the character's action and outcome of the story?

EXPERIENCE

This artwork requires you to use your phone for the full experience. You may need to ask your teacher for permission to use your phone. If you don't have permission or your phone when you visit the gallery, you could always write down the phone number that is stencilled on the gallery wall and call it later to experience the artwork.

- Describe your immediate response to *Brachiation on the Phylogenetic Tree*. Explain your response by making specific reference to art elements and/or principles. Your response to this question may be limited if you just write about the phone number stencilled on the wall of the gallery. If you can, call the phone number and then describe your experience.

- Identify the materials and techniques used by Agat Sharma to create *Brachiation on the Phylogenetic Tree*.

- Describe the way *Brachiation on the Phylogenetic Tree* has been installed in the exhibition space. How does the placement of the artwork affect your response?

- Looking at the artwork can you identify any decisions that needed to be made by the curators when either presenting the work or protecting the work from the public.

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- Did you call the number on the wall? If yes, what happened? If no, why not? (Remember, if you do not have a phone with you when viewing the work you might like to write the number down in the space below and call when you have access to a phone and then respond to the questions.)

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- Which species of organisms did you choose to explore? Why? What other options were there?

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- How did the narrative develop? What other choices did you have to make?

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CONNECT

- Drawing on the information provided by the wall text and online research about *Brachiation on the Phylogenetic Tree* what is the intended meaning and message of the artwork?

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- Why do you think that Agat Sharma titled this artwork *Brachiation on the Phylogenetic Tree*?

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- Explain how *Brachiation on the Phylogenetic Tree* connects with the main themes of *Experimenta Life Forms*.

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- Shamra’s artwork is an interactive work of speculative fiction about the entanglements between humans and the world of microorganisms. How does this occur and what is their relationship?

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- Most artwork is experienced in a gallery and once you leave, that experience is over. *Brachiation on the Phylogenetic Tree*, however enables you to discover more stories in the weeks after via an automated call back service. Did you get a call back? What new story did you learn?

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- Other artworks in the exhibition explore microorganisms, their ecosystems and their relationship with humans. What do these artworks have in common? How do the artworks differ? Compare and contrast by using a Venn diagram.

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LINKS

<https://experimenta.org/artists/agat-sharma/>
<https://experimenta.org/artworks/brachiation-phylogenetic-tree/>
<https://www.dobedobedo.be/>

MAKE

Dialling into *Brachiation on the Phylogenetic Tree* is an invitation to twist together delicate narrative strands to create a new and different story each time.

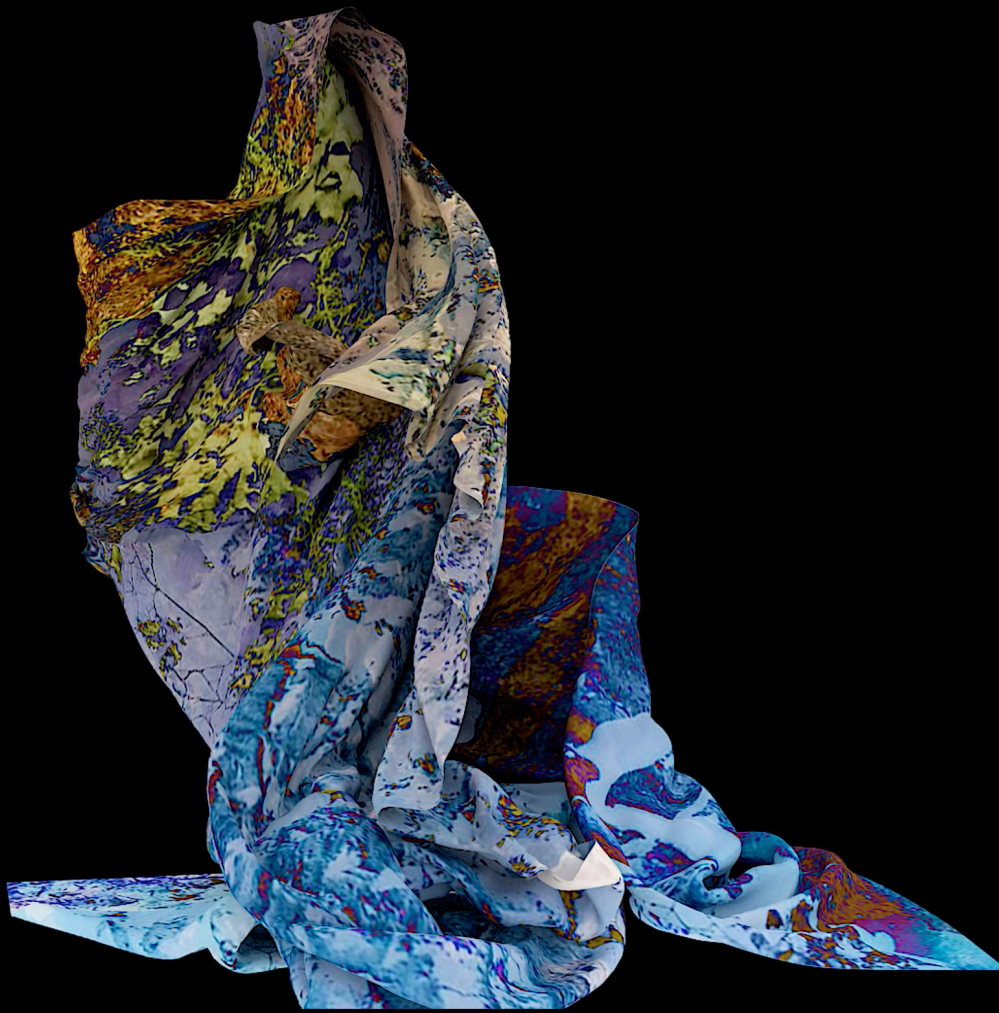
Working in a pair, each person needs to create the beginning of a story. After a pre-determined time, the pair should swap their stories and without talking they should

continue to write. This process should be repeated at least two more times or until the story is finished.

This task could also be undertaken as a drawing activity where one person starts drawing in the top left-hand corner of their page and then swaps it with their partner who continues drawing without

discussing the direction of the drawing. Again, this process should be repeated at least two more times or until the drawing is finished.

Once the story or drawing is finished the pair can reveal their intention for their narrative and how the narratives changed direction.



Macro/Micro_Whakapapa
2019. Motion capture digital artwork
Dimensions: Variable. Duration: 9 mins 47 secs

'Macro/Micro_Whakapapa' (2019)
by M. Smitheram. Video still. Image
courtesy of the artist.

Miranda Smitheram

Tiohtiá:ke, Montreal, Canada. Tāmaki Makaurau,
Auckland, Aotearoa New Zealand

Dr Miranda Smitheram is an artist and design researcher interested in hybridity and materiality. Originally from Aotearoa (New Zealand), she is currently Assistant Professor of Material Futures at Concordia University, Canada. Smitheram's research practice is tactile, haptic and embodied, and incorporates ancestral and contemporary methods to work with ecosystems, socio-cultural matter, and nonhuman collaborators. Through this she explores developing new mediated and hybrid materials, to contribute to sustainable, relational and Indigenous futures.

Smitheram's research moves between digital, virtual and physical, with a particular interest in the critical materiality that is revealed through the flux of these processes. These mediated materials take shape as textile forms, structures and digital artworks that question the interaction and agency of human and nonhuman, place and space in an anthropocentric context.

Macro/Micro_Whakapapa is an installation that speaks to First Nation's perspectives of the world where all matter is understood as lively, relational and interconnected.

The artwork grew from Smitheram's collaboration with Māori contemporary dance company, Atamira for the performance *Indigenous Stamina* in 2019. That

performance explored the synergies between Indigenous and contemporary interdisciplinary epistemologies. *Macro/Micro_Whakapapa* builds on the ideas of the performance by drawing on Smitheram's background in fashion and design, experimentation with motion capture technologies.

The installation features draped fabric suspended on the gallery wall that hosts the projection of a sumptuous piece of simulated digital cloth that continually twirls and morphs. The projected digital cloth appears to be dancing providing a clue to the source code of this digital animation. Its nuanced and affective movements are driven by data points collected from the motion capture of dancer Bianca Hyslop choreographed by Atamira Dance Company Director, Jack Gray.

Layered images of landforms, trees, sightlines and horizons have been visually reworked through 3D animation to pattern the digital cloth. The images selected have been transformed and remediated to reflect and refract the effects of globalisation, colonisation and mediatisation on Indigenous bodies of Aotearoa (New Zealand) and Australia. This shifting sequence of imagery includes still images selected from video footage of Indigenous dancers activating sites of cultural significance in Australia and Aotearoa that featured in the Indigenous Stamina performance. Through this digital transformation process the cloth has become inhabited by *whakapapa* (genealogy or line of descent). It becomes a shape-shifting geology, topography and map that speaks of the interconnectedness of all matter.

The dancer's body, whose movement data choreographs the digital cloth, is unseen nevertheless the artwork still holds the energy of the dance. The motion detached from the physical entangles with imagery of ecosystems and so the human and the environment are enmeshed. Notions of the human body are redefined as an intertwining with the nonhuman bodies of land and water. The new surface that emerges in this artwork is simultaneously person, place, and matter.

ACKNOWLEDGEMENTS

Dancer: Bianca Hyslop; Choreographer: Jack Gray; Technical Advisor: Gregory Bennett; Motion Capture Technician: Lee Jackson; Technical assistant: Ziyu Niu Ngā mihi and gratitude also to the Activists/Activators/Dancers/Bodies of Land/Bodies of Water who contributed to raw video footage that formed layers of this work: Matiu Hamuera, Dakota Camacho, Bianca Hyslop, Ruth Woodbury, Uluru-Kata Tjuta National Park, which is the traditional land of Yankunytjatjara and Pitjantjatjara people, and Lake Rotorua and surrounding forest, the traditional lands of the Te Arawa people.

This artwork was developed during Dr Smitheram's Māori Postdoctoral Research Fellowship (2018-2019), awarded by the Faculty of Design and Creative Technologies, Auckland University of Technology, Aotearoa/New Zealand

KEY THEMES, CONCEPTS AND VOCABULARY

Whakapapa – genealogy – First Nations – indigenous – motion capture – materiality – globalisation – colonisation – mediatisation – cartographic – fashion design – 3D animation – video art

DID YOU KNOW?

New Zealand was the last large and liveable place in the world to be discovered.

Between 1200 and 1300 AD ancestors of the Māori (indigenous Polynesian people) were exploring the Pacific in canoes, navigating by the oceans, currents, winds and stars, when they discovered New Zealand.

For several centuries they were the only inhabitants of New Zealand and during this time they developed their own distinctive culture, language, mythology, crafts and arts evolving independently from those of other eastern Polynesian cultures.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- What is meant by the terms whakapapa and genealogy? Can you trace your own genealogy?
- Use the internet for research to further your understanding of Māori and Aboriginal histories and the effect of colonisation on these First Nations peoples.
- Cartography is the study and practice of making maps. Spend some time looking at historical, contemporary and topographic maps of Australia and New Zealand. How do they differ?
- What is motion capture and how does it work?

EXPERIENCE

- Describe your immediate response to *Macro/Micro_Whakapapa*. Explain your response by making specific reference to art elements and/or principles.

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MAKE

Macro/Micro_Whakapapa contains layered images of landforms, trees, and horizons that have been visually reworked and projected onto fabric.

As a class create your own series of stencils to represent different elements of your local area, such as parks, rivers, creeks, streets, houses and shops, etc. You can then use these to paint onto fabric showing how the area has changed over time (*whakapapa*). You can also create digital images and project them onto fabric, in the same way the artist has.

CONNECT

- Drawing on the information provided by the wall text and online research about *Macro/Micro_Whakapapa*, what is the intended meaning and message of the artwork?

- Why do you think that Miranda Smitheram titled this artwork *Macro/Micro_Whakapapa*?

- Explain how *Macro/Micro_Whakapapa* connects with the main themes of *Experimenta Life Forms*.

- Discuss how the surface that appears on the draped fabric is simultaneously person, place, and matter.

- The cloth is inhabited by *whakapapa* (genealogy or line of descent). Explain how this is evident in the artwork and why it is important that an artwork like this exists.

- After viewing *Macro/Micro_Whakapapa*, what is your understanding of First Nations people, their history and connection to the land?

LINKS

<https://experimenta.org/artists/miranda-smitheram/>
https://experimenta.org/artworks/macro-micro_whakapapa/
www.mirandasmitheram.com



Planet

2019. Water, acetal, acrylic, LED light fitting, fasteners, stainless steel, air pump

Dimensions: Variable between 110cm x 100cm x 100cm and 140cm x 120cm x 120cm

'Planet' (2019) by Laura Woodward. Image courtesy of the artist.



Laura Woodward

Djadjawurung Country. Castlemaine, VIC, Australia

Laura Woodward lives and works in Castlemaine, Victoria, Australia. She has been creating sculptural kinetic installations for several years, with her kinetic installations which regularly embody looped systems. The systems, often powered by water, develop through the relationships between materials, movement, time and the artist's hands, with the system's inherent logic driving its emergence.

Planet focuses on the interplay between the building blocks of life – water, air, and light –

creating an ephemeral yet perceivable coalescence of these elements. The work consists of three illuminated water-filled spheres each supported by a tripod at varying heights. The water acts as a lens, a light-focusing tool, a means of shifting perception and understanding, and is activated by bubbles that disturb its surface and generate visual manifestations of cause and effect. At its most basic, *Planet* is a semi-spherical body of water in which we can visually understand the interplay between light, curvature and refraction.

Planet muses on the scale and complexity of life forms and cycles. As Woodward explains, the sphere is representational of 'the fundamental form that emerges when equal pressure is applied – as happens with surface tension when small water droplets fall through space, or, at a vastly different scale, with the effect of gravity on planets. The sphere is the planet on which we stand, the moon that we see, the sun that gives us light and warmth. Equally, water – transparent, almost tasteless, and barely considered as we drink or bathe – is the fundamental life-blood of our world'.

Equally *Planet*, constructed from stainless steel, clean white engineering plastics, hoses and transparent acrylic could be an experimental life-support machine; an incubating system in which some new biological thing is coming into being.

Planet is an implied and material system; an artwork that speaks to multiple possibilities of differing scales, and to layered levels of systemic complexity born out of a minimal range of elements – water, air and light.

KEY THEMES, CONCEPTS AND VOCABULARY

Water – air – light – curvature – refraction – cause and effect – the building blocks of life

DID YOU KNOW?

Light, air and water are essentials for life.

Direct exposure to daylight helps your body to absorb all the nutrients from the food that you eat which boosts your immune system. It can also improve your mood and stimulate you.

Without oxygen we would only survive for a few minutes at the most. Oxygen is needed constantly by every cell because it releases the energy in food that the cells need to function.

Our bodies are made up of about 60% water which helps to regulate our body temperature, carry nutrients and oxygen to cells, remove waste, cushion joints and protect organs and tissues.

PREPARE

Your teacher may ask you to complete the following questions in your art folio/visual diary or as an online document before you visit the exhibition.

- What constitutes a planet?
- Other than Earth, which planet would you like to live on?
- Define the terms curvature and refraction.
- In your own words explain how light can bend?

EXPERIENCE

- Describe your immediate response to *Planet*. Explain your response by making specific reference to art elements and/or principles.

- Identify the materials and techniques used by Laura Woodward to create *Planet*.

- Describe the way *Planet* has been installed in the exhibition space. How does the placement of the artwork affect your response?

- Looking at the artwork can you identify any curatorial considerations that needed to be made when either presenting the work or protecting the work from the general public.

Art Analysis Grid

Use an art analysis grid to collect information about an artwork. You don't have to identify every element and principle but look for the most prominent elements and/or principles. You should describe where the element and/or principle is in the artwork and the effect that it has. This information will assist you when describing the artwork to other students or if you are required to complete a more detailed or formal analysis.

Artwork				Artist(s)		
Year				Country of Origin		
Media						
Materials/ Techniques						
ART ELEMENTS	LINE	-tone	TEXTURE	COLOUR	SHAPE	
Description & Effect						
ART ELEMENTS	FORM	TIME	LIGHT	SOUND		
Description & Effect						
ART PRINCIPLES	BALANCE	CONTRAST	EMPHASIS	MOVEMENT	PROPORTION	
Description & Effect						
ART PRINCIPLES	REPETITION	RHYTHM	SCALE	SPACE	UNITY	
Description & Effect						
ART PRINCIPLES	VARIETY	OTHER NOTES				
Description & Effect						

Observation Sheet – Senior Secondary

Note to teachers: These observation sheets have been designed for use with secondary school students in Years 11 – 12. Given the number of artworks in the exhibition, teachers might assign students or groups of students one or two artworks to analyse in this way. Time should also be allowed for students to observe the whole exhibition, interact with all the artworks and make their own connections.

ANALYTICAL FRAMEWORK

Use this observation sheet to take notes about the *Experimenta Life Forms* artworks. Take your own photos or sketch images to help you remember the artwork when you return to school.

Artist name(s):

Title and date of artwork:

Formal Framework

Personal Framework

Cultural Framework

Contemporary Framework

Formal Framework

The Formal Framework is used to analyse how an artwork's formal elements and principles contribute to its meanings and messages.

- How have the formal elements of line, colour, tone, texture, shape, sound and form including focal point and space been applied by the artist and to what effect?
- How do these qualities contribute to the meanings and messages of the work?
- What materials and techniques have been used?
- How has the use of these shaped or affected the

interpretation?

- What are the distinctive stylistic qualities of the artwork and how do they contribute to meaning?
- How does the work relate to other works in a similar style or from the same historical period or cultural background?
- What physical aspects or presentation of the artwork contain symbolic meaning and use of metaphor? (This may include the use of formal art elements, the compositional arrangement of figures or objects, the medium or the technique used by the artist, the style in which it is created.)

Personal Framework

The Personal Framework is used to interpret how an artist's experiences, feelings, thinking and/or personal philosophy can be reflected in an artwork. It can also be used to gain awareness of the effect of the viewer's cultural background and experience on the interpretation of the artwork.

- What relationship does the artwork have to the artist's life and experiences? What visual evidence supports this reading?
- Has the artist used a specific process or practice in creating the artwork that may reflect their personal

philosophy and ideas?

- How is the artwork linked to people, places or experiences of personal significance to the artist such as the artist's personal feelings, thinking, aspirations, beliefs, desires (conscious or subconscious) or preoccupations, or to memories, dreams or personal world of fantasy?
- How does the experience and background of the viewer affect the interpretation of the artwork?
- What are the symbols or metaphors explored or utilised in the artwork?

Cultural Framework

The Cultural Framework is used to identify the influences on an artwork of the time, place, purpose, cultural and political settings in which it was made. These influences may include historical, political, social, socio-economic, religious contexts as well as aspects of ethnicity and gender.

- How do the social, political, cultural or religious contexts of the artwork contribute to its meaning?
- How have historical or contemporary events shaped

the intention of the artist or our understanding of the artwork's meaning?

- How do gender values reflect the social context of the time the artwork was produced? How do these values compare to the values of today?
- How does the physical placement of artworks affect their interpretation?
- How does the cultural background of the viewer influence the interpretation of an artwork?

Contemporary Framework

The Contemporary Framework is used to examine an artwork, irrespective of when it was created, in the context of contemporary art ideas and issues. For the purpose of this study contemporary art ideas and issues are those originating in the late twentieth century onwards.

- How have contemporary art ideas and issues challenged traditional understandings of artworks and their significance?
- How does the choice or presentation of subject matter or medium, materials and techniques reflect or

challenge artistic or social traditions?

- What is the impact of dynamic media applications and other emerging art forms on the viewer such as video, digital, projection, installation, interactive, street art, sound and performance art? How do these art forms differ from traditional ideas of viewing and experiencing object-based art in museums and galleries?
- How might artworks of the past take on new or different meanings, in the context of contemporary ideas and issues?

After you visit Experimenta Life Forms

Share and discuss the responses recorded by students while they were at the exhibition.

SUGGESTED PROMPTS

- What did you like most/least about the exhibition?
- What surprised you about the exhibition and why were you surprised? What shocked you and why were you shocked? What other reactions did you have? What provoked these reactions?
- Which of the artworks would you most like to have in your own home? Why?
- Having engaged with the exhibition, why is the exhibition titled *Experimenta Life Forms*?
- *Experimenta Life Forms* asks: 'How do we define life?'. How would you answer this question now that you have seen the exhibition? Do you think any of the artworks you engaged with encouraged you to change the way you think about or perceive life forms? If so, explain how the various artists' use of media technology, materials and choice of content helped to influence your understanding.
- List criteria the curators may have used in making decisions about works to include in the exhibition. How do you think decisions may have been made about the location of works in relation to one another? Do you think the curators expected each visitor would start at the beginning and move around the exhibition in a particular order? Why or why not?
- Artists exhibit their artworks in many countries throughout the world. In the case of media art the exhibition of work may be quite complicated, involving the artists, curators, electricians and often other technicians. How do you think this affects where *Experimenta Life Forms* can be exhibited?
- How easily do you think audiences will be able to make sense of this exhibition? Do artists or curators have an obligation to help art make sense?
- Artists can select from a variety of media and materials to represent and express their ideas.
 - What things might influence an artist's choice of materials, media or artistic techniques?
 - Describe some of the ways that technology has changed the way we think, feel and act. Discuss why artists might be inspired to explore the creative possibilities of everyday technologies.
 - Record specific technologies used by artists in the *Experimenta Life Forms* exhibition. Use a highlighter to identify technologies you use regularly at home or at school. Discuss similarities and differences between your use of the technologies and the artists' uses.

How many of your listed technologies were available when your parents, guardians or grandparents went to school?

As a class, brainstorm different kinds of media art you could create with the technology available to you at school or at home.

EXTENSION ACTIVITIES

- Select one of the *Experimenta Life Forms* artworks as your focus. Your task is to write a detailed analysis or a review of the artwork. Draw on the notes that you have already made.
Your analysis may be presented as alternative wall text for the artwork. Wall text is the text that is written by the curator of an exhibition and usually appears next to the artwork on the wall of the gallery.
Or
Your analysis may be presented as a review of the artwork that would appear in the arts section of a newspaper or periodical for a general audience or in an art periodical.
Or
Your analysis may be an artwork in itself.
- Select one of the *Experimenta Life Forms* artists as your focus. Your task is to present a capsule exhibition or a catalogue of the artist's work. A capsule exhibition is a selection of artworks that are in some way definitive. A catalogue is a printed list of exhibits. Use the internet to research the artist that you have selected. Your response should provide a biography of the artist, an overview of the artist's work and five examples of the artist's work. For each artwork selected provide a commentary that explores the artwork's composition, meaning and message.
- *Experimenta Life Forms* is an exhibition of contemporary media art.
Your task is to investigate media art from another decade. Begin by choosing a decade. Use print and electronic texts to identify significant examples of the decade's media artists and media art. Compile your findings in a presentation that you can either present with your class in person or share online. Make sure that your presentation reflects your chosen decade and the artwork that you have discovered.
- Imagine you have been commissioned to make an artwork for *Experimenta Life Forms*. Submit a proposal that includes the following:
 - A plan of your idea(s)/concept(s) - this can be written and/or visual
 - Art form to be explored
 - Discussion of the subject matter and focus for your artwork
 - Sources of inspiration for your ideas/concepts

Experimenta and Experimenta Life Forms online

Experimenta

<https://experimenta.org/>

Experimenta Life Forms

<https://experimenta.org/exhibition/life-forms/>

Facebook

<https://www.facebook.com/ExperimentaMediaArts/>

Instagram

https://www.instagram.com/experimenta_/

YouTube

<https://www.youtube.com/user/emaexperimenta>

Endnotes

- 1 <https://artgallerywablog.wordpress.com/2018/09/26/art-vs-science-a-discussion-with-oron-catts/>
- 2 <https://artgallerywablog.wordpress.com/2018/09/26/art-vs-science-a-discussion-with-oron-catts/>
- 3 <https://experimenta.org/news/experimenta-life-forms-in-development-interview-brad-darkson-and-smart-object/>
- 4 <https://www.vice.com/en/article/yp5jzy/sci-fi-vlog-tells-the-anatomically-strange-story-of-the-modular-body>
- 5 <https://experimenta.org/news/experimenta-life-forms-in-development-interview-thomas-marcusson-and-dj-moss/>
- 6 <https://experimenta.org/news/experimenta-life-forms-in-development-interview-pluginhuman-and-pulse-the-life-force-of-trees/>
- 7 <http://www.rebeccaselleck.com.au/sculpture.html>

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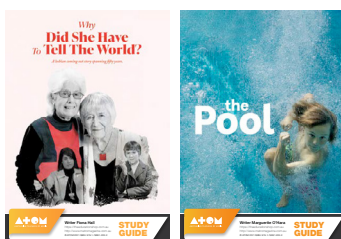
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