

Does This Make Sense?

Visual Arts | Years 7 – 8

STEM Links: Science

Cover: **Ross Manning**, *Refraction Parabola*, 2023. [artist impression].

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CURIOCIITY BRISBANE

Did you notice the spelling mistake? *Curioicity* is actually a *portmanteau*, or a blended word made of two or more other words. Portmanteaus take on the meaning of the words they are made from, and the English language is full of them. Portmanteaus you might use include, *fortnight* (fourteen and night), *smog* (smoke and fog), *twerk* (twist and jerk), or *Pokémon* (pocket and monster).

What two words have been blended to make Curioicity, and why do you think World Science Festival Brisbane has used this portmanteau to name their public art program?

Putting things together to make something new is the definition of creativity. [Curioicity Brisbane 2023](#) is jam-packed with multi-disciplinary artworks that blend science, technologies and art in creative and curious ways.

As you engage with these public artworks, what new things will you discover, and how will you respond in your own creative ways?

Does This Make Sense?

You use your five senses to help understand the world around you. Even without thinking about it, we see, smell, hear, taste or touch external stimulus (things outside of our body), and our brain uses this information to determine how things work, or what they might mean.

The *Curioicity Brisbane* artworks may have you in hysterics thinking about the smell of a sloth's intestinal gases, immersed in a visual scape of light and colour, or enjoying a symphony of mechanical music, but they are also designed to expose you to scientific and technological ideas.

We all sense or perceive external stimulus differently, which is why not everyone likes the same things, such as movies, food, perfume, music, or sensations. We absorb information through our senses but apply personal and unique filters when we respond.

As you observe your environment, pay attention to the information your senses are giving you. Can you make new connections between scientific inquiry, the five senses, and art-making?

Warning: Apply common sense before tasting things!

Featured artworks

To use this resource, students can respond to sensory experiences with all *Curioicity Brisbane* artworks, but of particular relevance, are:

SCRAPS. *Dr SCRAPS' Corporeal Symphonies*

Ross Manning. *Refraction Parabola*

Curriculum links

This resource is aligned with [Australian Curriculum](#)ⁱ, Visual Arts, Years 7-8 and includes reference to [Australian Curriculum](#)ⁱⁱ, Science, Years 7-8.

Content descriptions

Visual Arts, Years 7 and 8	
ACAVAM119	Develop ways to enhance their intentions as artists through exploration of how artists use materials, techniques, technologies and processes
ACAVAM120	Develop planning skills for art-making by exploring techniques and processes used by different artists
ACAVAM121	Practise techniques and processes to enhance representation of ideas in their art-making
ACAVAR123	Analyse how artists use visual conventions in artworks
ACAVAR124	Identify and connect specific features and purposes of visual artworks from contemporary and past times to explore viewpoints and enrich their art-making, starting with Australian artworks including those of Aboriginal and Torres Strait Islander Peoples

STEM links

Science, Years 7 and 8	
ACSHE119 ACSHE134	Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available
ACSHE121 ACSHE136	People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity
ACSIS124 ACSIS139	Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge
ACSIS133 ACSIS148	Communicate ideas, findings and evidence based solutions to problems using scientific language, and representations, using digital technologies as appropriate

General capabilities

Knowledge, skills, behaviours and dispositions:

- intercultural understanding
- critical and creative thinking
- personal and social capability
- information and communication technology (ICT) capability
- literacy
- numeracy

Learning objectives

Students are learning:

- to explore and experiment with various media, using the elements and principles of art
- how artists use visual language to communicate knowledge
- to identify the influences of science and technologies on their own and others' artworks
- to develop and refine techniques and processes to represent ideas and subject matter in their artworks.

Success criteria

Students will be successful when they can:

- demonstrate development of art-making skills to represent and generate ideas
- identify and analyse how they and other artists use visual conventions and viewpoints to communicate information
- plan their art-making in response to the work of others as well as exploration of scientific and technological factors
- demonstrate manipulation of techniques and processes to represent intended ideas and subject matter in their artwork.

Teaching notes

Timing

4 x 1-hour sessions

Materials

- each student will need a HB pencil, eraser, coloured pencils and a sketchbook, visual diary or paper to work on
- class set of compressed charcoal or graphite sticks
- various natural materials with suitable textures and smells, such as living plants, shells, bark, animal skins, seeds, bones, feathers, corn chips, metal bolts, heat packs, etc. (these can be found on a nature walk, or brought into the classroom)
- class set of magnifying glasses or hand lens magnifiers (your science department should have these)
- devices and internet access
- optional: printer and photocopy machine, materials for creating presentation documents.

How to use

Students view featured artworks in situ, prior to completing these activities. For a more authentic investigation, students could complete the case study in [Lesson 2](#) while viewing the work. Activities can be modified for remote learning.

To enrich this experience, Queensland Museum [learning resources](#) may be used concurrently in other learning areas. Creating a free account means you can save, sort, manage and share your favourite collection items (audio and video, objects, events, fact sheets, images, learning resources, loan kits, etc.).

Suggested resources:

- [Colour My World](#) Learning Resource (Physics, Technology, Year 5)
- [Illuminating Colour](#) Learning Resource (Physics, Year 5, Year 9)
- [Maker Space: Sound Makers](#) Learning Resource (Physics, Technology, Prep – Year 9)
- [Reflecting on Colour: Community of Inquiry](#) Learning Resource (Physics, Year 5, Year 9)
- [Science, Colour, Light: Community of Inquiry](#) Learning Resource (Physics, Year 5, Year 9)
- [SparkLab](#) Permanent Exhibition (Science, Technologies, Mathematics, Prep – Year 8)

Learning activities

Lesson 1: Getting a sense

In the artwork *Refraction Parabola*, Ross Manning uses a curved (parabolic), reflective sheet of metal to break up (refract) white light into the spectrum of colours we see. In physics, white light is a combination of all the colours. In a similar principle to Manning's artwork, rainbows begin as white light from the sun, and are made via processes called reflection, refraction and dispersion. The sun's rays scatter through droplets of water in the sky, bending and exiting along the curve of the droplets at different angles and different wavelengths in the visible spectrum (colours).

Inquiry question

- How do external stimulus and influences shape an artist's work?

Preparation

- Print a class set of the *Artistic concept* ([Appendix A](#)), or ensure students have a digital copy on their personal device.
- Each student should have a HB pencil, eraser and coloured pencils.
- Project a still-image or moving footage of Ross Manning's *Refraction Parabola* in situ, so students can recollect their experience with the work as they enter the classroom.

Learning activities

- Allow students 10-minutes to silently read Manning's artistic concept. They should highlight any new words as they read. Once they have finished, students work in small groups to respond to the following questions:
 - How did you feel standing immersed in the *parabolic curve*, and which senses were working strongest?
 - Do you think this was a *real* artwork? Why, or why not?
 - What do you think Manning was trying to communicate?
 - Why do you think the artist chose to collaborate with a physicist?
 - What was something you found interesting or exciting about the artwork?
 - What is a question you have now?
- Students elect a representative from their group to share their responses with the class. Demonstrate how to collect information by recording student responses in a graphic organiser on the whiteboard.
- Read the following context statement aloud:

When we use our senses—seeing, smelling, hearing, tasting or touching—to perceive external stimulus (things outside of our body), this sends information to our brain. Our brain compares that information with previous experiences, or things we have heard or learned about. Then our brain uses all of that input to make a judgement about the external stimulus, and we might have a

reactionary physical or emotional response. This all happens without us thinking about it, and it is incredibly important to our survival. We know not to touch sharp or hot things, to avoid eating food that smells off, to spit out toxic substances, shield our eyes from strong light, or to pull the car over if it rattles or hisses.

But not all external stimulus is unpleasant, though we all sense or perceive things differently, which is why people like different movies, food, perfume, music, sensations, etc. We absorb information through our senses but apply personal and unique filters when we respond.

- Project moving footage or play audio of SCRAPs' *Dr SCRAPs' Corporeal Symphonies*, so students can recollect their experience with the work.

- Read the following aloud:

Dr SCRAPs' Corporeal Symphonies is a trail of 10 QR code-activated episodes, which include animations, images and stories focused on the intestinal gases of mythical, prehistoric and everyday animals. Each episode is created by SCRAPs, aka electronic music and visual artist Laura Hill, who explores and questions corporeal matters, like the intestinal gas producing capabilities of ants, t-rex, sloth and dolphins.

- Give students 10-minutes to develop their own graphic organiser with information about the artwork. They should include any relevant information about elements and principles of art, as well as the five senses and the artist's intention.
- Have a class discussion, sharing interesting thoughts or discoveries, and using the following questions as prompts:
 - Which sense/s did you use when perceiving this artwork?
 - Which sense/s did the artist reference, and to what effect?
 - How did you feel as you explored this artwork? Did you have any physical or emotional responses?
- Allow students time to complete their graphic organiser with information from the class discussion.

Lesson 2: Finding a sense

Students may have started or completed the case study in this lesson while engaging with the work in situ. Otherwise, allow internet access and use of devices to complete this task.

Inquiry question

- How do artists use and represent the five senses in their artworks?

Preparation

- Each student should have access to a device and internet.
- Supply any required materials for case study documents, e.g., card and paint pens, colour printer.

Introductory activity

- Students reflect on the previous lesson. Go around the class, allowing each student to respond to their choice from the following prompts:
 - Something new I learned about science, is ...
 - I feel / think differently about the definition of an artwork, because ...
 - *Dr SCRAPS' Corporeal Symphonies / Refraction Parabola* makes me feel ... because ...
 - I have an amazing idea for my own artwork, which is ...

Learning activities

- Introduce the case study task, giving the following directions:
 - In pairs or small groups, view the Curriocity Brisbane 2023 artworks online and choose an artwork for your case study.
 - You will need to create a presentation document (digital or non-digital) that answers the following inquiry question: *How* and *why* has the artist represented the human sense of ... in their artwork?

Note: In visual art, engaging with artworks will generally require the sense of sight. If students are investigating the way sight is represented in contemporary artworks, they should be discussing the work's qualities that immerse, overwhelm, challenge, or otherwise engage vision in an innovative way, not just discussing visual properties. You might refer to your discussion of Manning's work to clarify this.

- Investigate your chosen artwork and artist to compile a graphic organiser like we made in the previous lesson. Choose interesting or key information to present.
- Allow students to work quietly on their case studies, assisting if required and ensuring they begin compiling the presentation document by half-way through the lesson.
- Students may submit or present their case study findings.

Lesson 3: Senses in nature

Determine a safe and context appropriate location for a nature walk. This could be a local park or nature strip/reserve, an agricultural area, neighbouring property or school garden. If students cannot leave the classroom, supply various natural materials with suitable textures and smells, such as living plants, shells, bark, animal skins, seeds, bones, feathers, corn chips, metal bolts, heat packs, etc.

Inquiry question

- How do artists use their senses to find inspiration?

Preparation

- Print a class set of the *Sensing Nature* worksheet ([Appendix B](#)), making sure to add additional rows if required (alternatively, students could use the table as a template and copy their observations straight into a sketchbook or visual diary).
- Each student should have a HB pencil, eraser, and access to charcoal, coloured pencils and a magnifying glasses or hand lens magnifier.

Learning activities

- Prepare students for a nature walk, explaining that paying attention to our senses requires us to be quiet and still. This is an opportunity for them to practice mindfulness as they scientifically observe external stimulus in nature.
- Hand out the *Sensing Nature* worksheets ([Appendix B](#)) and explain how to fill out the table:
 - 'sense' external stimulus (natural or manmade)
 - identify the sense/s used when perceiving the stimulus
 - try using a magnifying glass or lens to look closer
 - take notice of how you react emotionally or physically and represent your reaction with a drawing
 - write a list of adjectives for the stimulus
 - sketch the object or take a rubbing.
- Allow students to work independently to complete their observations. Students who exhaust ideas for external stimulus can create extra rubbings or choose one object and draw a more detailed study.

Lesson 4: Making sense

This is a design activity that could be expanded to include making and form an assessment task.

Inquiry question

- How do artists represent human senses in their artworks?

Preparation

- Each student should have access to a device and internet.
- Students will need to refer to their nature walk observations and case study presentation documents for this lesson.

Learning activities

- Students will use research and reflections from the previous lessons to inform the design of a 'sense-inspired' artwork. They may choose to focus on any of the five senses.
- This is an individual task. To design their artwork, students undertake the phases below, documenting their working.
- Feeling
 - What are my quick ideas?
 - What sense am I immediately drawn to? Why?
 - What information do I already have?
 - What information do I need?
- Researching
 - What is my chosen sense and how can I easily define it?
 - Which Curiosity Brisbane artworks reference this sense?
 - What is my favourite and least favourite external stimulus to perceive with this sense?
 - What factors would inhibit or stop me from using this sense? How would this impact the way I think or feel?
- Developing
 - Ideate, by drawing multiple rough, thumbnail sketches, or by speaking or writing concepts.
 - Refine ideas by choosing a few concepts to further develop.
- Testing
 - Share two or three designs to share with an elbow partner and collect feedback.
 - Select a design to share with a small group. Practice giving and receiving feedback.

Note: Students could use the TAG method of feedback (Tell something you like, Ask a question, Give some positive suggestions for improvement).

- Reflecting
 - What are the strengths of my design?
 - What are the weaknesses of my design?
 - What problems need to be solved in order to create the artwork?
 - What outstanding questions do I have?

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Appendices

Appendix A: Artistic Concept

Refraction Parabola is large scale, outdoor work, refracting light into all the colours of the visible spectrum. Two back-to-back parabolic curves, one vertical the other horizontal, both 4m x 6m, are clad in high quality Laser Holographic automotive wrap. This wrap is scratch proof and rated for outside conditions for 10 years. The wrap uses a refraction grating that separates white light into its composite colours. This refraction of light is the same that occurs in nature to produce colours, from rainbows to butterfly wings.

White LED light tubes will be attached to a 'sculptural' scaffolding form that sits over and around the parabola. The LED tubes will be programmable and will activate the parabola colour patterns in different ways.

Pure, deep bands of colour will cover the entire surface on the parabola, from top to bottom, left to right. As you move the colours will morph, pulse and change with your viewing angle. You will be immersed inside the curve, enveloped in a full field of vibrant spectrum.





About the artist

Ross Manning's work facilitates interactions of light, physics, and sound. Repurposing technologies, he creates dynamic sculptures and atmospheric installations. Stemming from Manning's experimental music background, he employs a distinct audio-visual language that uses rhythm and repetition to connect sound, light, colour, and movement. Manning's work interrogates our ongoing relationship with technology—breaking apart machines to deconstruct, build, and experiment with their material capabilities. Objects are propelled by their own kinetic logic—interacting to build new functions and sensorial environments.

Manning worked in collaboration with Physicist, Graeme John Auchterlonie.

Auchterlonie's areas of expertise include over 40-years of teaching and research experience mainly in Electron Microscopy, not only in materials science, but also biological, chemical, and geological applications. This involves using electron-optics and diffraction physics on a day-to-day basis to solve unique scientific and industrial problems.

Appendix B: Sensing Nature

Which sense/s have you used?		How did you react? <i>Draw an expression</i>	How can you describe it? <i>List a few adjectives</i>	Make a mark! <i>Sketch or take a rubbing</i>
				
				
What have you sensed?				

Endnotes

ⁱ Australian Curriculum, Assessment and Reporting Authority (ACARA). *Australian Curriculum, Visual Arts*, 2019. Australian Curriculum, Assessment and Reporting Authority (ACARA), viewed 18 June 2020, <https://www.australiancurriculum.edu.au/f-10-curriculum/the-arts/visual-arts/>

ⁱⁱ Australian Curriculum, Assessment and Reporting Authority (ACARA) (2019). *Australian Curriculum, Science (Version 8.4)*, 2019. Available at: <https://www.australiancurriculum.edu.au/f-10-curriculum/science/>