
IMMUNISATION

C O A L I T I O N

2023 

ART PRIZE

Education Resource Package

Years 5&6 / Years 7&8

artprize@immunisationcoalition.org.au

[Art Prize Information](#)

IMMUNISATION
 **ACTION 20**
WEEK 23

IMMUNISATION STE(A)M TEACHING RESOURCE

This learning resource can be used to support teachers in developing student artworks for The Annual Immunisation Coalition Art Prize or as a stand-alone integrated STE(A)M learning resource to bring factual awareness of issues around immunisation, vaccination, and the burden of infectious disease.

The Immunisation Coalition is an Australian, not-for-profit organisation registered with the ACNC. We advocate for the protection of all Australians against infectious diseases through immunisation.

This pack can be adapted and extended for primary and secondary students and has been based on the Australian Curriculum, with particular emphasis on the science, visual art and health and physical education domains. Each activity has also framed around the High Impact Teaching Strategies (HITS).

The learning pack contains:

- **Activity 1: The Art and The Science of Infectious Disease (Explore, Respond and Research)**
 - Student resource A- printable artworks that document scientific advancement in infectious disease control.
- **Activity 2: Scientific Drawing- Observing details (Observe, Record and Create)**
 - Student resource B- printable drawings by Ernst Haeckel
 - Student resource C- printable microscopic photographs of viruses
 - Student resource D- printable influenza snowflake activity -optional
- **Activity 3: Artwork Creation (Create and Communicate)**
- ACARA curriculum links matrix (Years 5-6 & Years 7-8)
- Further reading and links

We invite you to help us communicate the need for accurate information on these issues with your art prize submissions. It's free to enter and students can submit an entry as a group or as an individual.

Not only will your students benefit from learning about infectious disease through an integrated approach that links science and art for positive social change - students may also win some awesome prizes! The Immunisation Coalition Art Prize terms and conditions can be found [here](#) on our website.



Brooke Daljac (14) Western Australia, 'The Cure' 2020
2021 Immunisation Coalition Art Prize Merit Prize Winner

ACTIVITY 1: THE ART AND THE SCIENCE OF INFECTIOUS DISEASE

Learning Intention:

We are learning how artists promote awareness about infectious disease and vaccination.

I will be successful when I can:

- List words and feelings associated with infectious disease
- Investigate how artists in different contexts have responded to infectious diseases
- Respond to a work of art using the SEE, THINK, WONDER strategy.

Vocabulary: Teacher to unpack the term infectious disease: “What does infectious disease mean?”

Connector/ hook:

Individually or small groups ask students to brainstorm some of the thoughts and feelings they have about infectious diseases, such as influenza and COVID-19. Ask students to consider the following questions:

- How have infectious diseases affected human behaviour and the way we live?
- In our modern world, how can we be protected against infectious diseases?
- Why do we get vaccinated?

Explicit Teaching:

Art can often be used to communicate complex ideas or express our feelings about the world (both our inner and outer worlds). Art and Design can also be used to communicate information visually - think of Government posters about washing your hands and wearing masks - these are all visual. Throughout history, artists have played a vital role in helping to generate conversations about important social issues, including infectious diseases and vaccinations.

Teacher Modelling:

Use this image of a mural celebrating the success of literacy and immunisation campaigns in Nicaragua, Africa (or select an image relevant to your student cohort) to generate a class discussion about the role of art in promoting vaccination. Model how to respond to this artwork using the See, Think, Wonder thinking routine from Project Zero:

https://pz.harvard.edu/sites/default/files/See%20Think%20Wonder_2.pdf

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Focus Questions:

- **SEE:** How has the artist used materials, techniques, and art processes to communicate a message about vaccination? (Think about art elements such as line and colour and the use of symbols).
- **THINK:** Why do you think murals are a popular way of communicating information, particularly in countries like Mexico, Africa, and India?
- **WONDER:** What wondering do you have? For example, who is the intended audience for this work?

Learning activity:

Provide students with a copy of Student Resource A. In small groups or individually, students select one image from the images provided, and complete a See, Think, Wonder chart.

Inquiry Option/ Extension:

Based on the questions and wonderings generated during the discussion about artworks, students can investigate an infectious disease of their choice using the online resources from Immunisation Coalition and other reputable sources such as the World Health Organisation (WHO) or the Centre for Disease Control (CDC). Examples may include historical infectious diseases that were eradicated as a result of vaccination (e.g., smallpox) or infectious diseases that are impacting communities today (e.g.: influenza or COVID-19). Students can also gather microscopic images of their virus for the next learning activity.

Note: students may need teacher scaffolding to learn how to assess the credibility of different information sources.

Reflection:

Ask one student from each group to share a wondering.

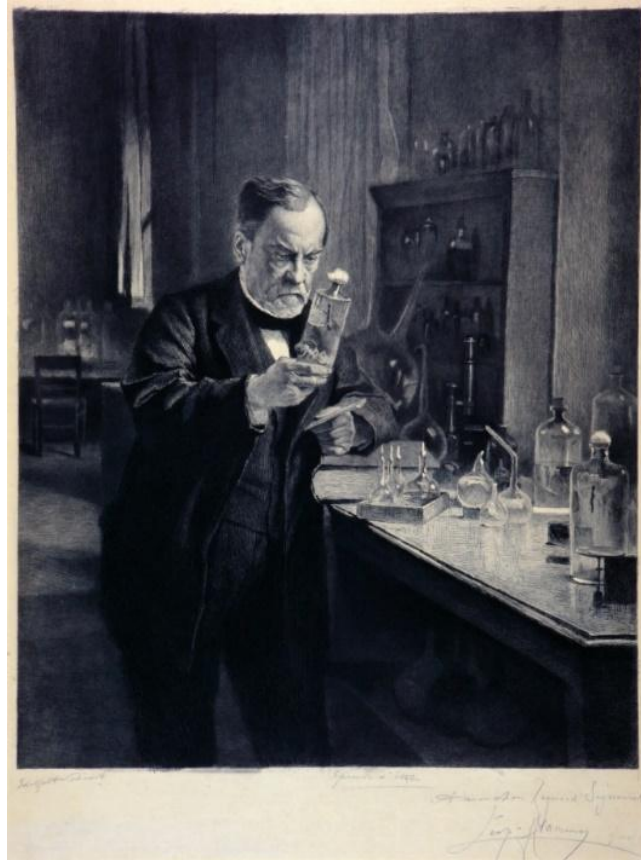


Mural celebrating Sandinista campaigns for literacy and immunisation, which raised literacy from 50% to 83% and eradicated polio (as well as "Somocismo," as the mural notes cheekily). Centro Cultural Batahola Norte, Managua, Nicaragua. Immunisation & literacy campaigns. Non-Commercial 2.0 Generic (CC BY-NC 2.0)

Art and The Fight Against Infectious Diseases (Student Resource A):



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Left: Edward Jenner vaccinating his son, held by Mrs Jenner; a maid rolls up her sleeve, a man stands outside holding a cow. Coloured engraving by C. Manigaud after E Hamman. Hamman, E.J. C. <https://wellcomecollection.org/works/b7d6yvdz>. Public Domain

Centre: At Your Service by John R. Armstrong, 1940s. Courtesy of the Science History Institute.

Top Right: Mural celebrating Sandinista campaigns for literacy and immunisation, which raised literacy from 50% to 83% and eradicated polio. Centro Cultural <https://www.flickr.com/photos/birdfarm/198569630> Creative Commons

Bottom Right: Louis Pasteur pursuing a rabies vaccine in this etching by Léopold Flameng. Fisher Scientific International Collection. Courtesy of the Science History Institute. Photographer: Gregory Tobias.

Batahola Norte, Managua, Nicaragua. Immunisation & literacy campaigns. <https://www.flickr.com/photos/birdfarm/198569630>. Creative Commons-CC BY-NC 2.0

ACTIVITY 2: SCIENTIFIC DRAWING- OBSERVING DETAILS

Resources:

- Drawing materials - pencils, coloured pencils, pens, textas, posca pens, drawing paper etc.
- Printout of Ernst Haeckel's illustrations (Student Resource B)
- Printout of photographs of viruses (Student Resource C)
- Influenza virus snowflake activity (Student Resource D)

Learning Intention:

We are learning to communicate our observations about viruses through scientific drawing.

I will be successful when I can:

- Understand the purpose of scientific drawing
- Observe and describe the structure of viruses
- Create a series of scientific drawings and collages of viruses

Vocabulary: Unpack the meaning of 'scientific drawing'.

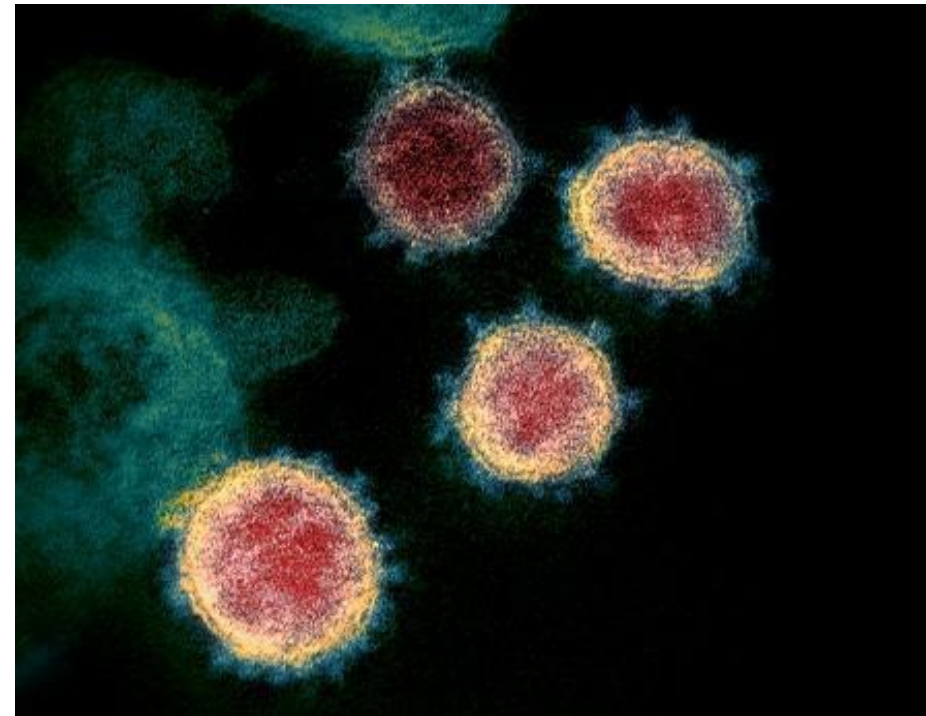
Connector/ Hook:

As a whole class view an image of a virus. If you have access to digital microscopes, then you may wish to view some onion skin cells or small living organisms together to engage students.

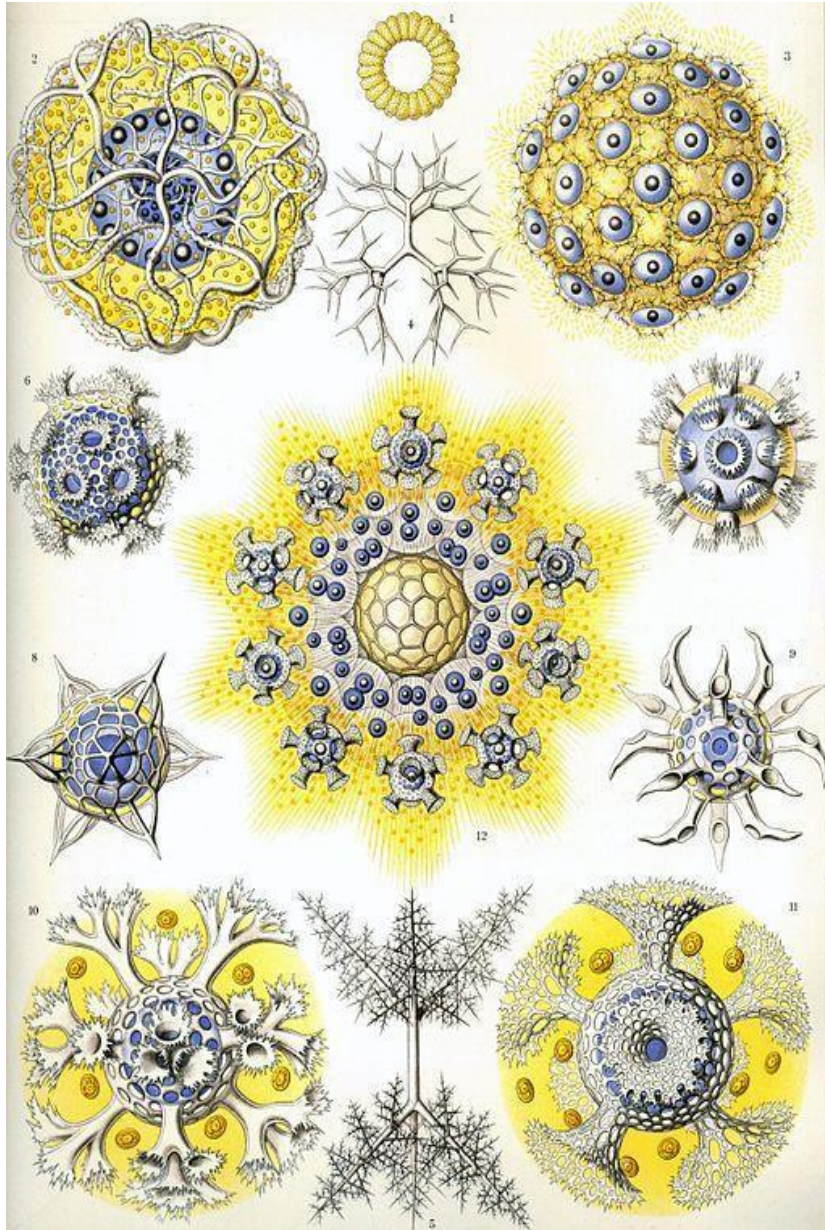
Without explaining what the image is, ask students to make a prediction about what it is.

Encourage students to justify their response:

- What do you see in the image that makes you say that?
- What do you know that makes you say that?



Novel Coronavirus SARS-CoV-2—This scanning electron microscope image shows SARS-CoV-2—also known as 2019-nCoV, the virus that causes COVID-19. Original image sourced from US Government department: The National Institute of Allergy and Infectious Diseases. Copyright free.



Explicit teaching:

Today we have access to detailed photographs of viruses and other microorganism, like the one we just saw. However, before photography, and macro photography (photography through a microscope) was invented it was the role of botanical illustrators and scientific researchers to record these scientific discoveries through drawing. In the late 1800's, Ernst Heinrich Haeckel, recorded and named hundreds of previously unknown plant and animal species, which he carefully studied, drew and published in his illustrated books about nature.

Provide students with examples of Ernst Haeckel's early scientific drawings of microscopic marine life . Ask students to think about the following question:

- Why did Ernst Haeckel make these drawing? Who are they for?
- How is scientific drawing different to other forms of art?
- What were some of the things Ernst Haeckel needed to focus on in his illustrations?

"Kunstformen der Natur (1904), plate 51: Polycyttaria" (marine protozoa)
by Ernst Haeckel, Public domain, via Wikimedia Commons

https://commons.wikimedia.org/wiki/File:Haeckel_Polycyttaria.jpg

Learning Task: Option 1-Virus drawing:

Provide students with photographs of viruses taken through a microscope . Students who completed the inquiry option can use the images they sourced of their chosen virus.

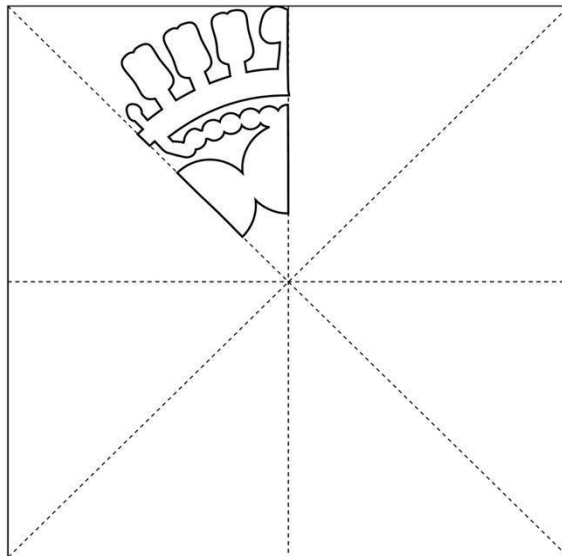
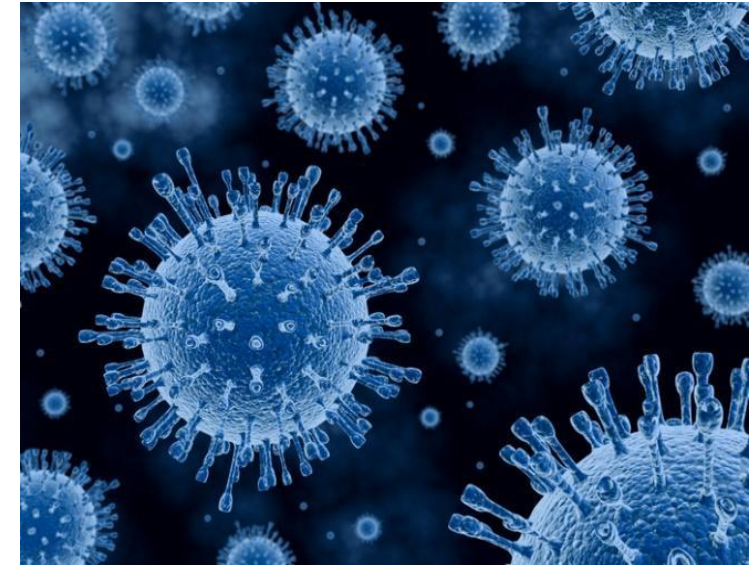
Students will then generate a series of sketches of viruses based on these visual references.

Students will need to focus on observing the details of the virus and carefully recording these details in their drawings. Students may wish to make multiple sketches of one virus or a series of sketches of different viruses. They could also incorporate elements from Ernst Haeckel's work in their designs.

Learning Task: Option 2-Virus Snowflakes:

Printout images of relevant viruses from the resource below, for year 5 &6 we suggest the influenza virus, the coronavirus, and the coronavirus vaccine. Students can then create paper virus 'snowflakes'. Ask students to observe the regular, symmetrical nature of the viruses.

https://www.gla.ac.uk/media/Media_765622_smxx.pdf



INFLUENZA VIRUS

Difficulty: Medium

Instructions:

- (1) Cut out the square.
- (2) Fold dotted lines to form a triangle, with the design on top.
- (3) Cut out the design, cutting through the entire stack.
- (4) Unfold.

About the Virus:

Influenza viruses cause influenza, a common winter respiratory illness that causes fever and exhaustion. Spikes on their surface, HA and NA, can be blocked by antibodies if they are of the right sort (H1N1, H3N2, etc). However, the spikes change rapidly, and the vaccines which provide immunity to them have to be updated often. Occasionally, human influenza viruses pick up completely new spikes from an animal influenza virus, allowing them to escape all immune protection - this creates an influenza pandemic.

About the Virus Particle:

The influenza virus particle is wrapped in a membrane, which is coated with the two spike proteins and penetrated by a pore. Inside is a layer of matrix protein and the eight segments of the viral genome.

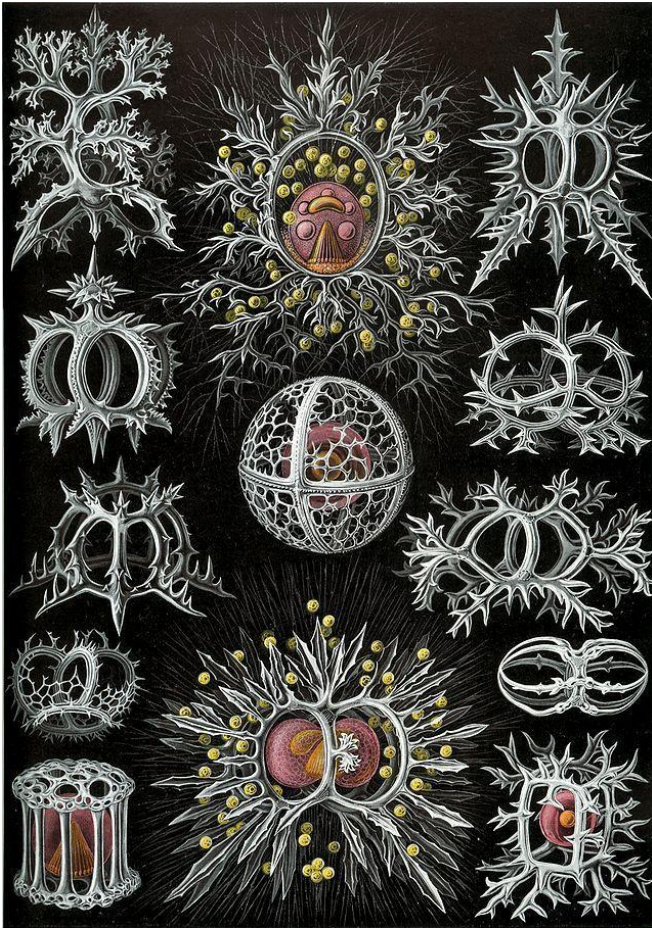


Science Extension:

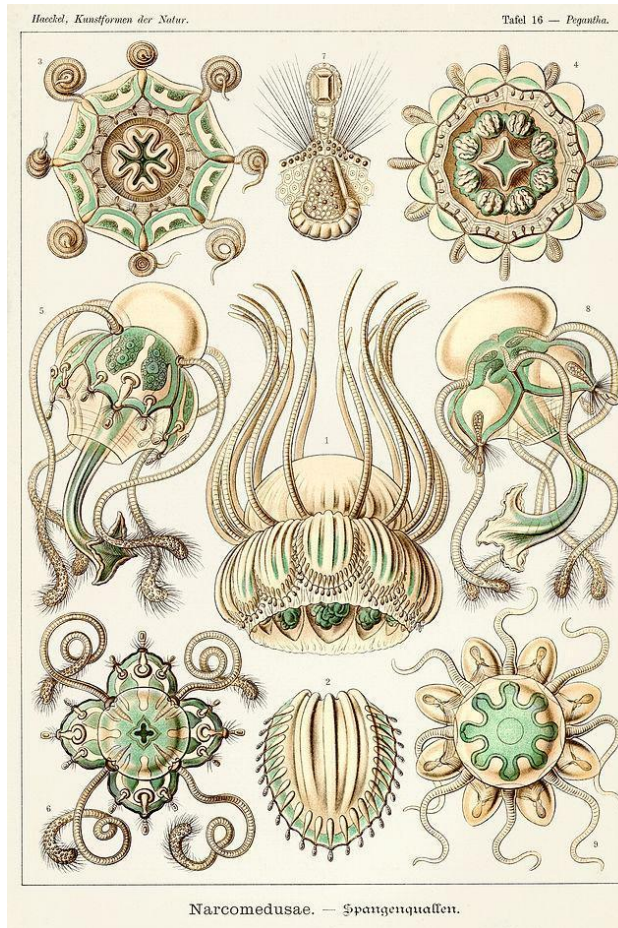
Students can research and label the various parts of the virus cell.

Reflection: Conduct a gallery tour of students work. Asking students to comment on 2 things that worked well, and one are they might consider in future (2 stars and a wish strategy).

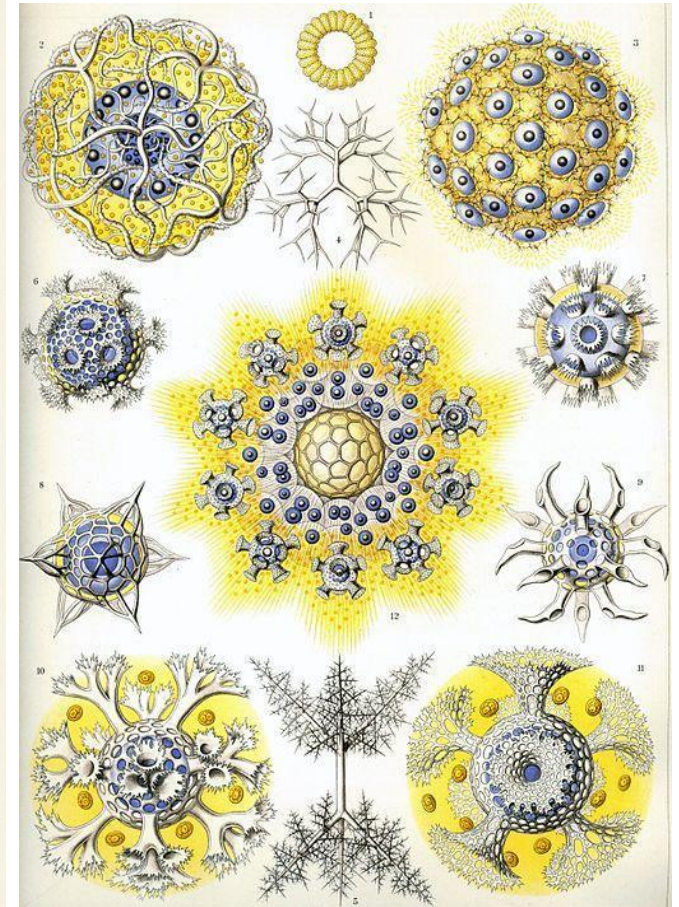
Scientific drawings by Ernst Haeckel (Student Resource B)



"Kunstformen der Natur (1904), plate 71: Stephoidea (holoplanktonic protozoa)" by Ernst Haeckel, Public domain, via Wikimedia Commons
https://commons.wikimedia.org/wiki/File:Haeckel_Stephoidea.jpg

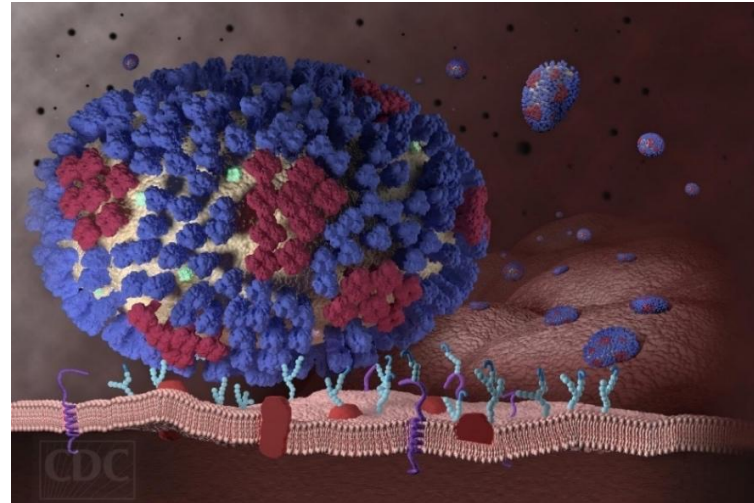
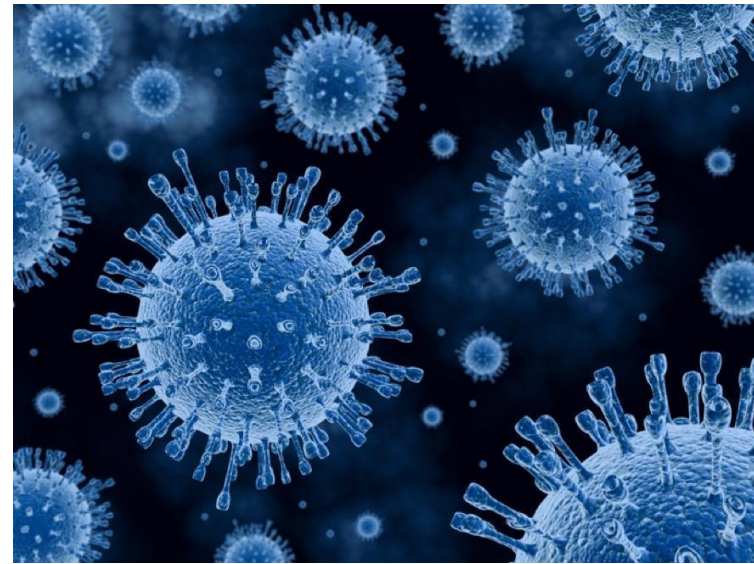
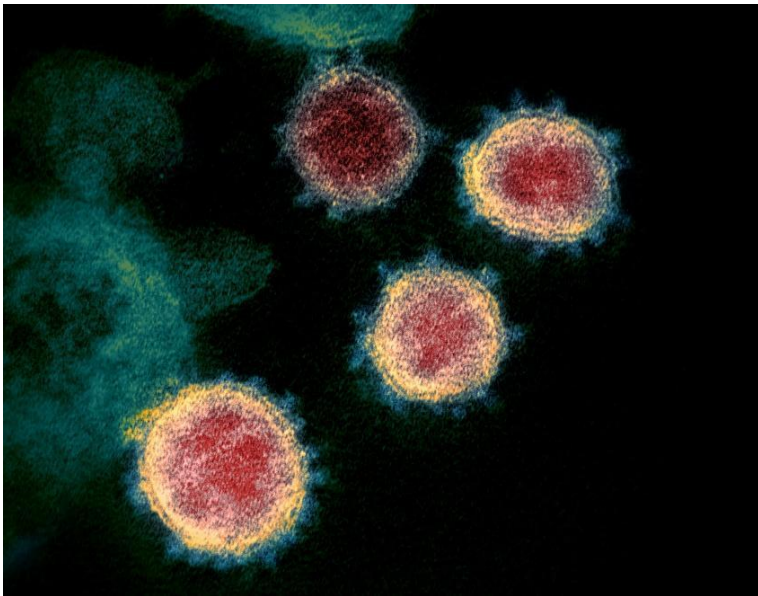


"Kunstformen der Natur, plate 16: Narcomedusae" (an order of hydrozoans in the subclass Trachylinae) by Ernst Haeckel, Public domain, via Wikimedia Commons
https://commons.wikimedia.org/wiki/File:Narcomedusae_Tafel_16_Kunstformen_der_Natur_Ernst_Haeckel.jpg



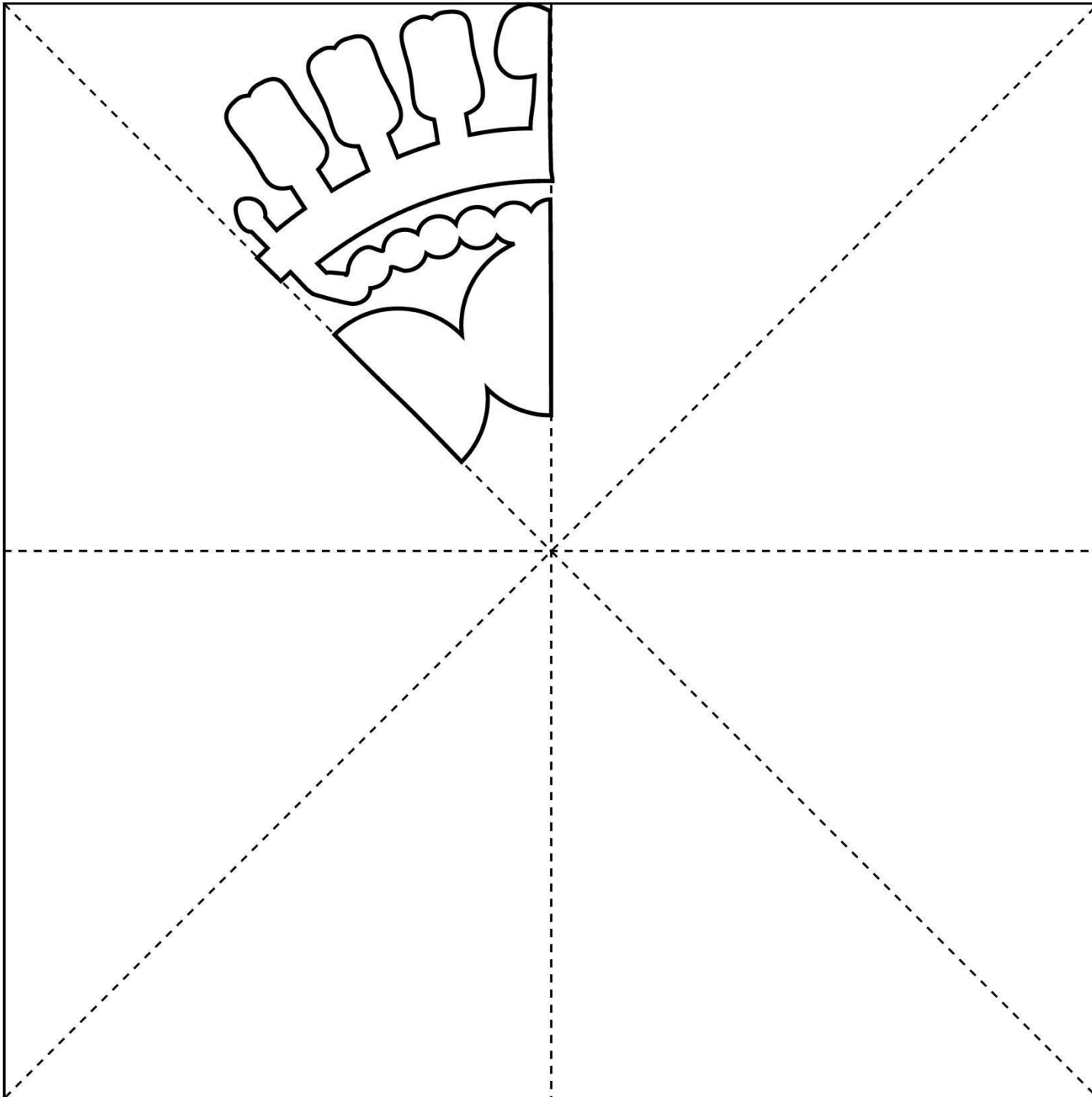
"Kunstformen der Natur (1904), plate 51: Polycyttaria" (marine protozoa) by Ernst Haeckel, Public domain, via Wikimedia Commons
https://commons.wikimedia.org/wiki/File:Haeckel_Polycyttaria.jpg

Photographs of viruses (Student Resource C)



Novel Coronavirus SARS-CoV-2—This scanning electron microscope image shows SARS-CoV-2—also known as 2019-nCoV, the virus that causes COVID-19.

Original image sourced from US Government department: The National Institute of Allergy and Infectious Diseases. Copyright free.



INFLUENZA VIRUS

Difficulty: Medium

Instructions:

- (1) Cut out the square.
- (2) Fold dotted lines to form a triangle, with the design on top.
- (3) Cut out the design, cutting through the entire stack.
- (4) Unfold.

About the Virus:

Influenza viruses cause influenza, a common winter respiratory illness that causes fever and exhaustion. Spikes on their surface, HA and NA, can be blocked by antibodies if they are of the right sort (H1N1, H3N2, etc). However, the spikes change rapidly, and the vaccines which provide immunity to them have to be updated often. Occasionally, human influenza viruses pick up completely new spikes from an animal influenza virus, allowing them to escape all immune protection - this creates an influenza pandemic.

About the Virus Particle:

The influenza virus particle is wrapped in a membrane, which is coated with the two spike proteins and penetrated by a pore. Inside is a layer of matrix protein and the eight segments of the viral genome.

Student Resource D:

ACTIVITY 3: ARTWORK CREATION

Now it is your turn to create an artwork to communicate the importance of scientific research into infectious diseases and to encourage people to stay healthy and protected themselves through your own artwork.

Start by viewing the past examples of submissions to the art prize. Ask students to select one that they think communicates a clear message about infectious diseases and vaccination. Discuss what makes it successful.



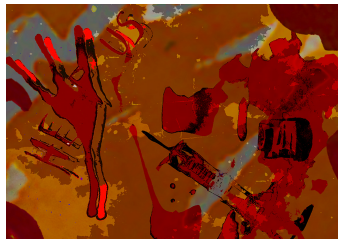
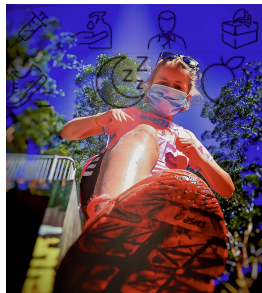
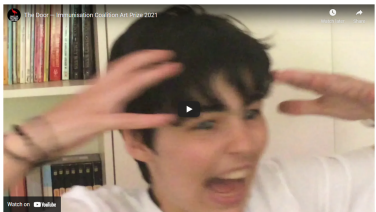
Students will then create an artwork to communicate this important message to a specific audience, for example they may choose to focus on people from non-English speaking backgrounds. Students should reflect on what they learnt in Activity 1 and 2 to help scaffold them in developing their own unique artwork. Here are some ideas:

Learning Intention:

We are learning to create an artwork that encourages people to protect themselves against infectious diseases.

I will be successful when I can:

- Examine past examples of artworks that explore the subject of infectious diseases.
- Experiment with a range of materials and techniques
- Create an artwork for a specific purpose and audience

Drawing/ Painting/ Collage	Sculpture	Digital Art	Photography	Media Arts
<p>Use the drawings that you created in Activity 2 as the basis for further drawings and collages. You could draw over a coloured or painted background. You may wish to include a message or other symbols into the work.</p> 	<p>Think about the shape of viruses, the scientific equipment used to understand viruses, or the medical equipment used to vaccinate people. How could you use these to create a sculpture? You might look at the sculpture of Pop artist Claes Oldenberg.</p> 	<p>Use digital drawing tools or photo-editing software to create an artwork or poster to encourage people to get vaccinated. Think about your target audience. How will you persuade them? Think about your use of colour and symbols.</p> 	<p>Take a series of photographs that tell the story about how you can protect yourself against infectious diseases. You could even compile them into a photo-narrative or a short 30s-1m video. Think about camera angles and symbols.</p> 	<p>Watch the video 'The Door' about vaccination https://youtu.be/mloHXiF7Y-c Think about how you could create a short movie promoting vaccination. Or create a short stop-motion animation (30s-1m) using toys, Lego, clay, or paper cut-outs.</p> 

Reflection: Ask students to create a short artists' statement about their work. Ask them to think about how they might display their work?

ACARA CURRICULUM LINKS:

Year	Subject	Code		Activity
SCIENCE				
5	Science as a Human Endeavour / Use and influence of science	(ACSHE083 - Scootle)	Scientific knowledge is used to solve problems and inform personal and community decisions	1,2,3
6	Science Understanding: Biological Sciences	(ACSSU094 - Scootle)	The growth and survival of living things are affected by physical conditions of their environment	1,3
5/6	Science Inquiry Skills- Communicating	(AC SIS093 - Scootle) (AC SIS110 - Scootle)	Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts	2
HEALTH AND PHYSICAL EDUCATION				
5&6	HAPE- Personal, Social and Community Health	(ACPPS053 - Scootle)	Investigate community resources and ways to seek help about health, safety, and wellbeing	1,3
5&6	HAPE- Personal, Social and Community Health	(ACPPS054 - Scootle)	Plan and practise strategies to promote health, safety, and wellbeing	1,3
5&6	HAPE- Personal, Social and Community Health	(ACPPS057 - Scootle)	Recognise how media and important people in the community influence personal attitudes, beliefs, decisions and behaviours	1
5&6	HAPE- Contributing to healthy and active communities	(ACPPS058 - Scootle)	Investigate the role of preventive health in promoting and maintaining health, safety and wellbeing for individuals and their communities	1, 2, 3
VISUAL ARTS- options				
5&6	Visual Arts	(ACAVAM114 - Scootle)	Explore ideas and practices used by artists, including practices of Aboriginal and Torres Strait Islander artists, to represent different views, beliefs and opinions	1,2
5&6	Visual Arts	(ACAVAM115 - Scootle)	Develop and apply techniques and processes when making their artworks	2,3
5&6	Visual Arts	(ACAVAM116 - Scootle)	Plan the display of artworks to enhance their meaning for an audience	1,3
5&6	Visual Arts	(ACAVAR117 - Scootle)	Explain how visual arts conventions communicate meaning by comparing artworks from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander artworks	1,2
MEDIA ARTS- options				
5&6	Media Arts	(ACAMAM062 - Scootle)	Explore representations, characterisations, and points of view of people in their community, including themselves, using settings, ideas, story principles and genre conventions in images, sounds and text	1,3
5&6	Media Arts	(ACAMAM063 - Scootle)	Develop skills with media technologies to shape space, time, movement, and lighting within images, sounds and text	3
5&6	Media Arts	(ACAMAM064 - Scootle)	Plan, produce and present media artworks for specific audiences and purposes using responsible media practice	3

Year	Subject	Code		Activity
SCIENCE				
7	Science Understanding: Biological Sciences	(ACSSU111 - Scootle)	Classification helps organise the diverse group of organisms considering how biological classifications have changed over time	2
8	Science Understanding: Biological Sciences	(ACSSU149 - Scootle)	Cells are the basic units of living things; they have specialised structures and functions	2
HEALTH AND PHYSICAL EDUCATION				
7&8	HAPE- Personal, Social and Community Health	(ACPPS076 - Scootle)	Evaluate health information and communicate their own and others' health concerns analysing the credibility of health messages covered by different sources in terms of bias, reliability and validity and applying credible information to health-related decisions	1
7&8	HAPE- Contributing to healthy and active communities	(ACPPS077 - Scootle)	Plan and use health practices, behaviours, and resources to enhance health, safety, and wellbeing of their communities Investigating preventable health practices relevant to young people, and implementing health promotion activities targeting these practices	1,2,3
VISUAL ARTS				
7&8	Visual Arts	(ACAVAM118 - Scootle)	Experiment with visual arts conventions and techniques, including exploration of techniques used by Aboriginal and Torres Strait Islander artists, to represent a theme, concept, or idea in their artwork	2,3
7&8	Visual Arts	(ACAVAM119 - Scootle)	Develop ways to enhance their intentions as artists through exploration of how artists use materials, techniques, technologies, and processes	1,2
7&8	Visual Arts	(ACAVAM120 - Scootle)	Develop planning skills for artmaking by exploring techniques and processes used by different artists	1,2
7&8	Visual Arts	(ACAVAM122 - Scootle)	Present artwork demonstrating consideration of how the artwork is displayed to enhance the artist's intention to an audience	3
7&8	Visual Arts	(ACAVAR123 - Scootle)	Analyse how artists use visual conventions in artworks	1,2
7&8	Visual Arts	(ACAVAR124 - Scootle)	Identify and connect specific features and purposes of visual artworks from contemporary and past times to explore viewpoints and enrich their artmaking, starting with Australian artworks including those of Aboriginal and Torres Strait Islander Peoples	1,2

Science: Over Years 7 to 10, students develop their understanding of microscopic and atomic structures

TEACHING RESOURCES & FURTHER INFORMATION

How artists have responded to the COVID pandemic:

<https://time.com/5827561/1918-flu-art/>

<https://www.nature.com/articles/d41591-021-00009-5>

<https://www.washingtonpost.com/arts-entertainment/2020/07/06/art-pandemic-readers/>

<https://www.cdc.gov/vaccines/covid-19/vaccinate-with-confidence/art.html>

<https://www.youtube.com/watch?v=ul0LUuRp2oc>

Art and Science links:

<https://cosmosmagazine.com/society/when-science-meets-art/>

<https://mymodernmet.com/ernst-haeckel-art-and-science-illustrations/>

https://www.gla.ac.uk/media/Media_765622_smxx.pdf

Inquiry links:

<https://www.britannica.com/science/smallpox>

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