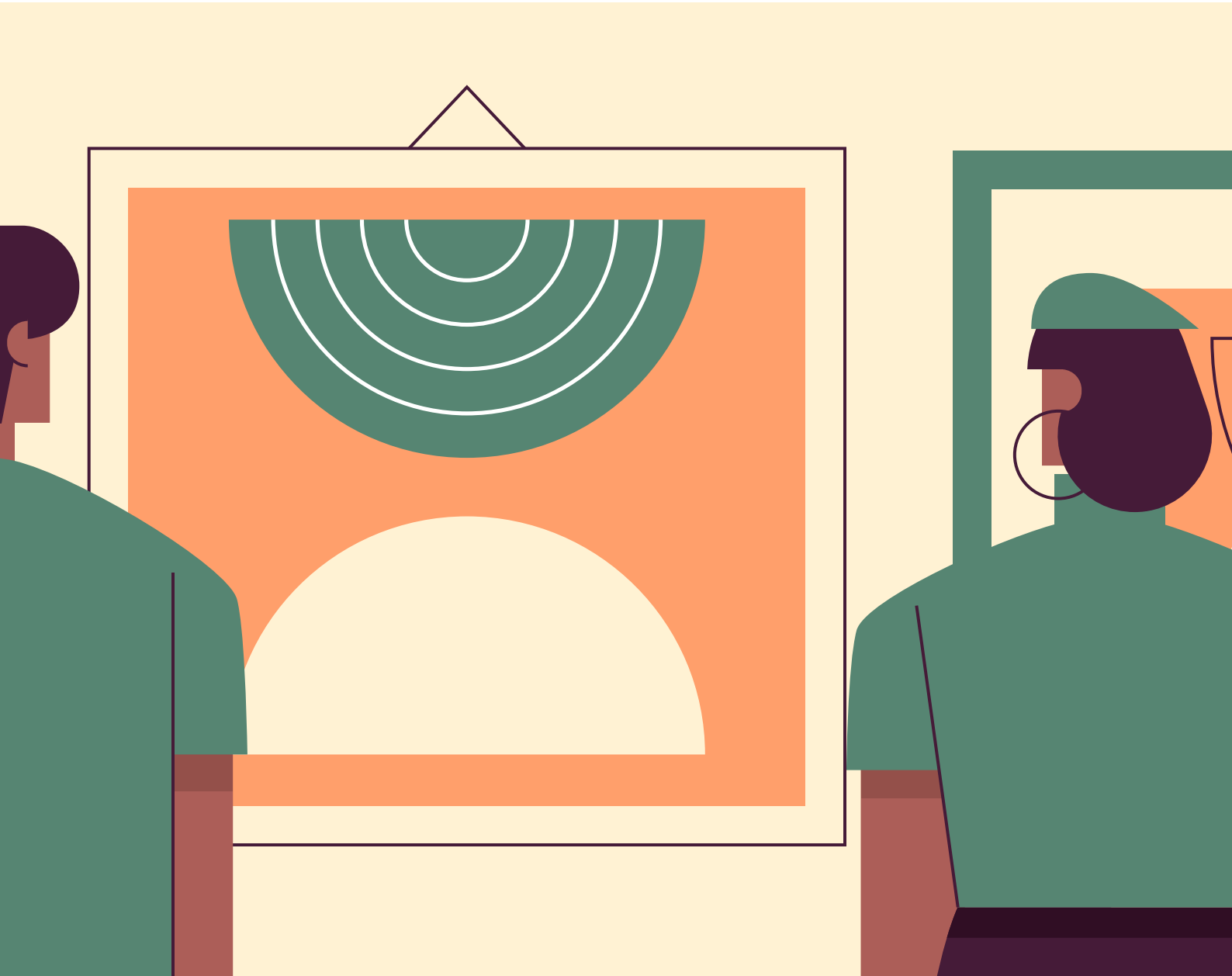
SAM Educator Resource:
VCE Art Making and Exhibiting

sam
Shepparton Art Museum

Preventive Conservation



SAM Educator Resource: VCE Art Making and Exhibiting *Preventive Conservation*

Welcome!

This educator resource for VCE subject **Art Making and Exhibiting** highlights key areas relating to outcomes for Art Conservation. Additionally, this resource gives an overview of the SAM Collection move in 2021.

Key curriculum outcomes:
VCE Art Making and Exhibiting.

- Understand the methods used and considerations involved in the preparation, presentation, and conservation of artworks.
- Understand how exhibitions are planned and produced by galleries, museums, other exhibition spaces and site-specific spaces.
- How artworks are curated and displayed for audiences.

Resource Author
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Jen graduated from RMIT University, with a Bachelor of Fine Arts majoring in gold and silversmithing, and subsequently completed a Masters of Cultural Materials Conservation at the University of Melbourne.

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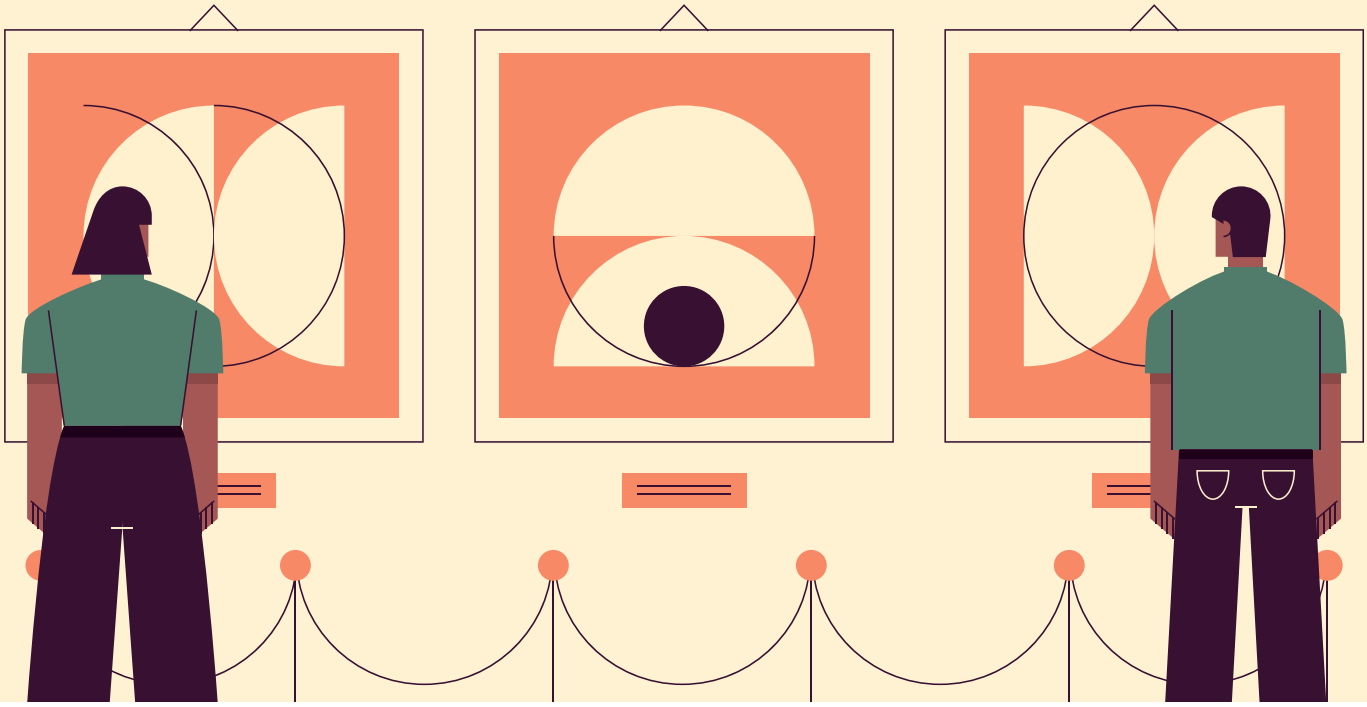


Preventive Conservation

Preventive conservation refers to any actions undertaken to prevent damage or degradation occurring to an artwork.

Preventive conservation reduces, postpones, or eliminates the need for restorative conservation treatments.

Preventive conservation involves the identification and evaluation of the potential risks to an object or collection, and the development and implementation of strategies to eliminate or decrease these risks.

One approach to assessing the potential risk to an object is to consider each of the Ten Agents of Deterioration.

The Ten Agents of Deterioration

The Ten Agents of Deterioration, proposed in the 1990s are:

1. Physical force
2. Thieves and vandals
3. Fire
4. Water
5. Pests
6. Pollutants
7. Light
8. Incorrect temperature
9. Incorrect humidity
10. Dissociation

1. Physical forces

Physical forces include any physical force that may act upon a collection, such as an impact, shock, vibration, pressure, or abrasion. These forces can result in damage to items including punctures, tears, cracks, dents, scratches, or abrasions.

To prevent damage, appropriate fittings and supports should be used for display and storage, and correct procedures for handling and shipping should be in place.

2. Thieves and vandals

To prevent theft and vandalism the security of a gallery should be well maintained, with a well-lit exterior, reinforced windows, security, and CCTV surveillance. Internally, security measures may include locked cases, barriers, invigilators, and CCTV surveillance.

3. Fire

A fire may occur from a variety of sources, such as electrical faults, construction, lightning and arson. Fires can cause a range of damage from minor discolouration to total loss.

The main method of mitigating the risk of fire is through a fire detection system or an automatic suppression system. Galleries should also have a Disaster Management Plan which outlines the response to emergency situations, such as a fire.

4. Water

Water may come from a variety of sources, such as floods, storms, broken pipes, leaks or spills. Exposure to water may result in physical damage, such as distortion, tearing, splitting, staining, dissolution, or outbreaks of mould.

To mitigate the risk of water damage occurring, a gallery building should be watertight and well-maintained.

5. Pests

Pests include microorganisms, such as fungi and bacteria, as well as insects and rodents. Animal pests may soil or chew materials, while microorganisms can digest, stain or weaken materials. Organic materials, such as textiles, wood, paper, skin and feathers, are vulnerable to pests.

Methods to reduce pests include good housekeeping, climate control, routine monitoring and quarantining new or infested objects.

6. Pollutants

Pollutants may come from a variety of sources, such as the building, display/storage materials, previous conservation treatments, other objects in the collection or even the object itself. Pollutants may be gas, liquid or solid, such as dust, acetic acid, nitrogen dioxide and sulphur dioxide.

To mitigate deterioration caused by pollutants, the following maintenance should occur: dust should be removed frequently, stable materials should be used for storage and display, and filters in the HVAC (heating, ventilation and air conditioning) system should be changed regularly.

7. Light

Light damage is cumulative and irreversible. Both visible light and UV radiation can cause photo degradation, which can result in colour darkening, yellowing, lightening, embrittlement, or cracking.

UV radiation should be reduced as much as possible through the use of UV filters on windows and non-UV emitting light sources, such as LEDs. Total light exposure is the product of time and light level, so one or the other can be reduced to decrease the damage to collections. For example, an object displayed at 100 lux (lux: luminous flux per unit area, how much light falls within a square meter) for 1 week will have the same light exposure as an object displayed at 50 lux for 2 weeks.

8. Incorrect temperature

Extremes or large fluctuations in temperature can cause materials to weaken, deform, melt, or distort. To mitigate deterioration, temperature should be monitored and controlled with the use of mechanical systems, such as an HVAC system.

9. Incorrect humidity

Incorrect relative humidity (RH) is one of the most significant deterioration risks to cultural collections. A high RH can result in bio-deterioration and accelerated chemical reactions, such as metal corrosion, while fluctuations in RH can result in expansion and contraction in materials, of organic origin.

In galleries, RH is generally monitored and controlled by an HVAC system.

10. Dissociation

Dissociation refers to the loss of data that gives an object context and meaning. Dissociation can affect the social, cultural, historical or scientific value of an object. Prevention of dissociation relies on the implementation of policies that ensure meticulous documentation and a standard labelling system across the collection.

Basic conservation points for ceramics, paintings, organic materials, and packing/storage.

For all artworks, temperature and humidity should be maintained within the recommended parameters. Traditionally, a temperature of 20 ± 2°C was suggested; however, in an effort to encourage sustainable practices, the AICCM (Australian Institute of the Conservation of Cultural Materials) recommends 15-25°C, with allowable fluctuations of ±4°C in a 24-hour period. Similarly, 50±5% relative humidity used to be recommended to minimise deterioration; however, the AICCM now recommends 40-60% in temperate climates and 45-65% in humid climates, with minimal fluctuations.

When handling artworks, gloves should be worn to prevent oils from the skin transferring to the item. White cotton gloves are generally not recommended as they can be slippery when handling shiny surfaces, and oils may still transfer through. Latex or nitrile gloves are generally preferred.

Organic materials

Organic materials, such as textiles, wood, paper, skin, and feathers, are highly sensitive to deterioration. These materials should be displayed at a maximum of 50 lux, and light sensitive items, such as watercolour paintings and dyed textiles, should only be displayed for 3-5 months followed by a 3-year rest period in dark storage.

Organic materials are also sensitive to fluctuations in temperature and humidity, and should always be exhibited and stored within the parameters outlined above. Pest management is important for organic materials as they are a food source for many pests, such as silverfish, clothes moths and carpet beetles. Any organic materials used in an artwork which have been collected from outside, such as wood, leaves, sand, etc. should be treated for pests before entering a gallery. This usually involves freezing the items at -20°C for 6-10 days.

Paintings

Oil and acrylic paintings are considered to be less sensitive to light deterioration than organic materials, though they should still be displayed at <250 lux. Paintings are also prone to pest infestation as the supports generally contain organic materials, such as textiles and wood.

Ceramics

Ceramics are considered non-sensitive to light and can be displayed at >250 lux; however, unnecessary exposure should still be eliminated. The majority of ceramics are fragile and are therefore vulnerable to damage caused by physical forces. As such, ceramics should be packaged, stored and displayed carefully to avoid impacts, shocks or vibrations that may result in breakage.

Composite items

Artworks that include a variety of different materials should be displayed within the guidelines of the most sensitive components. For example, a woven reed basket with ceramic beads would be displayed according to organic conservation guidelines, due to its possession of both ceramic and organic elements.

Packaging/storage

Temperature and humidity in storage areas should meet the guidelines outlined above. Ideally all light should be eliminated from storage areas, with lights only used when accessing the works. Any materials used for packaging, storage and display should not produce pollutants that may cause deterioration of artworks. Inappropriate materials for storage include: chipboard, unsealed woods, PVA glue, protein-based glue, uncured paint, cellulose nitrate, polyurethanes, PVC, wool and felt. Enamelled metal, glass, ceramic, acrylic paint and varnish, inorganic pigment, polyester film, linen and cotton are all considered appropriate materials for storage.

Artworks should never be stored on the floor. Framed paintings and works on canvas are generally stored on hanging racks, while works on paper are stored in solander boxes or metal drawers, interleaved with acid-free tissue paper. Ceramics are often stored on shelves. Metal is the preferred material for storage shelves, as these shelves must be very sturdy. Large works, such as sculptures, are often stored in crates or stillages. Stillages are similar to crates, but consist of an open framework, rather than enclosed sides. Stillages allow visual access to the work and can be a more affordable option. It is important to store artworks in a way that allows access when necessary. Shelves should not be overcrowded, and heavy works should not be stored up too high. Ideally, collection storage areas should only be used for the storage of collection items, but this is not always realistic. Storage areas should have effective security, fire protection and should be regularly monitored for pests.

Considerations that impact conservation decisions

The conservation of a collection does not exist in a vacuum. There are many other factors that must be taken into account when making decisions regarding the conservation of artworks.

Safety

Conservators always aim to meet best practice standards; however, this is not always possible in the face of real-world pressures. One of the most significant factors that is taken into account when planning conservation treatments is Occupational Health and Safety (OH&S).

Some chemicals are harmful to human health, such as those with carcinogenic properties (cancer causing). Some chemicals may also be harmful to the environment. Highly hazardous chemicals are routinely avoided in conservation treatments in favour of less harmful chemicals that produce similar results.

Sustainability

Sustainability is also becoming a big consideration in conservation decisions. As discussed above, the environmental standards for museums and galleries used to require the temperature and humidity to be maintained within a much narrower range (a temperature of 20+2° and a relative humidity of 50±5%). In an effort to increase the sustainability of cultural institutions, the conservation community determined that a wider range of temperatures and humidity was sufficient to protect artworks while also decreasing the emissions produced by HVAC systems.

Budget

Conservation decisions are also frequently impacted by the available budget. Conservation treatments can be a time-consuming process, requiring expensive materials, and many institutions lack the funding to undertake all the required conservation activities. This causes galleries to prioritise the most urgent treatments, such as objects that are actively degrading. For example, a broken ceramic bowl sitting safely on a shelf will not continue to degrade—however, a mouldy textile is likely to get worse and worse without immediate treatment.

Conservation treatments: Past vs. present

In the past, conservators lacked the scientific knowledge we have today, resulting in many poor conservation decisions.

Conservation of artworks has a long history, but until the early 20th Century it was often artists who repaired damaged artworks. Many treatments were historically undertaken that would horrify conservators today.

For example, in 1625 the Sistine Chapel ceiling was cleaned by rubbing it with bread; almost a hundred years later, in 1710, it was cleaned with sponges dipped in Greek wine. Today, solvents and surfactants of known compositions are carefully selected for cleaning purposes. Using a knowledge of chemistry, cleaning solutions can be prepared that remove dirt and grime without damaging the artwork itself, and all cleaning methods are thoroughly tested on small, inconspicuous areas before undertaking entire works.

Unfortunately, some of these poorly-executed historical treatments can still cause problems today, as unknown substances used on the works in the past may cause unexpected reactions with the treatments used today. It is important that all treatments are thoroughly documented so that future conservators are aware of the techniques and materials used. It is also a recognised conservation rule that all treatments should be reversible, so that they may be undone in the future if it becomes necessary for any reason.

However, even today conservation is not always done correctly. Some of the more recent conservation disasters have been widely publicised. These usually result when an individual without proper training tries to undertake a conservation treatment. For example, in 2018 a 500-year-old sculpture of St. George in Northern Spain became unrecognisable when a local handicrafts teacher attempted a restoration, giving the sculpture a cartoon-like appearance. The sculpture has since been largely restored to its pre-2018 state. However, not only did the repairs cost almost $50,000 AUD, but the use of inappropriate materials and processes resulted in damage to the sculpture. This demonstrates how easily harm can be done to irreplaceable artworks, even if individuals have good intentions.

From old SAM to new SAM: The SAM Collection move.

In April/May 2021 the entire Shepparton Art Museum collection was transferred from the old location to the new building.

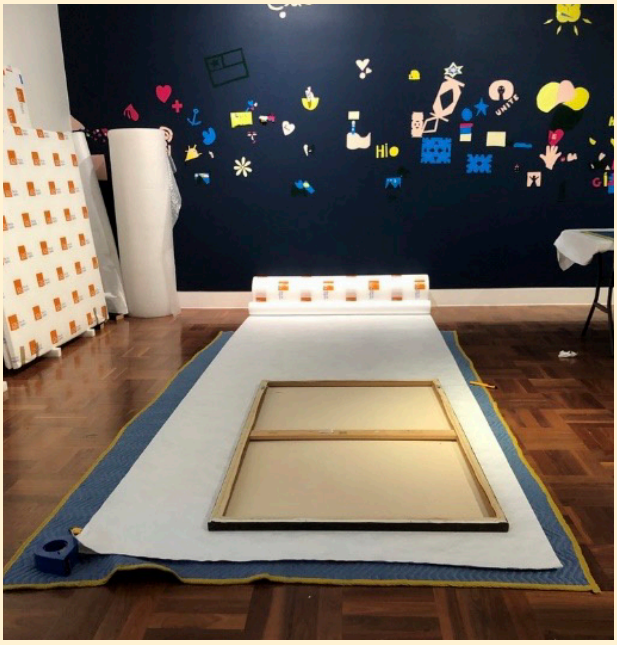
This involved over 4000 works, many of which were ceramics. The move was thoroughly planned in advance. All of the artworks in the collection were surveyed to assess the condition and to identify any concerns prior to transport. This process had a number of benefits, including:

- Allowing the location of all the works to be checked in the online database, ensuring all works were accounted for.
- Ensuring each work could be marked off when leaving the old building, and again when arriving at the new building.
- Enabling plans to be drawn up to identify where the works would be located within the new storage area.

Due to the immensity of this task and the fragility of the artworks, an art transport company was hired to complete the actual task of relocating the collection to the new site, which took approximately three weeks.

Teams including art transport staff and SAM staff were located at both the old building and the new building to oversee the packing and unpacking.

Specially fitted-out artwork transport trucks were used to move the artworks between the buildings. Ceramics were nestled into pillows, in trays, and covered with blankets. These trays stacked to form multi-layered, wheeled carts.



Top :
Unframed work on canvas about to be wrapped in Tyvek (see pg. 8 for description) and bubble wrap.

Bottom:
Ceramic works nestled into a pillow inside the bottom tray of a multilayered cart.

Photo: Jen Parker, 2021

Some fragile objects were boxed individually with custom supports to prevent damage occurring. Framed paintings were wrapped in bubble wrap, while unframed canvases were first wrapped in a layer of Tyvek, (Tyvek is a type of high-density polyethylene fibre fabric used to prevent moisture interference) followed by bubble wrap.

Right:
Custom packaging of an extremely fragile work using a method that secures only the top and base of the work to the inside of the box. This prevents movement during transport while also preventing any contact with the fragile sides of the ceramic.

Photo: Claire Liersch, 2021

Dollies and pallet jacks were used to move large, crated works onto the trucks. Upon arrival at the new SAM building, all the works were immediately unwrapped, checked off and stored in their new home. This meant that all the works in the SAM Collection made it safely to the new building.

Right:
Fragile ceramics were individually packaged in boxes and padded with tissue paper.

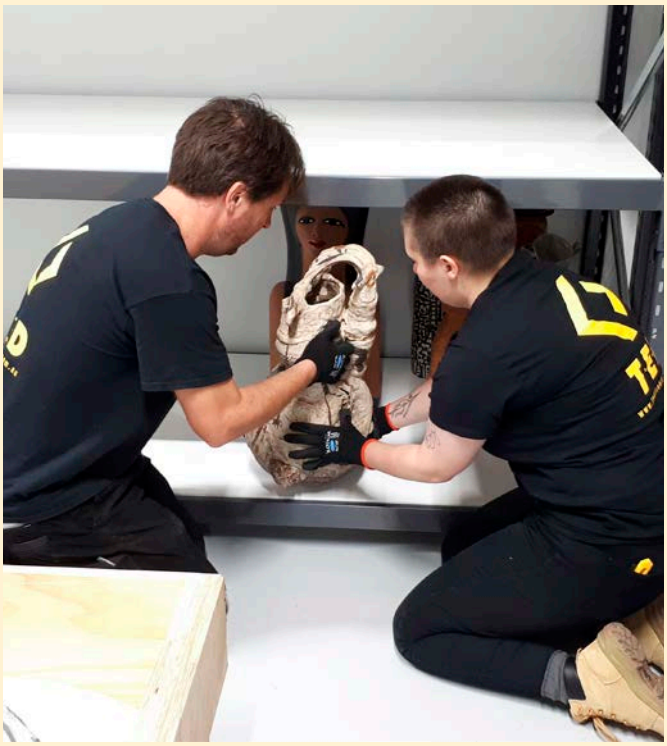


Photo: Claire Liersch, 2021

Glossary

Conservation
Conservation is the protection and preservation of cultural heritage.

Disaster Management Plan
A Disaster Management Plan is a written document that provides an outline of the procedures to be followed in case of a disaster.

Dissociation
Dissociation refers to the loss of data that gives an object context and meaning.

Dissolution
Dissolution refers to the act of dissolving or disintegrating.

HVAC
HVAC stands for heating, ventilation and air conditioning. HVAC systems control the ambient environment (temperature, humidity, air flow and air filtering) in a space.

Lux
Luminous flux per unit area; how much light falls within a square meter.

Preventative conservation
Preventive conservation refers to any measures put in place to prevent or minimise damage.

Relative humidity (RH)
Relative humidity is a measure of the amount of water vapour in the air and is expressed as a percentage of the maximum humidity at the same temperature.

Risks
A risk refers to a situation that may result in damage to an artwork.

Tyvek
Tyvek is a type of high-density polyethylene fibre fabric which is commonly used as a non-abrasive, dust proof barrier to package artworks.

Classroom Questions: How would you apply preventive conservation in your arts practice?

When applying preventive conservation measures to your practice and artworks, reflect on the following points:

1. How might you display or store your artworks? Consider the following:

a. Which three agents of deterioration would most likely to occur from your method of display/ storage?

b. What measures would you take to prevent damage from these three agents?

c. If preventive measures were not taken for these three agents, what damage would occur in your work?

2. Imagine you are in charge of conservation for a small art collection with varied artworks, such as works on paper, ceramics, organic matter/textiles, and paintings. Answer the following:

a. What preventive conservation measures would you put into place to care for your collection?

b. What would you act on first and why?

c. What features in your storage spaces would need to be in place?

3. Research an example of a conservation attempt that has had a disastrous result. Answer the following:

a. What conservation measures were taken?

b. What should have been considered?

c. What could have been done to prevent the outcome?