



In the footsteps of Sir Douglas Mawson Gallery

Primary Years – Teacher Information



Government of South Australia
Department of Education and
Children's Services

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Visiting the museum Student expectations

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We would like you, and all our visitors, to enjoy visiting the museum.

- Please stay with your group.
- Walk safely around the exhibitions to see all the best parts.
- Share the space with other visitors.
- Talking is an important part of learning. Please remember to use a quiet voice.
- The museum glass cases can get dirty or scratched. Please enjoy looking without touching.
- Please use the stairs and avoid the lifts. (They are slow and are needed by people who can't use the stairs.)
- Help keep the museum clean. Please eat and drink outside on the lawns.



Visiting the museum Student expectations

Bookings are essential for all school visits to the museum.

Please supervise your groups of learners at all times. If your visit involves visiting more than one gallery, divide your class into small supervised groups. Respect the needs of other classes that have booked particular galleries. **Parents must specifically consent to students under 18 participating in activities involving indirect supervision.**

When you arrive please let the staff at the front desk know. If the weather is fine, your students can enjoy the outside lawn area while they wait.

Do not use clipboards with metal backings and clips. For your convenience and for the safety of our exhibits, cardboard backings are available at the front desk.

The coffee shop and the museum shop do not cater for large groups. Small groups can visit, with adult supervision. Bags must not be taken into either shop.

Only students with special needs should use the lifts. (The number of students in the museum would cause excessive delays for people who really need lifts.)

Unfortunately the museum has limited capacity to store bags. A large crate or two for lunches is easier to keep secure.

Supervisors' bags must be left at the security desk, or be inspected and tagged by the security officers.

Program aims

While visiting 'In the Footsteps of Sir Douglas Mawson' students can follow his active pursuit of science, and his triumph in overcoming immense difficulties with determination and courage as he strove for goals he believed in. Students will gain insights into Mawson's life, discover geological evidence he found and gain an understanding of his Antarctic exploration.

Curriculum links

The Mawson Gallery promotes the essential learnings through gaining an understanding of the interdependence of all living things and their connection with the physical environment. It also has a strong futures focus, pointing out our planet's past climate, landforms and ever-changing environments, which helps students to building future scenarios. Mawson's expeditions can be evaluated through critical thinking and analysis of his discoveries. The importance of communication is demonstrated through Mawson's use of radio and this can be compared with modern technological advances.

It also has a strong Futures focus, pointing out that our planet's past climates, landforms and environments have been ever-changing, and showing how understanding our past helps us predict possible futures.

Science

From the Life systems and Earth and space strands students will focus on outcomes 2.1, 2.5 and 2.6 as they:

- describe some natural changes to the earth's surface caused by erosion, deposition and / or glaciation
- compare present environments with those of the past
- describes the features, habitat and lifestyle that help living organisms survives.

Design Technology

Studying Time, continuity and change and Place, space and environment strands students will focus on outcomes 2.1, 2.2, 2.5

- uses primary sources of information such as diaries, photographs and artefacts to interpret exploration in the early 1900's
- investigates Mawson's role in exploration of the Flinders Ranges and Antarctica
- identify the sequence of inventions that have changed communication with Antarctica
- use maps to identify key locations of Mawson's work

Society and Environment

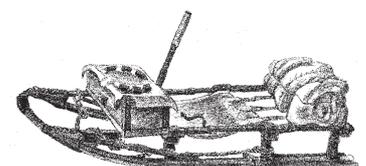
Mawson actively pursued innovative technologies and applied them to his needs. Students can emulate this through the strands Critiquing and Designing when they focus on outcomes 2.1, 2.2[Langsford2]

- investigate how the design of clothing and equipment suited them to use in Antarctica
- identifies the materials used in making Mawson's expedition clothing and equipment
- proposes alternative materials for Antarctic exploration.

Teaching strategies

This booklet contains student activities, teacher background information and suggested activity sheets. The gallery will be booked for your class for an hour (or an hour and a half if an Education Officer is taking your class for some of your visit).

Many different teaching activities can be done in this gallery. Select from the following possibilities, or make up your own. The first activity is essential for all groups.



Teacher notes

Activity 1: Lets have a look

All classes will need at least ten minutes to explore on their own before starting more directed activities. Students need to establish their ideas about museums and the exhibition by making their own connections. You could formalise this exploration by asking students to report their findings to the class. It is highly recommended that students do not have the activity sheets when first exploring the gallery.

Activity 2: Sir Douglas Mawson's work

Mawson's main interest was geology. His findings in South Australia inspired him to visit Antarctica where he contributed significantly to its exploration.

Have the students investigate one of the following aspects of Mawson's work.

- South Australian geology
- Machines and technologies used in Antarctica
- Glaciers
- Exploring Antarctica
- How rocks give evidence of the past
- Animals in Antarctica and the Southern Ocean

Ask some of the students to share their findings with the class or ask them to prepare a report. By collating all the findings the students will gain an overall view of Mawson's work.

Activity 3: Living in Antarctica

Give students a page to take notes for one of the following tasks and have them produce a good version back at school.

- Make a sales brochure for Antarctic clothing from Mawson's time. Highlight the useful points of each item.
- Make a sales brochure for Antarctic equipment from Mawson's time. Include reasons why it is needed.
- Write a job advertisement for an Antarctic expeditioner to work on Mawson's expeditions. Make sure you include the skills needed and the conditions of employment.

Activity 4: Research for an interview

Divide the class into groups of three. Ask them to collect information for a mock interview which will inform listeners/readers about some aspect of Mawson's life, adventures or scientific achievements.

Activity 5: Make up a Mawson quiz

Make up ten questions about Sir Douglas Mawson from information found in the gallery. Make sure students record the answers too. Back at school have a Mawson quiz or make up a Mawson game with the questions.

Activity 6: Write a diary

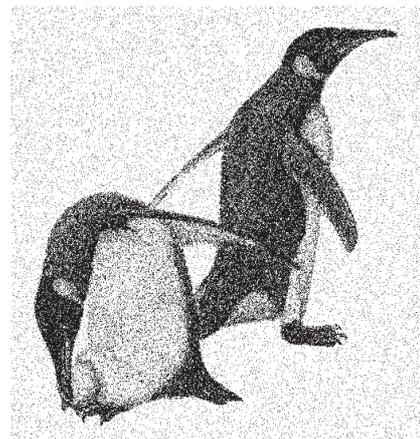
Students can gather information from Mawson's experiences to write an imaginative story about accompanying Mawson.

Activity 7: Complete the activity sheets

Teachers need to assess the appropriateness of the activity sheet questions for their particular students. There are more questions than students could be expected to complete in the time available in the gallery. About five pages of questions is suggested for each group. Different groups could have different combinations of questions. (Some cut and paste may be appropriate.)

A dozen computer interactives form a significant aspect of the gallery. There are two large computer screens, one dealing with glaciers, the other dealing with sedimentary rocks, suitable for whole classes instruction.

The questions can be answered in groups to encourage interaction and sharing of perceptions.



Background information

Sir Douglas Mawson had a passion for scientific discovery. He started his South Australian work in the Olary – Broken Hill area where he discovered radioactive minerals and evidence of a past ice age. His interest in ice ages inspired him to seek a place on the 1907 – 1909 British Antarctic Expedition (BAE).

Having visited Antarctica he resumed work in South Australia. He visited the Flinders Ranges and identified radioactive minerals from Mount Painter. In his many field trips to the Flinders he noted their structure and began to work out their geological history.

Mawson planned and led the 1911 – 1914 Australasian Antarctic Expedition (AAE) and the 1929 – 1931 British, Australian and New Zealand Antarctic Research Expedition (BANZARE). Both these expeditions resulted in the collection of huge amounts of scientific data. The AAE and BANZARE also set the scene for Australian territorial claims to parts of Antarctica.

The gallery is organised into a number of themes that reflect Mawson's wide scientific interests. The gallery also presents more recent research findings, which extend the work undertaken by Mawson. Some of these themes are as follows.

Exploring the Outback

In 1906 and 1907, while doing field work in the Olary – Broken Hill area, Mawson determined two major rock divisions. The older, metamorphic rocks, contained the ore body mined in Broken Hill. Younger sedimentary rocks showed evidence of ancient glaciation. Students can see some of Mawson's work and learn about the processes involved in altering sedimentary rocks into metamorphic rocks.

Rocks: radioactive and igneous

Mawson was one of the pioneers in the study of radioactive minerals in Australia. In 1906 he described a new radioactive mineral which he named davidite. He also named Radium Hill after identifying significant deposits of radioactive minerals. It was his

interest in these minerals that led him to the Flinders Ranges in 1910 to investigate the radioactive minerals of Mount Painter.

Students can see Mawson's gold leaf electroscope, which he used to detect radioactive minerals. Computer interactives explain radioactivity and how igneous rocks are formed.

Exploring the Flinders Ranges

While working in the Flinders Ranges during the 1920s, Mawson found fossilised stromatolites, radioactive minerals and identified the glacial origins of some of the sedimentary rocks from the area. His research helped explain the formation of sedimentary rock layers and their subsequent bending and erosion, which left the ranges as we know them today.

Students can follow Mawson's investigations into the geological sequence of the Flinders through computer interactives and try their hand at identifying rock formations that show faults or folds. They can also discover evidence that climate and sea levels have changed in the past.

Seeking the South Magnetic Pole

On his first Antarctic expedition Mawson was in the party to search for the South Magnetic Pole. The three men dragged their sledges over 2 000 km during this expedition. Mawson continued researching the Magnetic Pole during the AAE and these findings have been incorporated into current research into the Earth's magnetic fields.

The magnetic pole moves and it is not at the geographical pole. Scientists are still researching the Earth's magnetic fields. Video and computer interactives help explain this difficult concept.



Mawson in the field

Science from Ships

When *Aurora* (AAE) and *Discovery* (BANZARE) sailed between Australia and Antarctica the scientists took measurements and collected samples. Little was known about the bio-diversity of the Southern Ocean. Some of the animals discovered on the expeditions are on display and students can try classifying them as Mawson's scientists did. They can use the computer interactive *Discovering New Species* to help them do this.

Geographical and geological studies were also made. For example Mawson suggested that, unlike the Arctic ice cap, there was an extensive landmass beneath the Antarctic ice cap. More recent studies have shown he was correct.

Living in the Antarctic

The artefacts in the exhibition bring to life the difficulties experienced by Mawson and the other expeditioners in Antarctica. Students will learn how the challenges of living and working in the harsh conditions were overcome. Clothing technology has progressed significantly since Mawson's time in Antarctica. He relied on natural materials such as woollen underwear, Burberry cotton outer garments, fur mitts and finnesko (reindeer skin) boots with dry grass for extra insulation.

Other important pieces of equipment included goggles to protect the eyes from glare and freezing wind, skis for moving over snow, crampons for slippery ice conditions and ice axes. Sledging parties needed tents for protection against the freezing conditions. Sleeping bags of camel hair or reindeer skin were used in the huts and by sledging parties.

Cooking for the treks was done on a Nansen cooker, which was designed for maximum efficiency – cooking food and melting snow simultaneously.

Equipment taken by parties journeying from the base huts was packed onto sledges, which were hauled by dogs or men over the snow and ice. Mawson favoured dogs to pull the sledges. He also saw the advantage of motorised transport, taking an aeroplane on the AAE. However, a crash shortly before leaving Australia disabled the plane. Mawson took it without wings and

used it as an air-tractor for hauling sledges. He used aeroplane flights extensively on BANZARE.

Students can learn how Mawson quickly took advantage of new inventions and technological improvements and applied them to Antarctic exploration.

The Epic Sledge Journey

Mawson lost both his expedition companions but still survived and continued taking scientific records even when he thought his position was hopeless. Ninnis and the sledge he was driving accidentally broke through a snow bridge over a deep crevasse and were lost. Mawson and Mertz were left with little food and equipment as they abandoned the planned trip and tried to return to the Main Base hut. Mertz died in the attempt. Mawson struggled on, surviving falls into crevasses, starvation and the bitter conditions. His courage and determination to survive shows his strong personality. Students can use a computer interactive dedicated to the epic sledge journey as well as see the sledge which Mawson cut in half so he could pull it on his own.

Partial replica of Mawson's hut

Mawson's hut is an easily recognised symbol of his Antarctic exploration. It provided essential protection against the harsh Antarctic weather. The expedition parties had to survive inside the cramped huts during the long winter. The confined spaces of the huts were also used for preparing equipment and organising supplies for the scientific trips. In the AAE Main Base hut, one work area was the narrow central dining area with the table hoisted to the ceiling to allow large items such as sledges to be worked on. The only personal space each man had was his bunk. Everyone was rostered for chores such as cooking and cleaning.

The replica of part of the AAE Main Base will help students visualise the working and living conditions of Mawson and other early expeditioners. They can also consider the design requirements for building in Antarctica.

