



**THE WORKSHOPS
RAIL MUSEUM**

ANIMAL CLASSIFICATION WORKSHOPS

Year 7

Teacher notes

This program has been produced and published by The Workshops Rail Museum, North Street, North Ipswich, Qld, Australia 4305.

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to be recognised as a creative, innovative and exciting journey of discovery into Australia's rail story.

The Workshops Rail Museum's Mission Statement is:

to harness the significance of the Workshops precinct by delivering international standard cultural and tourism related activities, education and public programs associated with the interaction of rail on people's lives.

The Queensland Museum Network's Vision Statement is:

to be the premier Museum in Australia, connecting real objects and contemporary research with communities, creating authentic and compelling experiences and stories that inspire, enrich and empower.

The Queensland Museum's Mission Statement is:

to inspire generations of Queenslanders to discover, celebrate and value our distinctive natural and cultural environments.

The Queensland Museum Network Lifelong Learning vision is:

to provide lifelong learning experiences and opportunities for everyone, connecting QMN collections, research and stories, with the aim to inspire, enrich and empower people to make meaning.

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Purpose and overview

The Animal Classification Workshops provide an opportunity for Year 7 students to develop their Science Understanding and Inquiry Skills through recognising the patterns, systems and conventions of the classification processes used in the Biological Sciences. Students discover relationships and connections among different species as they explore the animal kingdom, using visuals, challenges and real Museum specimens.

During the Year 7 Animal Classification Workshops sessions, students will:

- Explore the diversity of life on earth;
- Compare the physical characteristics of a selection of familiar animals;
- Develop their understanding of classifying and organising diverse organisms based on observable differences through examining real Museum specimens;
- Examine real Museum specimens in order to identify and classify them;
- Consider how and why scientists organise animals into groups, with guided discussion;
- Use hierarchical systems and terminology for classifying organisms (e.g. kingdom, phylum, class, etc.);
- Use dichotomous keys to classify animals into groups.

The culminating activity of the workshop is to create a dichotomous key based on the Museum specimens. Students will be provided with a Dichotomous Key Activity worksheet and images of the workshop specimens with which they devise their own key to identify and classify the animals. Students may also examine more closely the real specimens from the workshop to assist them in creating their dichotomous key.

We recommend co-ordinating this session with an exploration of the *A Room for Wild Animals* exhibition, which complements this learning experience. A guided tour of this exhibition by Museum staff is offered as part of the workshop program. The tour explores the following key themes of the exhibition:

- The purpose of the exhibition: presenting a range of wild animal species that people may not ordinarily have the opportunity to see; to highlight threats to wildlife and biodiversity;
- How the specimens were acquired by Queensland Museum;
- Processes of preservation;
- Examining the various exhibits to identify key features and adaptations.

After the guided tour, students are encouraged to spend more time in the exhibition examining the exhibits. As an optional extension activity, a second dichotomous key task called “*Who’s Who in the Zoo?*” is provided on the last page of the worksheet. In this activity, students develop a dichotomous key based on the exhibition specimens where they determine their own categories for classification and identification.

Assumed prior knowledge

This excursion-based workshop is designed to support in-class units of work on animal classification. It is assumed that students have some familiarity with means of classifying living things and developing dichotomous keys. If dichotomous keys have not been addressed in class, please inform the Museum Learning Officer and this activity can be adapted or omitted from the workshop. The workshop still offers a valuable and authentic learning experience without this culminating activity.

Session details

- The program is led by a Museum Learning Officer
- \$6.00 per student; supervising adults are free
- Each session runs for approximately 60 minutes (allow an extra 15 minutes for guided tour of *A Room for Wild Animals* exhibition)
- Clipboards, pencils and Dichotomous Key worksheets are provided

Booking information

For information on booking a school group excursion to The Workshops Rail Museum, please complete the online booking form available on our website: <http://www.theworkshops.qm.qld.gov.au/>

Please refer to the “Planning your visit” page on our website for further information and The Workshop Rail Museum’s Risk Assessment for schools. Alternatively, contact our Booking Officer on (07) 3432 5100 or info@theworkshops.qm.qld.gov.au

Curriculum Information:

The workshops are aligned with the Australian Curriculum: Science (v8.2) for Year 7. The Science content strands addressed are *Science Understanding* and *Science Inquiry Skills*. These links are elaborated on the following pages.

Curriculum Links

The Australian Curriculum: Science (v8.2) links for Year 7 are elaborated in the following table:

Science Understanding

Biological sciences:

Classification helps organise the diverse group of organisms (**ACSSU111**)

Elaborations:

- considering the reasons for classifying such as identification and communication
- grouping a variety of organisms on the basis of similarities and differences in particular features
- considering how biological classifications have changed over time
- classifying using hierarchical systems such as kingdom, phylum, class, order, family, genus, species
- using scientific conventions for naming species
- using provided keys to identify organisms

TEACHER NOTES:

- The animals on display in the workshop and exhibition offer students the opportunity to compare and contrast interesting features, as well as things that are unique to living organisms; e.g. limbs for movement and other specialisations, such as claws for hunting, digging, etc.
- Students use these features as a basis for classifying the animals
- The workshop aims to develop understanding of how and why sorting and classification systems are used by Queensland Museum scientists and how they make important observations, predictions and investigations to help us answer scientific questions and develop understandings about the natural world
- Students explore the use of scientific conventions for naming species

Science Inquiry Skills

Questioning and predicting:

Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge **(AC SIS124)**

Elaboration:

- working collaboratively to identify a problem to investigate

TEACHER NOTES:

- The workshop encourages students to generate research questions and predictions about varied animal characteristics and adaptations. These questions and predictions also inform exhibition exploration
- Students also use Queensland Museum learning to identify and refine research questions that may be used to inform further scientific investigation in animal classification

Processing and analysing data and information:

Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships in data using digital technologies as appropriate **(AC SIS129)**

Elaboration:

- understanding different types of graphical and physical representation and considering their advantages and disadvantages

TEACHER NOTES:

- The workshop models how scientists use representations to show relationships among species, e.g. taxonomic ranking: Domain, Kingdom, Phylum, Class, Order, Family, Genus, Species; and using dichotomous keys

Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions based on evidence **(AC SIS130)**

Elaboration:

- using diagrammatic representations to convey abstract ideas and to simplify complex situations

TEACHER NOTES:

- Students use dichotomous keys to demonstrate their understanding of relationships among animal groups in both the workshop and in exhibition exploration

Evaluating:

Use scientific knowledge and findings from investigations to evaluate claims based on evidence **(AC SIS132)**

Elaboration:

- using the evidence provided by scientific investigations to evaluate the claims or conclusions of their peers

TEACHER NOTES:

- Students are encouraged to share their findings, e.g. dichotomous keys, and their reasoning behind how they classified workshop and exhibition specimens

Communicating:

Communicate ideas, findings and evidence based solutions to problems using scientific language, and representations, using digital technologies as appropriate **(AC SIS133)**

Elaboration:

- presenting the outcomes of research using effective forms of representation of data or ideas and scientific language that is appropriate for the target audience

TEACHER NOTES:

- During the workshop, students are encouraged to ask questions and share ideas about specimens
- The workshop activities and exhibition also assist students in recognising how Queensland Museum's collections can communicate scientific information about different animals
- The workshop models ways which scientists use to conduct and communicate their investigations, and some of the tools they use, e.g. microscopes, scans, etc.

Additional Queensland Museum Network Resources

For information regarding Queensland Museum loans kits visit:

<http://www.theworkshops.qm.qld.gov.au/Learning+resources/QM+Loans>

For information on the *A Room for Wild Animals* exhibition visit:

<http://www.theworkshops.qm.qld.gov.au/Events+and+Exhibitions/>

For Queensland Museum learning resources on biodiversity, animal adaptations and classification, visit the website below and enter keywords in the search box:

<http://www.theworkshops.qm.qld.gov.au/Learning+resources/Resources>

To explore the Queensland Museum's Biodiversity on-line collection visit:

<http://www.collections.qm.qld.gov.au/naturalEnvironments.page.do>

Other internet resources

For general factual information about different types of animals for student reference:

<http://www.softschools.com/facts/animals/>

For more information about animal classification, including hierarchical systems for student reference:

<http://a-z-animals.com/reference/animal-classification/>

Unit of work on classification developed by the Australian Science Teachers Association:

<http://scienceweb.asta.edu.au/years-7-8/unit2/overview/yr78-unit2-overview.html>

A Room for Wild Animals at The Workshops Rail Museum

Get up close to 20 taxidermy specimens from the Queensland Museum collection.

Most of us are familiar with Australian mammals such as koalas and kangaroos, but have little appreciation for the sheer size and form of many overseas land mammals.

In a first for Ipswich, *A Room for Wild Animals* showcases 20 taxidermy specimens from the Queensland Museum collection including big cats, bears and deer.

The specimens featured represent some of the most impressive mammals on the planet, providing a rare opportunity to experience them up close. The exhibits featured in this display are part of a larger collection, some of which were seized as Proceeds of Crime and donated to Queensland Museum on behalf of the Commonwealth of Australia.

Today they speak on behalf of their living relatives across the globe and help us to learn an important conservation lesson.

Dates: 25 February 2017 - 26 November 2017

Price: Free with Museum entry

