

Milk Matters

2017 Teacher Resource Booklet



 **Waikato Museum**
TE WHARE TAONGA O WAIKATO

1 Grantham Street Hamilton Open daily 10am-5pm 07 838 6606 waikatomuseum.co.nz

 **Hamilton City Council**
Te kaunihera o Kirikiriroa





Waikato Museum, Te Whare Taonga o Waikato is the artistic and cultural heart of our city. We value and celebrate our rich and diverse cultural heritage and our region's artistic vibrancy and flair for scientific innovation.

Waikato Museum is an ideal place for learning and enrichment.

Our programmes extend the learning environment beyond the classroom for both students and teachers. We have developed relevant and useful teachers' notes and can tailor unique classes to meet the needs of our visiting education groups. These provide stimulating learning experiences related to the exhibitions and tours described.



How is milk made and processed? Why is the Waikato considered the 'dairy capital of New Zealand'? In this interactive, educational exhibition created for children and families, we explore issues and highlight advances in agricultural science that are paving the way for an even more productive, efficient and environmentally conscious industry.

Milk Matters celebrates success, telling the stories of our local farmers, and explains some of the science and technology that surrounds dairy farming. From the underground (soil science) to the atmosphere (climate change) visitors can explore modern dairying in the Waikato.

Come on this fascinating journey of water, nutrients and grass that go to make up quality milk, and then discover how milk itself is made into an astonishingly diverse range of flavoursome foods. You will be surprised by the energy and invention that is focused on this everyday food, and get to know why milk matters!

Our two hour schools programme contains a classroom presentation, gallery exploration and a separate, hands-on activity session or students can continue their scientific exploration with a session in *Exscite*, our science activity gallery.

People use these competencies to live, learn, work, and contribute as active members of their communities. They are the key to learning in every area. Museum learners will become confident, connected, actively involved, life-long learners.

Thinking	Use creative and critical thinking to make sense of the information, experiences and ideas explored in the Museum.
Using Language, Symbols and Text	Students will make meaning of the language, symbols, text and specific terminology of the Museum.
Relating to Others	Interact effectively with a diverse range of people in different and new contexts. Listen actively and share ideas in the Museum.
Participating and Contributing	Understand the role of the Museum in the local and wider community. Develop a sense of belonging and confidence to participate within new contexts. Make connections between exhibitions and their relevance to local, national and global environments.
Managing Self	Students will see themselves as capable learners who develop strategies for meeting challenges. Students develop a can-do attitude with increasing independence.

Vision:

Young people who will be confident, connected, actively involved, lifelong learners.

Values

Excellence
 Innovation, inquiry, and curiosity
 Diversity
 Equity
 Community and participation
 Ecological sustainability
 Integrity
 Respect

Key Competencies

Thinking
 Using language, symbols and texts
 Managing self
 Relating to others
 Participating and contributing

Learning Areas

English
 The arts
 Health and physical education
 Learning languages
 Mathematics and statistics
 Science
 Social Sciences
 Technology

Achievement Objectives

Principles:

High expectations, Treaty of Waitangi, cultural diversity, inclusion, learning to learn, community engagement, coherence, future focus

Specific learning experiences

Students will:

- Develop an understanding of the processes involved in milk production (from grass to glass) and the number of jobs that the milk industry provides
- Examine the various compounds that constitute milk and how these can be used in a wide variety of products
- Explore how science is helping the milk industry in terms of productivity and quality
- Begin to appreciate the role the milk industry plays in the Waikato region and as a national industry

Curriculum links

- **English:** explore advertising, slogans and jingles, reading signs and labels, scientific language and common language
- **Mathematics:** weights and measures in relation to liquids and solids, tables and graphs around milk statistics
- **Science:** Properties of milk or milk packaging, chemical reactions, using the scientific process in relation to conducting a milk experiment
- **Social Science:** The impact of dairying on a region over time, the role of the farmer in society
- **The Arts:** observation from natural to manmade, exploring various art techniques to represent milk and milk production, how to draw/photograph liquids
- **Technology:** packaging materials, use of milk as an agent in baking, methods of prolonging the life of milk, milk transport development
- **Māori Culture:** cultural practises around foods, land use prior to European settlement, language around food and dining
- **Health and Physical Education:** Safe food practises, healthy eating and nutrition, exploring allergies and intolerances

Suggested pre-visit activities

- Brainstorm all the things students know about milk (fact and fiction)
- List as many products as they can that contain milk or milk by products
- Create a flow diagram that shows how milk is produced
- Write to a farmer or invite a dairy farmer to visit the school to talk about his job
- Research cows and how they produce milk; look at different breeds and what sort of environment they do better in
- Carry out some simple science experiments on milk (food colouring and dishwashing liquid reaction, milk and vinegar reaction, testing various milks and their souring process, comparing various milks acidity/alkalinity)
- Explore Dairy NZ's student webpage Rosie's World online at rosiesworld.co.nz

Suggested post-visit reflection activities

- Dairy NZ have additional resources and teaching activities online. rosieseducation.co.nz
- Discuss impacts of the dairy industry on the region
- Compare and contrast the dairy industry in New Zealand with those from another country and from the past. What are the similarities and differences?
- Imagine the dairy industry 100 years from now, what advancements might be made? Write a story about a farmer of the future visiting a farmer from the past
- Explore various milk containers and their properties. Create recycled items using only dairy containers of various kinds
- Investigate the milk process of another animal, e.g. a goat. Does the milk get processed in the same way?
- Design a new milk/ice-cream flavour (e.g. marmite ice-cream). Have students carry out taste tests on their product then design a marketing campaign for their product



Before you arrive

We will email you a booking sheet with the information we require, your booking will be confirmed once we receive it back.

Health and safety guidelines and RAMS information are available to download through our website.

Please discuss with the Education Manager your timetable and organisation for your visit. If possible, arrange for your group to leave their bags at school or on the bus as we have limited storage in the Museum.

Discuss photography with the Museum educators as there are different conditions for every exhibition.

If you require disabled parking and access, discuss this at the time of your booking and we can ensure we meet your needs.

When you arrive

Bring your group to the School Entrance at the top right of the Museum. Your educator will meet you.

Bus parking is available near the school entrance on Grantham Street. School vans may also use the bus parking area.

There is limited three hour paid parking in the Museum car park off Victoria Street (entrance beside Arts Post) and Knox Street open air car park. Only a few minutes walk from the museum are the Knox Street and Alexandra Street car parking building.

We supply any pencils, paper or other equipment that you may need for your visit however students, teachers and supervisors are encouraged to bring IT devices to support their learning. (Please note there is no Wi-Fi in the Museum.)

Late arrivals

We regret that in most cases we cannot extend your lesson time beyond the time that has been booked as our educators may have multiple commitments throughout a day.

At the conclusion of your visit

Please sign off the numbers of children in your group and details of payment with the educators.

We appreciate knowing what we are doing well and to hear any suggestions you may have for improvement. We encourage teachers to communicate with us about their visit experiences and will be sending out a post-visit email with a survey attached. We hope you will take the opportunity to feed back about the programme; we appreciate your time and comments. Students are also encouraged to communicate with us, ask questions or send samples of work done on the theme via our web email. We are happy to act as 'experts' as another learning link for your class.



About our programmes

All our education programmes explore and develop the curriculum through classroom-based sessions, exhibition tours and activities. Bookings are essential.

Experience Art at Waikato Museum

Art is captivating, stimulating, thought provoking, and at times challenging, especially with the wide range of mediums open to artists today.

Waikato Museum education sessions allow students to explore artistic concepts such as how people view and interpret art in different ways, art in media, art techniques and medium.

Explore History at Waikato Museum

Hamilton and the wider Waikato region are rich in history and tales of peoples of the past. At Waikato Museum we are proud to be able to present these stories to our children.

We can share tales of brave settlers, Maaori heroes and dastardly misdeeds. We allow students to explore their concepts of the past and see how this has shaped the people and place we are today.

Experience Science at Waikato Museum

Science is a wonderful, interactive subject where students are actively involved in learning about the world around them and how it works. At Waikato Museum, we believe that science is exciting, stimulating and above all, FUN!

In our specialist science exhibitions, Excite and Milk Matters, we are able to provide hands on activities that explore many concepts from the science curriculum in such enjoyable ways the children don't even realise learning is happening!

Explore Tangata Whenua at Waikato Museum

The Waikato region is the home of Tainui, the tangata whenua of the region. Waikato Museum is proud of our close relationship with iwi. We are kaitiakitanga of many treasures that reflect this rich and spiritual history.

The education team can provide interesting and creative ways to explore our cultural heritage and legacy through presentations, gallery tours, specialist speakers, visiting exhibitions and creative art activities.



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