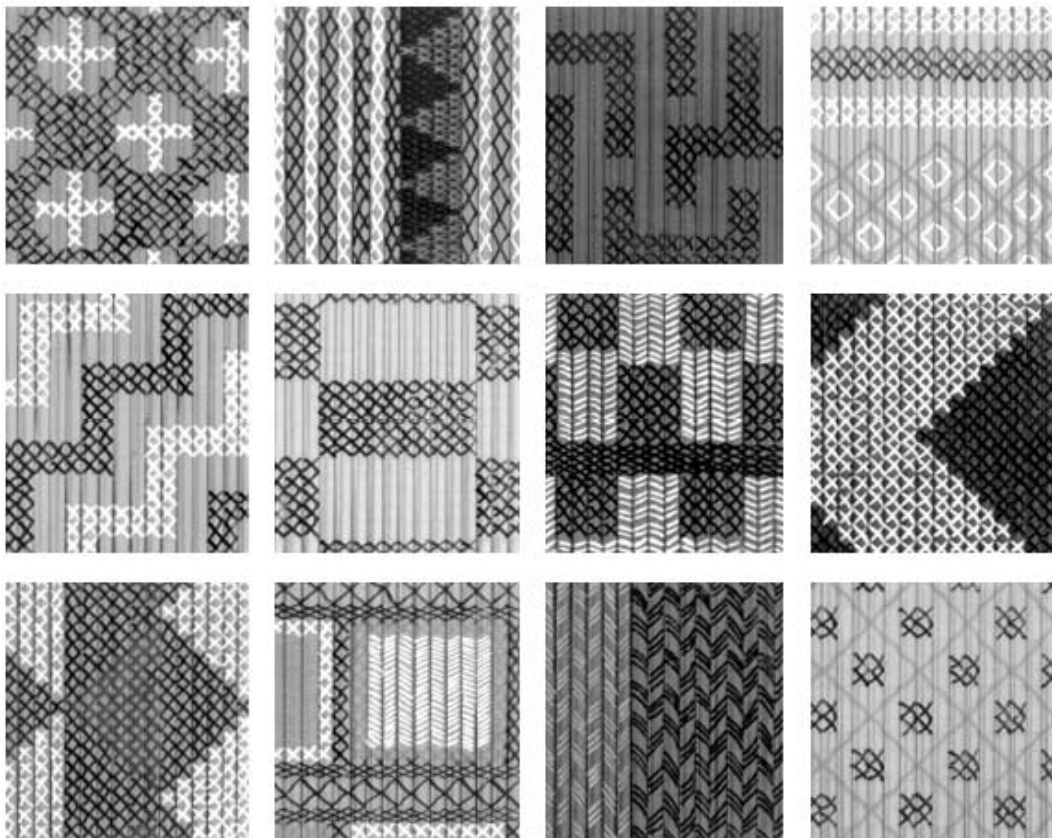
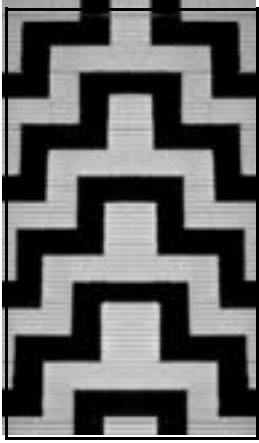


Tukutuku Tuturu Maori



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Auckland Museum





Introduction

Tukutuku Tuturu Maori

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He Korero

Whakatuwhera

I waihangatia tenei rauemi mo te mahi tukutuku I te whakaaetanga o Te Manatu Matauranga kia riro mai tetahi kirimana I tenei roopu "Wheako Ako I Waho Atu I te Akomanga." He pai tenei rauemi ma nga Kura Kaupapa Maori, nga Whanau Reo Rua, nga Ruma Rumaki I te Reo me nga Kohanga-Reo Maori. Anei e whai ake nei nga whainga paetae tika mai te Anga Matauranga o Aotearoa. Ko nga wahanga kaupapa e hipokina atu, ko Te Reo Maori, te Pangarau me Te Reo Pakeha.

Introduction

This resource has been created as a result of the Ministry of Education contract for "Learning Experiences Outside the Classroom".

This resource has been designed for Kura Kaupapa, Total Immersion, Bilingual and Kohanga Reo schooling initiatives.

The resource incorporates appropriate achievement objectives from the National Curriculum Framework of New Zealand.

The Curriculum Statements covered are Te Reo Maori, Pangarau, English and Mathematics (Levels 1-4).

Acknowledgement

Grateful thanks and appreciation for their help and advice in the compiling of this resource is made to Moana Rini and Peter Boyd.
Ma te Atua e manaaki,
Ma tana tama, ko Ihu Karaiti e tiaki,
Ma te Wairua Tapu e Arahī.
Tera Korua!



Teacher Background Information

Tukutuku panels are synonymous with carvings and kowhaihai patterns when we think of Whare Whakairo-Whareniui. In most Meeting Houses one can look forward to admiring the tukutuku panels in between the poupou. There, the interpretation of each tukutuku design will complement and reinforce the stories told in the carvings and kowhaihai patterns.

Not only are tukutuku patterns an integral part of the storytelling of each Whare, they add aesthetic beauty to the interior of the House. In contrast to the spirals, swirls and curved lines of the carvings and kowhaihai paint-work, the straight lines that form the basis of all tukutuku design provide a distinctive component in the overall art form of each House.

In more recent times, tukutuku designs have become an exciting feature to be found in Wharekai, Churches and reception areas of business houses. New innovations reveal the clever adaptation of tukutuku to make fire-screens, glass covered table-tops and room dividers.

Tukutuku Panel Structure: Traditional

The traditional tukutuku panel is a lattice-like frame made up of vertical stakes which form the back layer of the frame (*can NOT be seen*); horizontal rods that form the layer of the panel (*that can be seen by the viewer*); and flexible material, being both pingao and kiekie which when threaded through the rods and stakes form the patterns and designs.

Toetoe stalks were the kakaho (*vertical stakes*). Stalks were arranged close together to form the single back layer. Flower ends and butt ends were laid alternately to maintain an even width.

Wooden slats (horizontal rods), coloured with wood-stain or paint, were placed close together. These completely covered the kakaho, forming the exposed layer on which the pattern would be viewed.

The leaves of the kiekie, (an epiphyte; a perching plant found growing in the branches of trees) were gathered and bleached to be used for the colour white in the patterns. Bleaching meant that the leaves were stripped, boiled and hung out to dry in the sun and wind. Strips were also dyed when the pattern required the addition of colours.



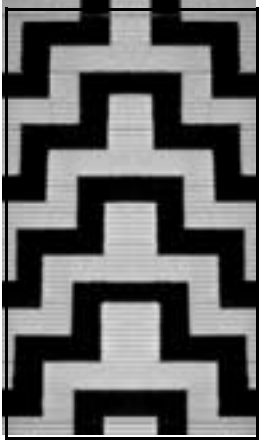
Sedge (Pingao).



Kiekie. The fruit shown above were known as ureure.

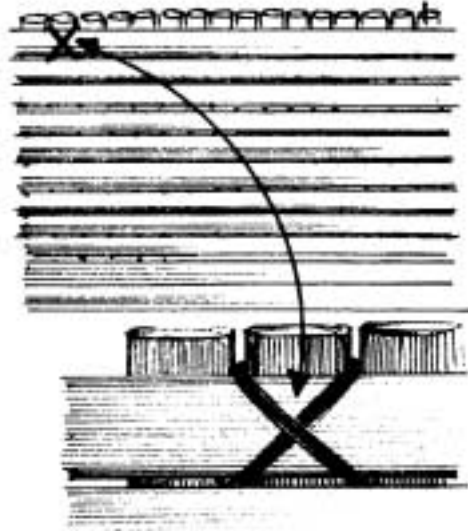


Kiekie flowers. Known to Maori as tawhare.



Background Information

Pingao (a coastal plant growing on sandhills) was used for its rich gold/orange colour. Preparation meant that pingao was gathered and sized into lengths, then hung out in a shady spot. Stripping was done on the frame.



Detail of assembly of *tukutuku*.

Modern Innovations in the Making

Substitutes for traditional materials have become widely accepted, as they are readily available all year round and are more versatile.

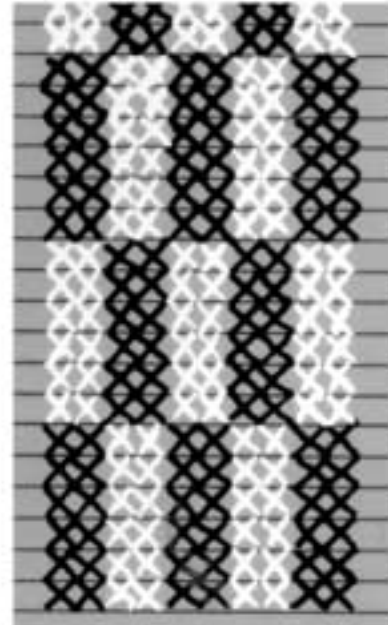
An excellent replacement for the lattice-like frame structure is peg-board, which can be purchased in a range of sizes and then cut into different shapes.

Dyed raffia and fibre plastic strips are often used instead of kiekie and pingao. These materials are available in vibrant colours, some fluorescent and when used, will produce an exciting effect. These materials are also preferred as they have a longer life than traditional materials and do not require regular maintenance.

Alternative materials for the vertical stakes and horizontal rods are half-round wooden slats, dowels, bamboo and stalks of the South American pampas grass.

Illustrations

Ro imata Toroa or Ro imata Turuturu: *Albatross Tears*



The albatross is a rare and wonderful visitor to the northern parts of New Zealand and was revered by the pre-European Maori. The tears of the albatross signified something that was both rare and beautiful and as such was incorporated into tukutuku work.*

The story attached to this design tells of the introduction of the kumara plant, a story ending in misadventure and lamentation.

Pourangahau (Pourangahua) was one of the chief scientists sent from Hawaiki to report on the climatic and geographical conditions of Aotearoa soon after Kupe's voyage of discovery. Accompanied by his wife, Kaniowai, and others, he



Design interpretations are taken from:

*Pownell, Glen: *New Zealand Maori Arts And Crafts* 1976

**"Marae": Volume 1: Number 2: 1974.

surveyed his given area of Gisborne and the East Coast and calculated by the growth of vegetation that spring was imminent. He returned in haste to Hawaiki, there to report to his chief Ruakapanga, who urged his immediate return with the kumara tipu (*kumara shoots*) to Aotearoa lest he be too late for the planting season.

To aid him, Ruakapanga gave him the loan of his two giant birds, Harongarangi and Tiungarangi, to take him there swiftly: at the same time he gave Pou strict instructions as to his route, the incantations that were necessary and the care that must be lavished on the birds. When he bid him farewell, he entrusted to him Mamainuku and Mamairangi, his two sacred ko (digging implements). Exalted by this honour - the first recorded trans-Pacific air crossing - and thrilled by the comfort and speed of his flight Pou forgot all thought of the instructions and incantations and prayers. Despite all this, he was carried safely and swiftly to his destination.

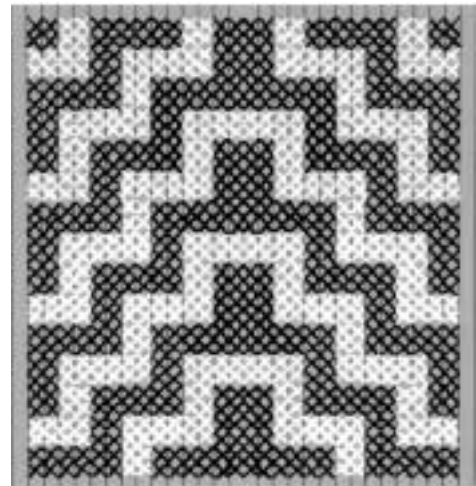
However, on arrival he neglected the birds shamefully. When, too late, he remembered his instructions he found the birds outside his house weeping tears of weariness and sorrow. Where they had been fondled and petted by their master Ruakapanga, they were now abused and neglected by Pou. His attempt to make amends being unsuccessful, he sent them off on their homeward journey.

On their way they were beset by Tunui-o-te-lka and other evildoers so that when they eventually arrived home, their physical condition revealed the whole sorry tale of neglect to Rua.

For this crime of Pou's and for the tears that Harongarangi and Tiungarangi had shed, he caused the pests anuhe (*caterpillar*), mokoroa (*a large white grub*) and mokowhite to attack the kumara. To this day the kumara plant is still ravaged by these pests every year.

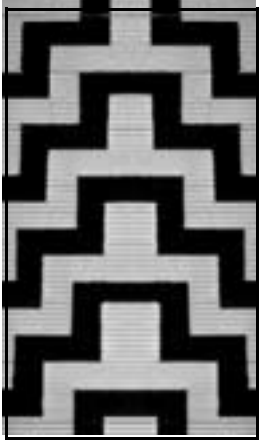
Thus it is the roimata (*tears*) pattern - memorial to the tears of the toroa (*albatross*) weeping for their loved one, that we select when we wish to depict disaster in war, death or catastrophe.**

Poutama: *The Stairway To Heaven*



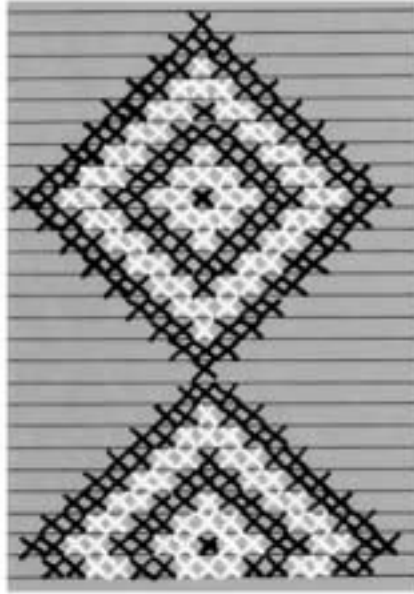
The Poutama design in ancient lore symbolised a climb made by a folk hero Tawhaki to receive the three baskets of knowledge from the gods.*

The Maori interpretation of the word is "one who supports his family sub-tribe and tribe", in a word, chief or rangatira. When we look at the construction of poutama, we find a series of steps denoting the steps of progress and advance. Briefly, these are education and the striving for betterment, the planning of *a child's future...* by parents, family and tribe - the ultimate mark of a born leader. **



Background Information

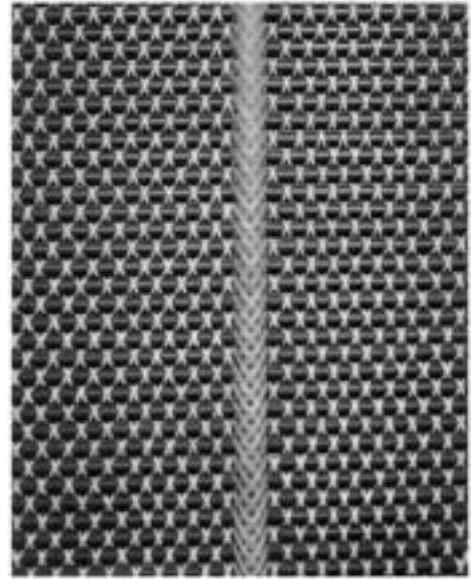
Pat ikitiki: *Flounder. Also the Maori name for group of stars near the Milky way- the "Coal-Sack"*



The flounder is a fairly common flat fish found near the beaches and estuaries on the New Zealand coast. Of distinctive diamond shape and delicious flavour, this fish is a favourite food of New Zealanders 'in the know'.*

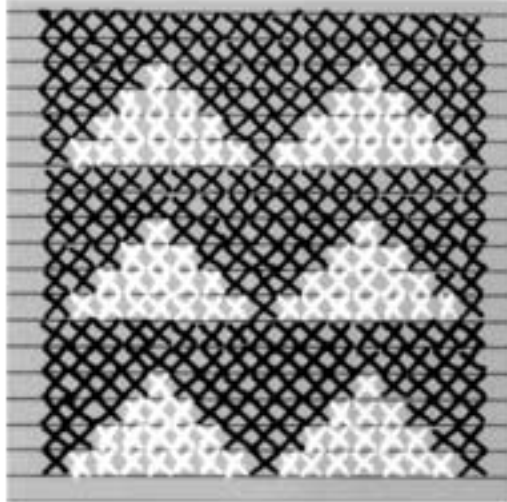
The constellation forms a diamond shape and the experts of old had it that they swing in their position near the Milky Way, according to the weather. When the diamond lies parallel to the Milky Way, expect fine weather, when the diamond points away from the Milky Way, prepare for a spell of bad weather. This was a convenient way of forecasting the weather in the old days when the Maori lived on the sea-coast, subsisting mainly on sea-foods. When the indications by the stars were favourable, great harvests were the order of the day as the flounder came in to the shallow waters. Similarly, other sea-foods were taken in abundance. The design signified good weather, abundance of food and well-fed families.**

Purapura Whetu: *Purapura-myriads; whetu-stars*



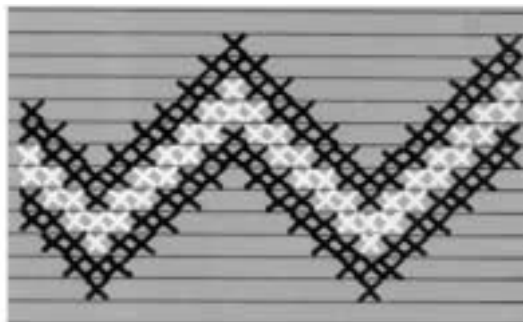
A poetic expression for the multitude of stars seen in the heavens at night.... the Maori desire for a large family is a trait handed down from our ancestors. Generally speaking, a man who visualises big things usually has a large family; the head of a small family is often more prone to think and plan in a narrower, more circumscribed manner. The pattern is striking, especially when encountered among more elaborate panels, for its simplicity and strength. One building only in the whole of New Zealand had this pattern exclusively and that is the Rangiata Church at Otaki [sadly lost to fire]. The sentiment depicted therein is that the Church may acquire members of the Christian faith "as many as the stars in number."**

Nihotaniwha: *The Teeth of the Dragon*



Taniwha are mythical monsters usually associated with the ocean, lakes and rivers of New Zealand. Feared for the destruction they wrought, their sharp diamond pointed teeth are symbolised by this design.* The persistency of the "taniwha" stories throughout Maoridom is now decreasing, but try to picture the scene of old. The dying embers in the Meetinghouse at night, the howling wind and the pelting rain--these were the atmosphere for such stories, and the lively mind of the listener filled in the gaps. The slaughter by the dread monster, the trembling and fearful planning for revenge, the luring of the taniwha, the baiting, the attack, the kill - and suddenly the heavens without are rent by jagged lightening and thunder!**

Kaokao: *Human Ribs-Armpits*

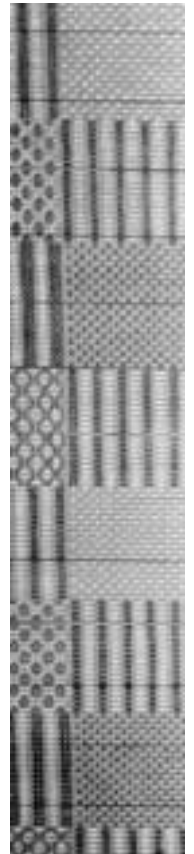


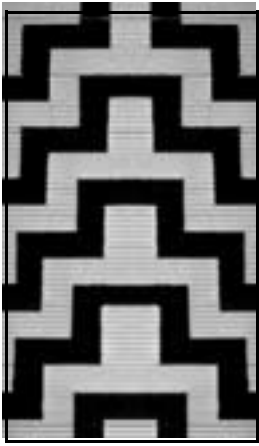
Abstraction and symbolism, to the point where the human element is difficult to recognise, represents the interfusion of the spiritual and temporal life of the Maori.*

This pattern was dedicated to the war-god, Tumatauenga. By placing the pattern upside down, we obtain the (*military*) chevron, signifying promotion in rank (the kaokao sentiment of "discernment, decision and design"). Prior to setting out on a war expedition, all the warriors were made to step on a takapau (*mat*) with the kaokao pattern, to inspire them. The open armpit distinguishes the warrior (*signifying a raised arm ready for battle*). The closed armpit, the weak and frightened one huddled in fear.**

Waamu or Mumu and Whanganui Mumu

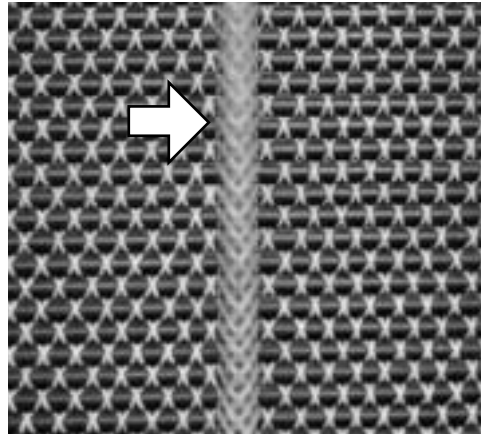
Almost a draught-board effect of patterns arranged to produce a diagonal sequence and (*sometimes*) used with purapura whetu, kaokao, poutama, roimata... designs. A mumu gives a lightening and pleasing effect to an otherwise dark recess. The Whanganui people brought out the mumu to advantage by dividing the panel into three equal vertical sections, and by the judicious employment of the above patterns, made a great contribution to interior decoration. Their meeting house at Putiki, Te Pakuoterangi, is a striking witness to this. Its significance is that of combination; applied inter-tribally, it denotes inter-marriage between senior families.**





Background Information

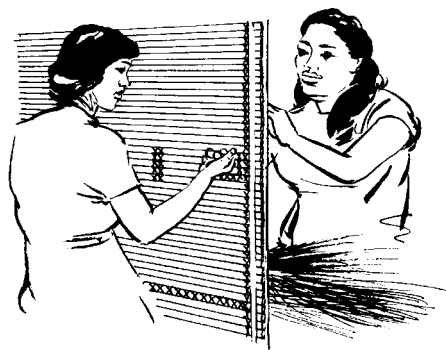
Tumat akahuki: *To bind in double or triple fashion*



This double or triple binding ensures extra strength and the accurate alignment of all materials horizontally, vertically, and diagonally. The tumatakahuki forms a decorative pattern along the outside edges and other divisions of a panel. In the days when all materials were fashioned by hand, the square and uniform level of the work depended upon a firm secure method of binding.**

Te Hono A Matuku-Tangotango:

When the end of a strand of kiekie has been reached, the new piece is attached by tying it to the end of the first strand at the back of the panel. The hono (a tying) of matuku-tangotango is employed. A slip-knot is fashioned in the new piece. This is slipped over the end of the old short piece, pulled tight against it and then tied. This has the effect of turning the joined piece back again so that the work is ready to proceed without apparent break.**



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Glossary

kowhaiwhai

scroll patterns often, although not always, painted on the ceiling rafters of a Meeting House

poupou

upright carved slabs forming wall structure inside Meeting House

wharekai

dining hall(s)

whare whakairo /

wharenui/whare

Traditional Maori (Carved) Meeting House(s)

Curriculum Links Te Anga Marautana O Aotearoa The New Zealand Curriculum Framework Te Reo Maori

WHENU: Matakītaki
(*Whakaatu*)

Koeke 1

Whaingā Paetae

Ka mau te akonga ko te tikanga o te reo ataata he whakawhiti korero.

Nga Pukenga

ko te tautu I nga tumomo reo-a-waha e hangai ana ki te reo ataata

Aro Matawai

Ka whakaaturia tana tohungatanga ki te

- tautu I te panga atu o te reo-a-waha ki nga tohu ataata;
- tautu I nga tohu a te Maori penei I te niho taniwha, te poutama;
- whakautu tika nga tohu mama.

Koeke 2

Whaingā Paetae

Ka marama te akonga ki te hononga o te reo ataata ki te reo-a-waha, mehemea ka puta ake I nga horopaki e taunga ana ia.

Nga Pukenga

ko te tautu I nga mohiotanga e tika ana kia mau e te akonga mai I nga reo ataata e whakaaturia ana ki te taha o te reo a waha

Aro Matawai

Ka whakaaturia tana tohungatanga ki te:

- whakamarama I te ahuatanga o te reo ataata;
- whakaputa reo-a-waha e hangai ana ki te ahua o te reo ataata

Koeke 3

Whaingā Paetae

Ka matakītaki, ka marama te akonga ki nga momo reo ataata, reo-a-waha, me te mohio ano ki te panga o tetahi ki tetahi.

Nga Pukenga

ko te auhatanga o te whakaaro reo ataata

Aro Matawai

Ka whakaaturia tana tohungatanga ki te:

- whakamarama I nga ahuatanga whai kiko, kaore ranei e whai kiko, o te noho tahi a te reo-a-waha me te reo ataata.

Koeke 4

Whaingā Paetae

Ka ahei te akonga ki te whakamarama I te ahua o nga panga o te reo ataata poto I takea mai I nga horopaki kaore ia e tino taunga ana.

Nga Pukenga

ko te whakatauriterite I nga mahinga reo ataata

Aro Matawai

Ka whakaaturia tana tohungatanga ki te:

- whakatau I te whaingā o tetahi mahinga reo ataata.

WHENU: Whakaatu
(*Matakītaki*)

Koeke 1

Whaingā Paetae

Ka taea e te akonga te whakaputa whakaaro (e pa ana ki ona hiahia I roto I tona ao) ki te reo-a-tinana me nga reo ataata.

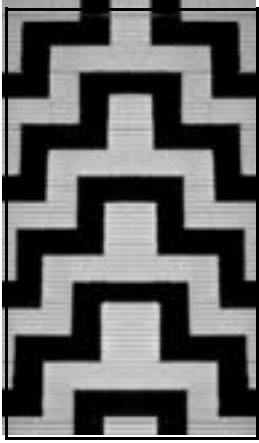
Nga Pukenga

- ko te whakapuaki whakaaro ki te reo ataata
- ko te tuhi reo ataata mama hei whakawhiti mohio

Aro Matawai

Ka whakaaturia tana tohungatanga ki te:

- tuhi, ki te hanga I nga tohu ataata e hangai ana ki te reo - a-waha
- whakaatu I nga tohu Maori



Curriculum Links

Koeke 2

Whaingā Paetae

Ka taea e te akonga te whakaputa reo-a-waha, reo ataata hoki e pa ana ki nga kaupapa e taunga ana ia.

Nga Pukenga

- ko te matau ki nga rereketanga o te reo ataata i te reo-a-waha
- ko te tautu i te putake o te reo ataata
- ko te hanga i nga ataata whakaniko i te reo-a-waha.

Aro Matawai

Ka whakaaturia tana tohungatanga ki te:

- whakawhiti mohio ki te reo ataata
- whakamahi i nga ahuatanga reo ataata hei whakaniko i te reo-a-waha
- whakaatu i nga whakaaro ki te reo ataata

Koeke 3

Whaingā Paetae

Ka taea e te akonga te whakamahi ngatahi te reo-a-waha me te reo ataata kia puta ai nga panga e hiahiatia ana.

Nga Pukenga

- ko te tautu i nga panga o etahi ahuatanga reo ataata
- ko te whakakotahi i te reo ataata me te reo-a-waha
- ko te tipako i te ahuatanga reo ataata e hangai ana ki te reo-a-waha
- ko te whakamahi i tetahi ahuatanga reo ataata e whai hua ai te korero.

Aro Matawai

Ka whakaaturia tana tohungatanga ki te:

- whakamahi i nga ahuatanga reo ataata mama
- whakataurite i nga hua o nga ahuatanga reo ataata

- whakamahi ngatahi i te reo ataata me te reo-a-waha kia whai hua ai te korero.

Koeke 4

Whaingā Paetae

Ka whakaatu te akonga i te reo ataata i nga horopaki huhua, a, e hangai ana te whakaaturanga ki te kaimatakitaki

Nga Pukenga

- ko te tipako i nga ahuatanga reo ataata e hangai ana ki te horopaki
- ko te tautu i te hangai o nga ahuatanga reo ataata ki te horopaki

Aro Matawai

Ka whakaaturia tana tohungatanga ki te:

- whakaatu reo ataata kia whai hua ai ki te hunga matakitaki Maori.

PANGARAU

Te Ahuahanga

Taumata 1

Whaingā Paetae

Te torotoro hangarite, panoni

I roto i nga horopaki whai tikanga, me mohio te akonga:

- ki te hanga, ki te whakaahua i nga tauira hangarite, tauira taruarua.

He Tauira Horopaki

- He ata tiro tiro i nga tauira tukutuku

He Tauira Mahi

- he hanga, he matapaki ahua e whai wahi mai ana he panoni (whakaatanga, hurihanga, nekehanga, whakaranga)
- he whiriwhiri, he hanga tauira hangarite

Aro Matawai

- He hanga tauira ki te riwai, ki te hopi, ki te kahupeka, ki te ukupoke ranei, ka mahi mai ai i etahi tauira taruarua, hangarite ranei.

Taumata 2

Whaingā Paetae

Te torotoro hangarite, panoni
I roto I nga horopaki whai tikanga, me mohio te akonga:

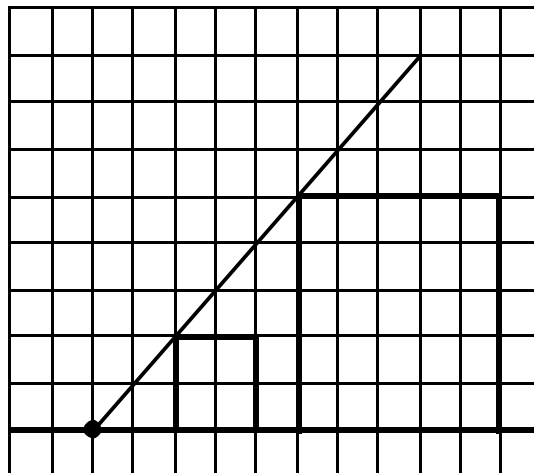
- ki te hanga, ki te whakaahua tauira ahua hanga taruarua (ka whakaatu I te nekehanga), tauira hangarite huri, hangarite whakaata ke ranei

He Tauira Horopaki

- He torotoro, he matapaki tauira hangarite, whakaata ranei I roto I nga tukutuku.

He Tauira Mahi

- he ata tiroiro I nga tauira I roto I nga tukutuku. Me ata mahi mai e nga akonga tetahi papa tukutuku hei whakairi ma ratou ki roto I te taiwhanga ako.
- he torotoro whakaranga mama, mai I tetahi tauira tukutuku. Hei whakatauiria:



Aro Matawai

He mahi mai I tetahi tauira tukutuku. Ahakoa he aha te momo, ko te mea nui ke kia hangarite te ahua, a, kia tika nga inenga.

Taumata 3

Whaingā Paetae

Te torotoro hangarite, panoni
I roto I nga horopaki whai tikanga, me mohio te akonga:

- ki te whakaahua tauira I runga ano I te ahua o te panoni, ara, he whakaatanga, he hangarite hurihuri, he nekehanga ke ranei
- ki te hoahoa, ki te mahi mai I tetahi tauira e whai wahi mai ana te nekehanga whakaata, te hurihanga ranei
- ki te whakanui I nga ahua mama ki te pepa tukutuku, kia hangai ai te rahinga ake ki tera kua whakaritea.

He Tauira Horopaki

- Hei whakatauiria, titiro ki te whenua, ki nga awa, ki nga pae maunga, ki nga pa kainga, nga Marae, nga wahi tapu o mua.

He Tauira Mahi

- Me mohio te akonga ki te whakaahua tauira I runga ano I te ahua o te panoni, ara, he whakaatanga, he hangarite hurihuri, he nekehanga ke ranei

(1) he whakamahi kupu e tika ana mo nga panoni, ara ko nga kupu penei I enei:

hangarite... rarangi... huri...
rite..... nekehanga... Puma u...
whakatitaha... pou pou...
whakahuapae

(2) he hoahoa tauira e whai wahi mai ana he nekehanga, he whakaatanga, he hurihanga ranei. Ko te wharenui tonu tetahi wahi pai hei torotoro i enei momo panoni- kei nga kowhaiwai, nga whakairo me nga tukutuku etahi tauira o enei panoni e mau ana.)

- Me mohio te akonga ki te hoahoa, ki te mahi mai I tetahi tauira e whai wahi mai ana te neketanga, te whakaatanga, te hurihanga ranei
- Me mohio te akonga ki te whakanui I nga ahua mama ki te pepa tukutuku, kia hangai ai te rahinga ake ki tera kua whakaritea;

(1) he whakanui I te ahua o tetahi tauira kua ata whakaritea hei whiriwhiri ma te akonga

Assessment

The teacher notes the extent to which the students understand the meanings of the Tūkotukū patterns they have explored in the course of the study.

Visual language: Presenting

Using static... images, students should:

- *present ideas using simple Tūkotukū designs*
- *use verbal and visual features to communicate ideas or stories using Tūkotukū patterns.*

Teaching and Learning

Context: exploring the interrelationship between dramatic, verbal, and visual features

- *The teacher and students collaborate in writing a story from a shared experience.*
- *The teacher and students select the main features of their story that can be portrayed in simple tūkotukū design.*
- *Individually or in small groups, students choose one of the main features, and using peg-board and raffia, create a tūkotukū design to reflect their choice.*
- *Captions are written for each design.*
- *Students arrange their work in sequence to build a class storyboard display.*
- *The teacher and students discuss how the story sequence is illustrated in tūkotukū patterns.*

Assessment

- *The teacher assesses the students' ability to retell the story and choose suitable images.*
- *The teacher observes the students during the activity and notes their participation, awareness, and understanding of how words and images relate to one another.*

Levels 1 - 2

Visual Language: Presenting

Using static images...students should:

- *use verbal and visual features to communicate information, ideas or narrative through tūkotukū pattern*
- *combine verbal and visual features to communicate information, ideas or narrative through tūkotukū pattern`*

Teaching and Learning

Context: a topic related to the locality

- *Students examine a range of tūkotukū patterns, and note features of language and presentation, such as layout and design.*
- *Each group of students is set the task of producing a group design to promote some significant feature of their locality to visitors.*
- *Students gather, collate, and assemble the necessary information ready for developing their presentation.*
- *The groups prepare their draft designs and discuss them with their peers for response in terms of suitability of the design and accuracy of information. Draft patterns are revised.*
- *Students create their designs and display them.*

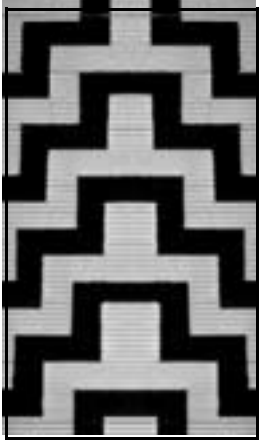
Assessment

- *The teacher and students examine the designs and assess them for effectiveness, coherence of organisation, layout, and suitability for the purpose.*
- *The teacher observes students' participation in the process and their understanding of the effects of visual language.*

Levels 3 - 4

Visual Language: Viewing

Reading visual... texts...



Curriculum Links

students should:

- *respond to and discuss meanings and ideas, identifying and describing the effects of and links between verbal and visual features*
- *respond to and discuss meanings, ideas, and effects, identifying the purposes for which the verbal and visual features are used and combined*

In achieving the objectives of understanding and using visual language, students should:

- *identify and discuss ways in which verbal and visual features can be combined for a particular purpose and audience*

Teaching and Learning

Context: a study of Tukutuku patterns

- *The class view a selection of Tukutuku designs.*
- *Students listen to explanations and stories associated with each design and note new vocabulary.*
- *Students discuss how these ideas and stories are conveyed through design form and colour.*
- *In groups, students select a Topic and/or Theme, and work together to produce a tukutuku pattern that will be presented to the class, showing the ways in which they have combined the visual and verbal elements to portray their Topic/Theme.*

Assessment

- *Group presentations are assessed for evidence that important verbal and non-verbal features have been identified and explained.*

Mathematics in the New Zealand Curriculum Geometry

Level 1

Achievement Objectives

Exploring shape and space:

Within a range of meaningful contexts the students should be able to;

- *identify, and describe in their own language, the following 2-dimensional and 3-dimensional shapes: triangle, square, oblong, pentagon, hexagon, diamond...*

Exploring symmetry and transformations: Within a range of meaningful contexts, students should be able to;

- *create and talk about symmetrical and repeating patterns*

Learning Experience:

Exploring symmetry and transformations; Students should be:

- *designing and talking about tukutuku patterns*
- *exploring ways of fitting shapes together to cover surfaces (tessellations)*
- *Finding within tukutuku patterns and then talking about pairs of objects, where one is an enlargement of the other.*

Assessment

While students are sitting back to back in pairs;

- *using mosaic shapes, one partner creates a simple tukutuku pattern and describes it. The partner makes the model pattern based on the instructions given.*

Level 2

Achievement Objectives

Exploring symmetry and transformations:

Within a range of meaningful contexts, students should be able to;

create and talk about geometric patterns which repeat, or which have rotational or reflection symmetry

Learning Experiences

Exploring symmetry and transformations: Students should be;

- *exploring and creating tukutuku patterns involving translation, reflection, and rotational symmetry using a variety of manipulative equipment/materials.*

Assessment

- *Students use the language of geometry to describe the distinguishing features of tukutuku patterns they have made;*
- *identify shapes that have both rotational and reflectional symmetry*
- *identify symmetry in shapes they make while playing whai (string games)*

Level 3

Achievement Objectives

Exploring symmetry and transformations: Within a range of meaningful contexts, students should be able to;

- *describe patterns in terms of reflection and rotational symmetry, and translations;*
- *design and make a pattern which involves translation, reflection, or rotation;*
- *enlarge on grid paper simple shapes to a specified scale.*

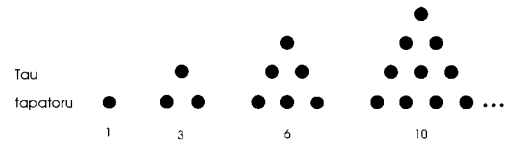
Learning Experiences

Exploring symmetry and transformations: Students should be;

- *designing tukutuku patterns which involve translation, reflection, or rotation ;*
- *showing the enlarging or reducing of shapes to a specified scale within their tukutuku design.*
- *tessellating quadrilaterals, triangles, and regular polygons.*

Assessment

- *Students demonstrate translation, reflection, or rotation by making a tukutuku pattern using an image of their own choice, perhaps from local history.*
- *Students enlarge an image within their tukutuku pattern by a specified scale such as 2 or 1/2. They describe any features that they have not changed after the enlargement.*



Level 4

Achievement Objectives

Exploring symmetry and transformations: within a range of meaningful contexts, students should be able to;

- *apply the symmetries of regular polygons;*
- *describe the reflection or rotational symmetry of a figure or object*

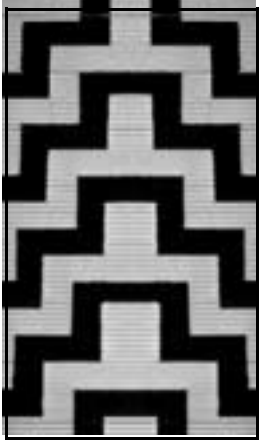
Learning Experiences

Exploring symmetry and transformations: students should be;

- *describing the symmetry (reflection and rotational) in tukutuku, taniko and kowhaiwhai patterns.*

Assessment

- *Students design and make a tukutuku pattern, involving translations and reflections and using, an image of their choice as the basic motif.*



Pre-visit
Post-visit

Pre-visit Activities

- Daily Storytime; using pictures/photos/drawings, retell the stories and interpretations of tukutuku designs in this Resource beginning with the Roimata Toroa pattern.
- stories that are retold by pupils/students are recorded on tape.
- use printing techniques (potato, lino, screen) to create their own design: for the story behind the Roimata Toroa pattern or a story of their choice.
- use sticky coloured paper to create patterns.
- use maths equipment (cuisenaire rods, attribute blocks, plastic shapes) to create patterns. Leave work on display for the day so that others may view.
- use grid-sheets of various unit sizes and felt or coloured pencils to create designs.
- use an etching technique to create a pattern on a clay-slab to make a Tukutuku Tile.

Post-visit Activities

- As a class or in small groups or as individuals, brainstorm impressions of the tukutuku panels on display at the Museum. Use this as a focus for a class display.
- discuss and describe the differences between the old and new tukutuku panels in Hotunui.
- use small pieces of peg-board and raffia so that each child can create their own pattern. Use larger pieces for group work. Each child or group must be prepared to tell the story behind their design.
- stories are taped and made available while viewing the tukutuku designs created by each story-teller.
- stories are published and used with taped version and created designs to form either a display (class, Library, School Entrance foyer) or a Big Book to add to the School collection.

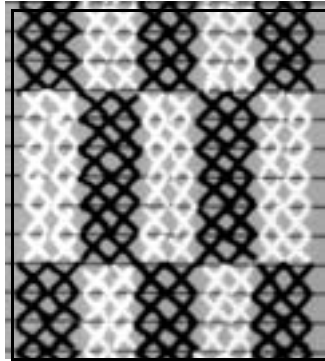
SEE ALSO CURRICULUM LINKS FOR MORE IDEAS AND LESSON OUTLINES.

Auckland Museum Worksheet

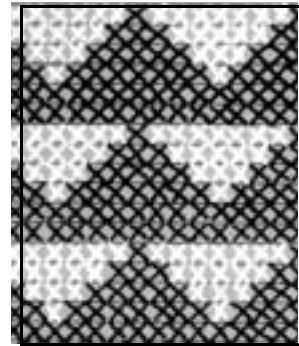
The Tukutuku Panels of Hotunui

The following are examples to help you in your observations of the tukutuku panels in Hotunui.

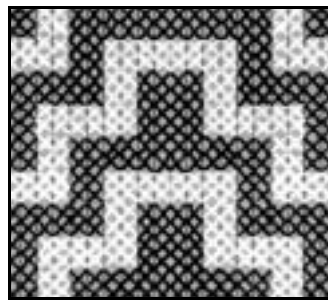
LOOK CLOSELY!



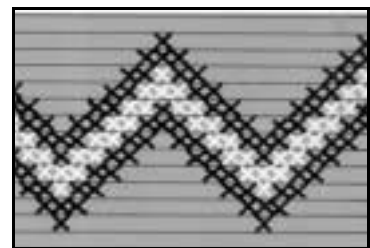
Roimata Toroa
Albatross Tears



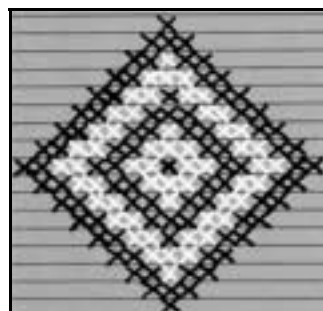
Niho Taniwha
Dragon Teeth



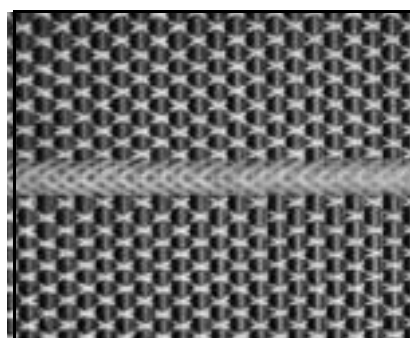
Poutama
The Stairway To Heaven



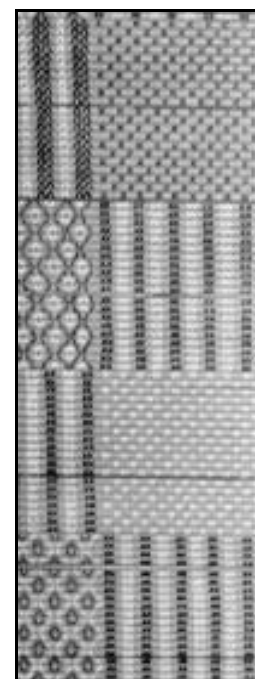
Kaokao
Ribs-Armpit



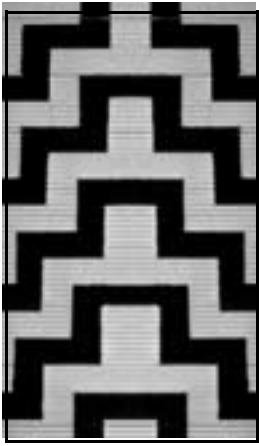
Pat iki
Flounder



Purapura Whetu
Myriad of Stars



Mumu
Draughts-board



Activity sheet

Auckland Museum Worksheet

The Tukutuku Panels of Hotunui

Draw a line to match each word with the correct panel.
Use the doorway as a point of reference to find the correct tukutuku panel.

Three panels have been completed for you.
LOOK CLOSELY!

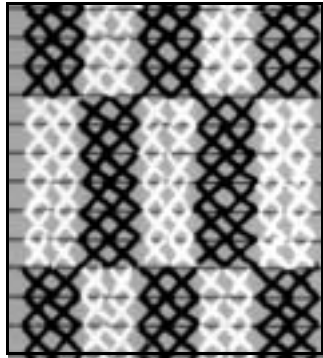
Tukutuku panels

Tukutuku panels

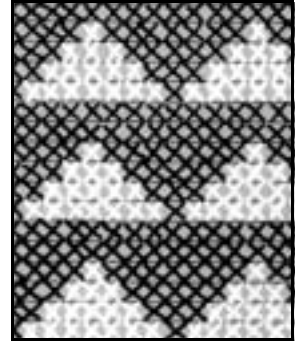
Te Papa Whakahiku He Wharangi Mahi Nga Mahi Tukutuku o Hotunui

Anei e whai ake nei, etahi tauira hei awahina I a koe I roto I to tirotirohanga ki nga mahi tukutuku o Hotunui.

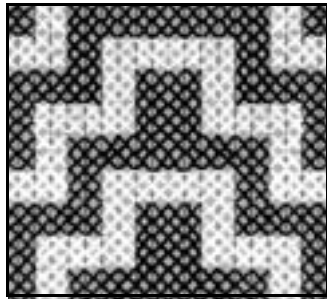
ATA TITIRO!



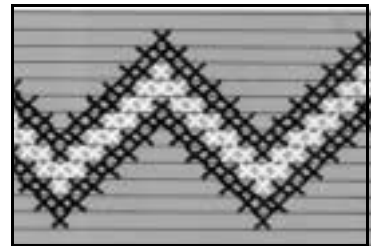
Roimata Toroa



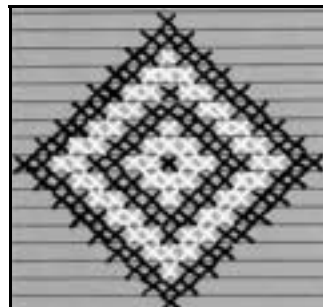
Niho Taniwha



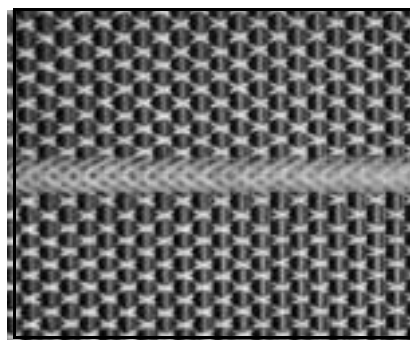
Poutama



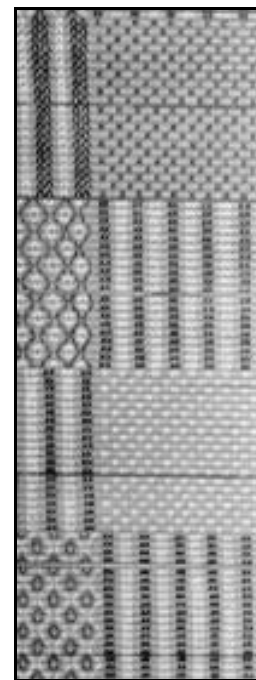
Kao kao



Pat iki



Purapura Whetu



Mumu

Te Papa Whakahiku He Wharangi Mahi Nga Mahi Tukutuku o Hotunui

Tuhia tetahi rarangi mai i te kupu tika ki te mahi tukutuku tika. Mai i te kuaha o te wharenuui, kia kimihia te mahi tukutuku tika.

Kua oti nga taurira e toru, mau.

ATA TITIRO!

Tukutuku panels

Tukutuku panels

