

Kowhaiwhai Tuturu Maori



EDUCATION KIT
Auckland Museum





Introduction

Kowhaiwhai Tuturu Maori

Index

<i>Introduction</i>	1
<i>Background Information for Teachers</i>	2
<i>Curriculum Links</i>	9
<i>Pre-Visit Activities</i>	18
<i>Post-Visit Activities</i>	18
<i>Activity Sheets</i>	19

He Korero

Whakatuwheratanga

I waihangatia tenei rauemi mo te mahi tukutuku I te whakaaetnga 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. He pai ano tenei ma nga akoranga ropu matua.

Anei e whai ake nei nga whaingapaetae tika mai I nga wahanga kaupapa e hipokina atu I te Anga Marautanga o Aotearoa: ko Te Reo Maori, te Pangrau, English, Mathematics (Koeke / Taumata 1 - 4).

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 Maori, Total Immersion, Bilingual, Kohanga Reo schooling initiatives and delivery in mainstream classes. The resource incorporates appropriate achievement objectives from the Curriculum Statements: Te Reo Maori, Pangarau, English, Mathematics (Levels 1-4).



Background Information

Background Information For Teachers

Description : Design Analysis
 Kow hui hui are beautiful patterns that appear as painted scroll designs, abstract and curvilinear in form. At first, kow hui hui patterns can be viewed as a means of decoration only, but closer examination reveals sophisticated mathematical precision involving symmetry, rotation, reflection and translation.

The **koru** or **pit au** is the most basic design element of kow hui hui.

These curving stalks with bulbs at one end bear a striking resemblance to the young succulent shoot of a native fern.



The koru, the basic design element of kow hui hui.

After the **koru** or **pit au**, the next main motif of kow hui hui is the crescent or **kape** which is characterised by a line of evenly placed white circles indenting the convex outer edge of the crescent.



Positive composite in white (left) can act as a negative template to define the outline of the crescent form (right).

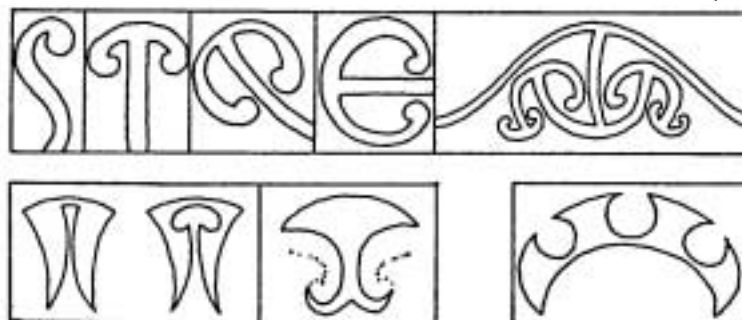
The **koru** or **pit au** and the **kape**, make up the full list of basic kow hui hui motifs. It is significant to note that when used in various combinations these two motifs are capable of generating incredible depth and variety in design.

Application

The technique of application, although an ancient one, is never-the-less still used by contemporary artists in their work. It is probably more a way of thinking than a method of applying a design. The design, as far as possible is carried in the artist's head.

It is mentally projected in total onto the timber and then the projection outline is drawn in by freehand. It is probable that outlining was done with charcoal in pre-European times, and that colours were then painted on with brushes of feathers, hair or flax fibres.¹

Before painting commenced, the surface of the wood was sized with sap expressed from the Poroporo shrub (*Solanum aviculare*).²



Top: Elaboration of koru to produce branching scroll designs.

Bottom left: Kow hui hui motifs defined by negative form of koru. Bottom right: Crescent-shaped element of kow hui hui.

Group 1. Translation only.



Group 2. Glide reflection.



Group 3. Vertical reflection. (From the photograph)



Group 4. Half turn.



Group 5. Half turn and vertical reflection.



Group 6. Horizontal reflection.



Group 7. Horizontal and vertical reflection.



These examples are provided to show the breadth of creativity in the art form and to illustrate the inherent mathematical characteristics of kowhaiwhai design.



Background Information



Poroporo shrub.

The colours red, black and white are often the only colours that appear in kowhaihai patterns. Any departure from this limited colour range is the exception rather than the rule.

Red was obtained by mixing red ochre with shark-liver oil. Karamea and takou are ochreous earths that were roasted and burned before use. Kokowai and horu are names of an ochreous sediment deposited by certain streams.

Black paint was made by mixing shark oil with powdered charcoal obtained from certain resinous woods.

For white paint, taioma or pipeclay was burned then pulverised and mixed with oil.³ European contact brought with it the introduction of new materials such as pencils, chalk, paper, card, cloth and commercial coloured paints to name but a few. One wonders how much of the retention of kowhaihai patterns in template form and the development of kowhaihai design as an art form, is owed to the introduction of these materials.⁴

Storytelling and Comparisons

Stories that explain the origin of kowhaihai all share one thing in common. That kowhaihai is portrayed as an art form secondary in status and importance to that of wood-carving (whakairo) and tattooing (ta moko).

When kowhaihai is compared to wood-carving and tattooing, several contrasts are apparent. Apart from the obvious differences of application and dimension, kowhaihai is regarded as a temporary measure, useful for immediate purposes but not of lasting value, requires no special ritual of initiation, no formal training and is considered to be a common (noa) activity and therefore, can be carried out by anyone. Such freedom to explore and create is not enjoyed in the art forms of wood-carving and tattooing. One oral account from Ngati Kahungunu, traces the origin of both wood-carving and kowhaihai. It tells us that:

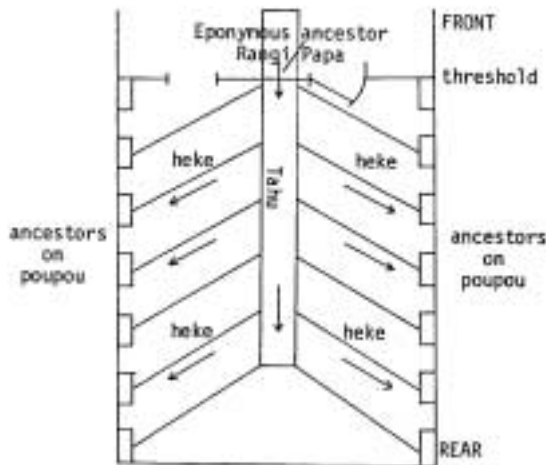
When Whiro, Haepuru and Haematua climbed up to the second heaven to obtain carvings for their house, they were told by one of the gods that the art of decorating houses with woodcarvings had already been taken away by their younger brothers. Whiro and his two friends complained to the god that they could not go begging to their younger brothers for the art, so the god showed them how to embellish a house with painted designs, 'painted it is said with red ochre, blue pigment, white clay and charcoal'. Whiro and the others then descended and adorned their own house with painted designs.

Best (1982:287-8...)

Locations and Association

As an art form, kowhaihai is distinctively Maori, most often seen on the meeting house ridgepole (tahu or tahuhu) and on the rafters (heke).

The ridgepole runs the full length of the ceiling, from the front apex of the bargeboards that enclose the porch, through to the rear wall of the house. The rafters descend at regular intervals from the centre ridgepole, down to the top of each carved sidewall post (poupou). The ridgepole and rafters are considered standard locations for kowhaihai although designs can also be found on other facing boards in the house and on the surrounds of tukutuku panels and windows. Patterns painted on the ridgepole will most often represent tribal genealogy. The main line of descent, beginning with the founding ancestor, is depicted as a single continuously flowing pattern. On the rafters, patterns depict diverging branches of descent.



The meeting house as a genealogical plan.

While these are the most likely places to find kowhaihai patterning today, in the past designs also appeared on monuments and mausoleums, on calabash water vessels, on

paddles and on the underside of canoe prows.

The fact that kowhaihai is used to depict tribal lineage on the house ridgepole and rafters reveals that, although considered to be of lesser importance to woodcarving and tattooing, kowhaihai never-the-less carries with it connotations and associations of "authority by descent (genealogical mana)".⁴



Another example that illustrates the correlation between kowhaihai and that of inherited power and authority is the use of incised kowhaihai patterns on gourd water vessels owned by those of high-birth. Gourds belonging to commoners were left plain. Other gourds cut lengthwise to form an open oval bowl and said to be used to receive the afterbirth of a high-born baby, were similarly decorated with kowhaihai patterns.

The link between the gourd plant (hue) and kowhaihai patterns is well illustrated in the proverb; **He kawai hue, he kawai tangata. (Human pedigrees are like the runners of a gourd plant).**

Richard Taylor (1855:155)

Historical Transition

The oldest known examples of kowhaihai are the patterns painted on paddles. These paddles are extremely rare, found only in Museum collections throughout the world. They



Background Information

number in total, about twenty-two, dating from pre-European to later nineteenth century.

When we consider that kowhaihai patterning was probably brought here on paddles and on the underside of the canoe prow, it is logical to conclude that originally kowhaihai had more maritime links than with house construction.

Exactly how and why kowhaihai developed to become more and more a part of house design and construction is perhaps answered in the gradual decline of the war canoe (*waka taua*) as a means of transport and as a symbol of prestige.

In pre-European times, the war canoe was viewed as the main symbol of tribal identity, unity and pride. The erosion of its symbolic function coincided with the growing popularity of the meeting house as the new symbol of tribal prestige and unity.

"The kowhaihai painting that had been used on paddles and war canoes already carried the connotations of inherited authority and genealogical mana, so it was clearly a logical step to transfer this connotation to the new symbol of [kin-group] identity emerging in the form of the meeting house."⁵

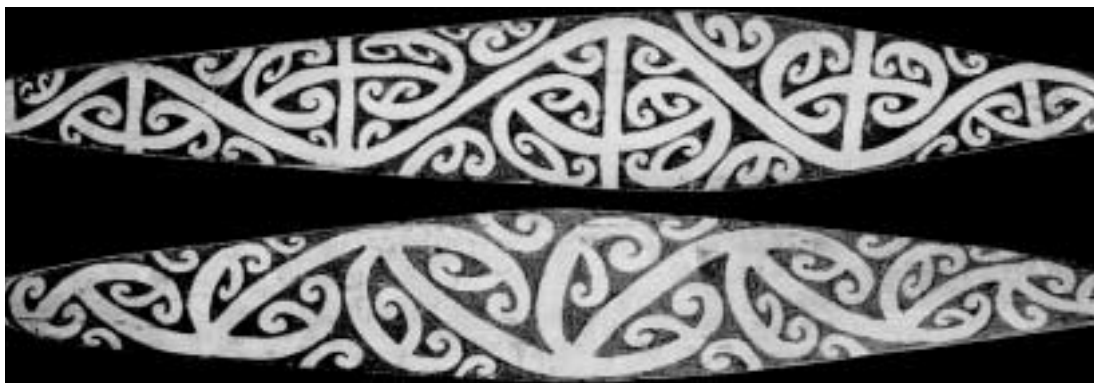
Design Interpretation

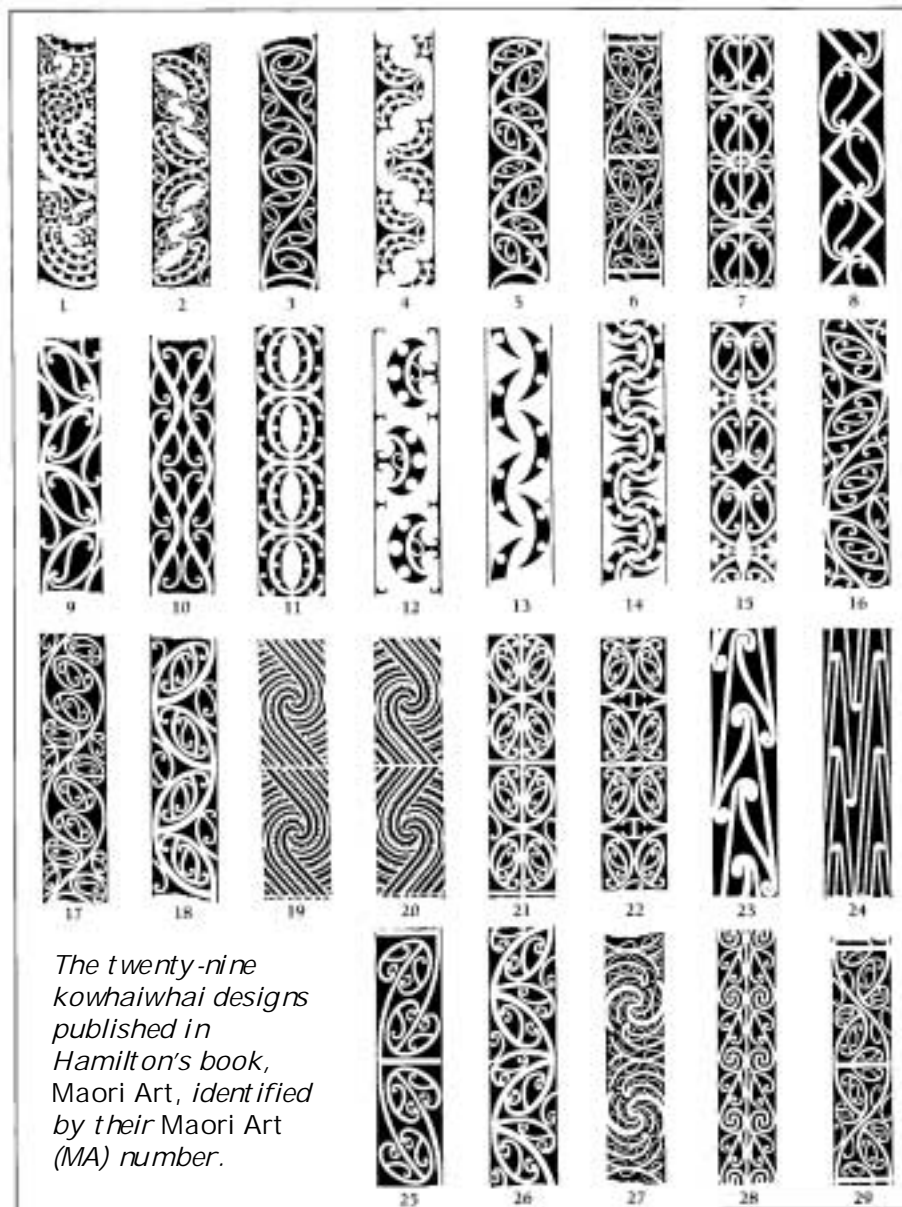
Design names are mostly descriptions from nature although similarities between a pattern and the actual form after which the name is taken cannot always be easily seen. In most cases patterns are named after an animal, fish or plant and any resemblance is derived from a prominent feature of the animal, fish or plant.

"... kowhaihai painting [is] the most formalised, most highly structured and most non-representational of all Moari types of painting ..."⁶

The following patterns and their corresponding names and meanings help to show that the link between pattern and real life form is tenuous. See p.7 for pattern illustrations.

1. **Te Pitau-a-Manaia** - relates to the manaia figure in carving;
2. **puhoro** - bad weather, stormy, method of rolling sails ... maritime associations, perhaps indicating that the primary use of the puhoro design was its application to the underside of war canoe prows
3. **mangopare** - hammerhead shark
4. **kowhaiwai kape rua** - two eyebrows, two parts left out
5. **kowhai ngutu kura** - red lips or red beak





6/17. mangotipi - mango houtu, mangoroa, mangowaharua, paremango - variants all related to mango or shark

16. koiri - bend or sway

7/8/9. kowhai ngutukaka - the scarlet *Clant hus*, also known as the 'red kowhai', 'parrot's bill', or 'kaka's beak', a drooping shrub with curved brilliant red flowers

10. patiki - flatfish or flounder

15. rautawa - leaf of tawa, a large forest tree

15. Rauru - relates to the Rauru spiral of woodcarving

19. Maui - relates to the carving feature called 'the hook of Maui'



Background Information

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Footnotes

- 1 Neich, Roger "Painted Histories" p 54
- 2 Neich Roger "Painted Histories" p 26
- 3 Neich, Roger "Painted Histories" p 24, 26.
- 4 Neich, Roger "Painted Histories" p 54
- 5 Neich, Roger "Painted Histories" p 38
- 6 Neich, Roger "Painted Histories" p 73
- 7 Neich, Roger "Painted Histories" p 29

Glossary

- ata whiriwhiri-a-ropu:** discuss
- ataata:** image
- ahuatanga:** feature(s)
- hangai:** appropriate
- hangarite:** symmetry - symmetrical
- hangarite hurihanga-hangarite**
- hurihuri:** rotational symmetry
- hangarite whakaata:** reflection - symmetry
- hoahoa:** plan
- hononga:** connection - relationship
- horopaki:** context
- hurihanga:** rotation - revolution
- kahupeka:** linoleum
- ka taea te mahi:** construct - constructed
- korowai:** tessellation
- korowai ahua rite:** semi-regular tessellation
- korowai rite:** regular tessellation
- matapaki:** discuss
- matau:** know - be acquainted with - understand - feel certain of
- mokowa:** space - spatial
- nekehanga:** translation
- ngatahi:** together as one
- panga:** relationship - effects
- panoni:** transform - transformation
- papangarua:** sewing fabric
- pumau:** fixed - constant - permanent - invariant
- reo ataata:** visual language
- reo-a-waha:** verbal language
- takai takoha:** gift wrapping
- taparau rite:** regular polygon
- taruarua:** repeating
- tauirā:** pattern - formula - model - example
- tauirā ahuahanga:** geometric pattern
- tauirā ahuahanga taruarua:** repeating geometric pattern
- tautu:** define - identify
- tautuhi:** define - identify - specify (in written form)
- torotoro:** explore
- whai wahi:** involving
- whakaahua:** describe
- whakaatanga:** reflection
- whakaatu:** present - show - point out
- whakaaturanga:** presentation
- whakaaturia:** call attention to
- whakamahi:** set to work
- whakamarama:** explain
- whakamatau:** make to know - teach - to trial
- whakamatautau:** test - trial - to try
- whakaniko:** enhance
- whakapuaki:** utter - disclose
- whakaputa:** communicate
- whakarahinga:** enlargement
- whakaraupapa:** put in order
- whakatau:** mime
- whakatauriterite:** compare
- whakautu:** respond - reply



Curriculum Links

Te Reo Maori I roto I te Marautanga o Aotearoa

WHENU:Matakitaki

Whaingā Paetae

[K.1]Ka mau te akonga ko te tikanga o te reo ataata he whakawhiti korero.

[K.2]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.

[K.3] Ka matakitaki, ka marama te akonga ki nga momo reo ataata, reo-a-waha, me te mohio ano ki te panga o tetahi ki tetahi.

[K.4]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

[K.1]ko te tautu I nga tumomo reo-a-waha e hangai ana ki te reo ataata

[K.2]ko te tautu I nga mohiotanga e tika ana kia mau I te akonga mai I nga reo ataata e whakaaturia ana ki te taha o te reo-a-waha

[K.3]ko te tautu I te hononga o te reo ataata ki te reo-a-waha

[K.4]ko te whakatauriterite I nga mahinga reo ataata

Aro Matawai

Ka whakaaturia tana tohungatanga ki te:

Koeke 1:

- tautu I te panga atu o te reo-a-waha ki nga tohu ataata.
- tautu I nga tohu a te Maori penei I te mangopare, te ikatere ...

Koeke 2:

- whakamarama I te ahuatanga o te reo ataata
- whakamarama I nga rereketanga o te reo-a-waha I te

reo ataata.

- whakaputa reo-a-waha e hangai ana ki te ahua o te reo ataata.

Koeke 3:

- 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:

- whakatau I te whaingā o tetahi mahinga reo ataata
- whakamarama I nga panga o nga tino ahuatanga e kitea ana I te reo ataata

WHENU:Whakaatu

Whaingā Paetae

[K.1]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.

[K.2]Ka taea e te akonga te whakaputa reo-a-waha, reo ataata hoki e pa ana ki nga kaupapa e taunga ana ia.

[K.3]Ka taea e te akonga te whakamahi ngatahi te reo-a-waha me te reo ataata kia puta ai nga panga e hiahiatia ana.

[K.4]Ka whakaatu te akonga I te reo ataata I nga horopaki huhua, a, e hangai ana te whakaaturanga ki te kaimatakitaki.

Nga Pukenga

[K.1]

- ko te tuhi ataata mama hei whakawhiti mohio.

[K.2]

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

[K3]

- ko te tautu I nga panga o etahi ahuatanga reo ataata
- ko te whakakotahi I te reo



Curriculum Links

- 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
- [K.4]
- ko te tipako I nga ahuatanga reo ataata e hangai ana ki te horopaki
 - ko te whakaatu I te reo ataata e Maori ana te titiro
 - ko te tautu I te hangai o nga ahuatanga reo ataata ki te horopaki

Aro Matawai

Ka whakaaturia tana tohungatanga ki te:

Koeke 1:

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

Koeke 2:

- whakawhiti mohio ki te reo ataata.
- whakamahi I nga ahuatanga reo ataata hei whakaniko I te reo-a-waha.
- whakautu I nga whakaaro ki te reo ataata.

Koeke 3:

- 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:

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

Pangarau I roto I te Marautanga o Aotearoa

Te Ahuatanga

Nga Whaingā Paetae

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

[T.1]ki te hanga, ki te whakaahua I nga tauira hangarite, tauira taruarua

[T.2]ki te hanga, ki te whakaahua tauira ahauhanga taruarua (ka whakaatu I te nekehanga),tauira hangarite huri, hangarite whakaata ke ranei

[T.3]ki te hoahoa, ki te mahi mai I tetahi tauira e whai wahi mai ana te nekehanga whakaatanga, te hurihanga ranei

[T.4]ki te whakaahua I te hangarite whakaata, I te hangarite hurihuri ranei o tetahi ahua, taonga ranei

He Tauira Horopaki

[T.1]

Nga Tauira I Roto I Nga Mahi Toi- he ata titiro I

- nga tauira kowhaiwai (puhoro, mangopare, kowhai ngutukaka)

- nga tauira tamoko

[T.2]

- *Tangaroa* - nga ahua e kitea ana I te taha moana, ara, nga anga, nga kota, nga toka, nga ngaru.

- *Tane Mahuta* - He ata tiroiro I nga tauira taruarua I roto I te taiao (nga rau o te rarauhe, te ahua o nga rakau, nga rau, nga putiputi...)

[T.3]

- *Kori Tinana* - ti-rakau roa
- *Kapa Haka* - waiata-a-ringa, waiata-poi, haka taiaha, haka mere...

[T.4]

- *Nga Rohe-a-Iwi, a-hapu* - Hei titiro ki nga awa, ki nga roto, ki nga pae maunga, ki nga pa kainga, nga marae...

- *Te Pitau* - Me pehea te hanga pitau?

He Tauira Mahi

Anei etahi tauira mahi e taea ai nga whaingā paetae o tenei taumata te whakatutuki:

Taumata 1

Me mohio te akonga ki te



hanga, ki te whakaahua I nga tauira hangarite, tauira taruaru;

- hanga, he matapaki ahua e whai wahi mai ana he panoni (*whakaatanga, hurihanga, nekehanga, whakarahinga*)



- he whiriwhiri, he hanga tauira hangarite

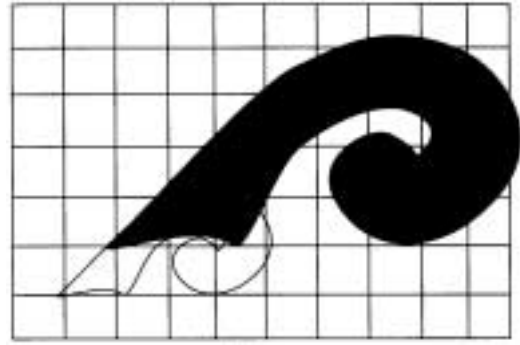
Me mohio te akonga ki te huri haurua, huri hauwha I tona ake tinana, I etahi atu taong hoki.
he whiriwhiri huringa haurua, hauwha ranei I roto I nga mahi kapahaka, huakori tinana, aha ke ranei.

Taumata 2

Me mohio te akonga ki te hanga, ki te whakaahua tauira ahuhanga taruarua(ka whakaatu I te nekehanga), tauira hangarite huri, hangarite whakaata ke ranei;

- he hanga, he matapaki I nga tauira ahua taruarua, whakaata ranei;
- he ata tiroiro I nga tauira I roto I nga kowhāwhāi, whakairo. Me ata mahi mai e nga akonga tetahi papa kowhāwhāi hei whakairi ma ratou ki roto I te tawhanga ako;
- he torotoro whakarahinga. Hei

w hakatauirā:



Taumata 3

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;

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

Me mohio te akonga ki te hoahoa, ki te mahi mai I te tetahi tauira e whai wahi mai ana te nekehanga, te whakaatanga, te huritanga 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;

- he whakanui, he whakaiti ranei I te ahua o tetahi tauira kua ata whakaritea hei whiriwhiri ma te akonga;

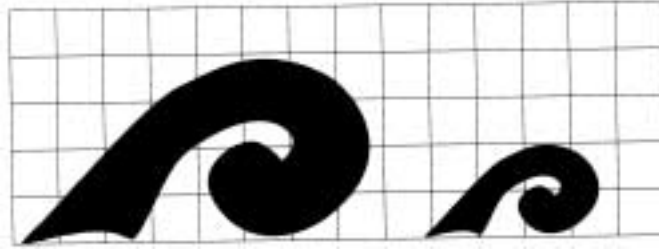
Me mohio te akonga ki te whakaahua I te hangarite





Curriculum Links

whakaata, I te hangarite hurihuri ranei o tetahi ahua,



taonga ranei;

- he whakaahua hangarite (whakaata, hurihuri) e kitea mai ana I roto I nga tauira, (penei I te kowhaiwai, I te takai takoha, I nga tauira papanga...
- he torotoro I nga korowai rite e toru, I nga korowai ahua rite ranei e waru, ka taea te mahi mai ki nga taparau rite (tapatoru, tapawha, taparima...)

Me mohio te akonga ki te whakanui, ki te whakaiti ranei I tetahi ahua ahu-2, ka tautuhi ai I nga ahuatanga pumau

He Tauira Aro Matawai He tauira noa enei hei awhina I te kaiwhakaako:

Taumata 1:

- Me mahi takirua nga akonga, ka tuhi whakaahua tetahi, ka whakaahua ai I tana I tuhi ai ki tana hoa, me te whakamahi ano I nga kupu ahuahanga e tika ana. Ko ta tana hoa, he tuhi I te mea e whakaahuatia ana. Ki te toka a raua mahi, ka orite te ahua o a raua tuinga.
- He hanga tauira ki te riwai, ki te hopi, ki te kahupeka, ki te ukupoke ranei, ka mahi mai I etahi tauira taruarua, hangarite ranei

Taumata 2:

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

Taumata 3:

- *Ko te marae. Me ata whiriwhiri-a-ropu nga ahuatanga hangarite o roto I te wharenui.*

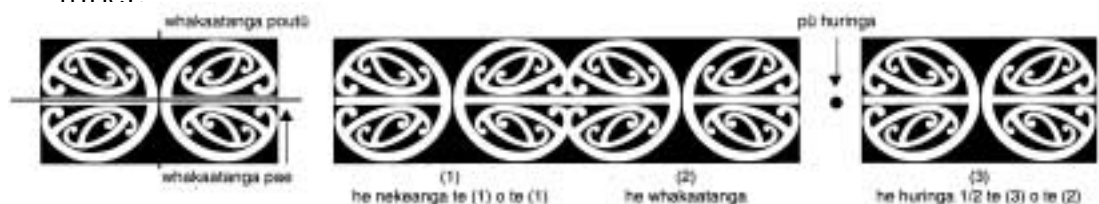
(1) Ma ia akonga e whakaatu, e whakamarama tetahi tauira ki tana ropu;
 (2)Ka mahi takirua nga akonga. Ka ata tuhi te akonga I tetahi haurua noa iho o tetahi tauira kua kitea e ia. Ko ta tana hoa, he whakaoti I taua tauira I runga ano I te ahua o nga whakamarama mai a te akonga nana I timata te whakaahua. Me whakaatu e te kaituhi mehemea he whakaatanga, he hurihanga, he nekehanga ranei te panoni e hiahiatia ana hei whakaoti tika I tana tauira haurua.

- He hanga tauira ki te rorohiko. (Ko te "Logo" te pumanawa rorohiko e whakamahia whanuitia ana.)

Taumata 4:

He hoahoa, he hanga:

(1)takai takoha, papangarua ranei e whai wahi mai ana tetahi hangarite hurihanga e toru ke nga hurihanga o roto, me tetahi nekehanga;
 (2)kowhaiwai e whai wahi mai ana he nekehanga, he whakaatanga (penei I te mangopare, I te ikatere,...).



English In The New Zealand Curriculum
LEVELS 1 and 2 CURRICULUM LINKS

Visual Language: Viewing
Achievement Objectives
Reading visual ... texts ...
students should:

- respond to meanings and ideas ... identifying and describing the ... visual features

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

- understand that communication involves ... visual features which have conventionally accepted meanings
- show an awareness of how ... images can be combined to make meaning
- view and use visual texts to gain and present information, become familiar with and use appropriate technologies, ... to present ideas

Teaching and Learning
Context: In a study of kowhaiwai patterns, the class:

- visits the Auckland Museum, where students view and discuss the kowhaiwai patterns of Hotunui, the carved Meeting House.
- makes a collection of illustrations and photographs of kowhaiwai patterns for display in a learning centre throughout the duration of the study.
- discusses the ways kowhaiwai patterns are presented and how meanings are conveyed.
- learn about and become familiar with concepts and

terms associated with kowhaiwai design (e.g. puhoro, mangopare, kowhai ngutukaka, patiki ...).

Assessment

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

Visual Language: Presenting
Achievement Objectives
Using static ... images, students should:

- present ideas using simple kowhaiwai designs
- use ... visual features to communicate ideas or stories using kowhaiwai patterns.

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

- understand that communication involves verbal and visual features which have conventionally accepted meanings.
- view and use visual texts to gain and present information, become familiar with and use appropriate technologies, ... to present ideas.

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 or alternatively, one could be chosen from Moari storytelling. Other possibilities could mean choosing a haka, waiata-a-ringa, waiata-poi and/or play as the study focus.



Curriculum Links

- The teacher and students select the main features of their study focus that will be portrayed in simple kowhaiwhai design.
- Individually or in small groups, students choose one or more of the main features, and using either pencil, crayon or paint, create a kowhaiwhai pattern to reflect their choice.
- Captions can be written for each pattern.
- Kowhaiwhai patterns are arranged so that they reflect the sequence of the main events as they occur in the study focus.
- The teacher and students discuss how the story sequence is illustrated in kowhaiwhai patterns.

Assessment

- The teacher assesses the students' ability to retell the study focus story-line 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.

Mathematics in the New Zealand Curriculum

Geometry

Achievement Objectives

Exploring symmetry and transformations

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

[L 1] create and talk about symmetrical and repeating patterns.

[L 2] create and talk about geometric patterns which repeat (show translation), or which have rotational or reflection symmetry.

Suggested Learning Experiences

Level 1

Students should be:

- using appropriate maths equipment and/or art materials, to view, talk about and design kowhaiwhai patterns which involve transformations: **t**urning over (reflecting), **t**urning around (rotating), **m**oving without **t**urning (translating), **e**nlarging;
- using a variety of maths equipment (jig-saw puzzles, coloured blocks, beads and shapes ...) to explore ways of fitting shapes together to cover surfaces (tessellations, tessellating);
- finding image pairs, where one is the enlargement of the other, within kowhaiwhai patterns;
- making and talking about pairs of objects, where one is the enlargement of the other.

Level 2

Students should be:

- using a kowhaiwhai motif, to explore and record the results of turning it over (reflecting) and around (rotating, both clockwise and anticlockwise);
- exploring and creating kowhaiwhai patterns involving translation, reflection and rotational symmetry;
- using grid paper of various unit sizes to explore ways of covering surfaces with regular shapes (tessellating);
- using the overhead projector and/or playdough to explore the enlargement of shapes and objects.

Sample Assessment Activities

Level 1

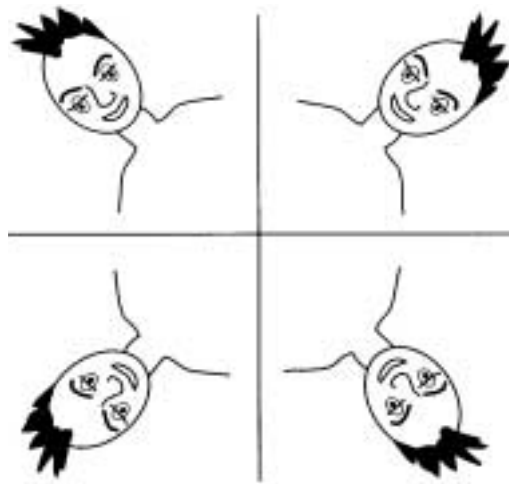
While students are sitting back to



back in pairs, each with an identical set of kowhaihai motif stencils (*that have been prepared by the teacher*) one of the pair creates a pattern and then describes it. The partner then makes a copy of the pattern using the instructions given. The activity is concluded when both patterns are compared.

Level 2

- Students create a design which has rotational symmetry, using a kowhaihai motif template attached to a piece of paper by a drawing pin.



No. 14

- Using magazines, students make a poster which identifies shapes that have both rotational and reflection symmetry. First, selections are made, pictures cut out and pasted on to a large piece of paper and finally, lines of symmetry are drawn through each selection.

English In The New Zealand Curriculum

Levels 3 and 4 CURRICULUM LINKS

Visual Language: Viewing *Achievement Objectives Reading visual ... texts ... 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 using visual language, students should:

- identify important features of ... visual language and use them to create particular meanings and effects.
- identify and discuss ways in which verbal and visual features can be combined for a particular purpose and audience.

Teaching and Learning

Context: In a study of kowhaihai patterns, the class:

- views a selection of kowhaihai patterns.
- listens to explanations and stories associated with each design and note is taken of new vocabulary.
- discusses how these ideas and stories are conveyed through design, form and colour.
- while working in groups are able to select a Topic and/or Theme to produce kowhaihai showing the ways in which they



Curriculum Links

have combined 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 represented.

Visual Language: Presenting Achievement Objectives *Using static ... images, students should:*

- use ... visual features to communicate information, ideas or narrative through kowhaiwhai patterns
- combine verbal and visual features to communicate information, ideas or narrative through kowhaiwhai pattern.

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

- identify important features of ... visual language and use them to create particular meanings and effects.
- identify and discuss ways in which verbal and visual features can be combined for a particular purpose and audience.

Teaching and Learning *Context: a topic related to the local people and/or area.*

- Students examine a range of kowhaiwhai patterns and note features of presentation such as layout and design form.
- Working in small groups, students are set the task of producing a group design to promote some significant feature(s) of their local community / district to visitors.

- Students gather, collate and assemble the necessary information 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 designs are revised, changed and/or altered where necessary.
- Completed designs are displayed in a centre-of-interest created in either the classroom or school Library.

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.

Mathematics in the New Zealand Curriculum Geometry

Achievement Objectives *Exploring symmetry and transformations*

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

[L 3]

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



[L.4]

- enlarge and reduce a two-dimensional shape and identify the invariant properties.

Suggested Learning Experience

Level 3

Students should be:

- using mirrors and scissors to cut out kowhaiwai motifs to explore reflection and rotational symmetry;
- designing kowhaiwai patterns which involve translation, reflection or rotation;
- enlarging or reducing shapes on grid paper ... to a specified scale (e.g. 1/2, 2)

Level 4

Students should be:

- describing the symmetry (reflection and rotation) in kowhaiwai patterns
- exploring the three regular, and the eight semi-regular, tessellations constructed from regular polygons (equilateral triangles, squares, pentagons, hexagons, octagons and dodecagons)
- investigating properties of shapes ... that are or are not changed by enlargement (length, area, volume, angle size, shape and orientation)

Sample Assessment Activities

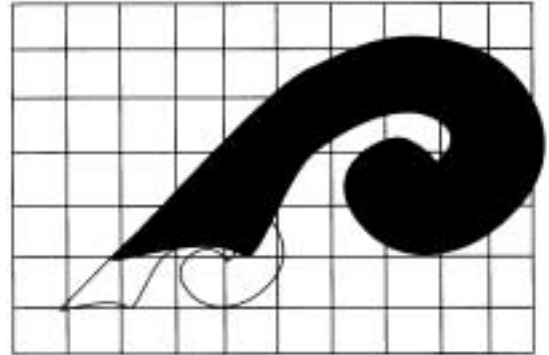
Level 3

Students choose ONE kowhaiwai motif stencil to trace around. They could make their selection from either those made by the teacher and/or those designed and made by the pupils themselves. Their task is to create a kowhaiwai pattern where their

single choice of motif is shown to be reflected, rotated and translated in their design.

Level 4

- Students enlarge on grid paper simple kowhaiwai shapes by a specified scale such as 2 or 1/2 and describe any features that have not changed after the enlargement.



- Students design and make a kowhaiwai pattern involving translations and reflections. Students choose either an insect, animal or fish to base their design on. Once the choice is made, an image is developed representing their choice. This image appears as the basic motif of their kowhaiwai pattern.



Activities

Pre-visit Activities

- Create a Kowhaiwhai Centre of Interest using photographs, drawings and pictures that display kowhaiwhai design and patterning.
- Storytelling that reinforces the idea that kowhaiwhai has connotations of family and ancestors are shared. Some suggestions:
"Kupe raua ko Ngahue" He Kohikohinga 7, 1993
"Whatonga raua ko Toi-te-Huatahi" He Kohikohinga 7, 1993
"Raukawa" He Kohikohinga 13, 1995
"Te Takenga Mai o Te Kumara Ki Aotearoa" Nga Tamariki Iti o Aotearoa, 1992
- Discussion at home with family members is encouraged to enable simple genealogy charts to be made.
- Using information shared at home about their family history or storytelling shared at school, students are encouraged to develop a kowhaiwhai stencil that would later be used as the basic design element in a kowhaiwhai pattern. These stencils can be made using either thick paper or thin card in A.4. size. After initial sketches on draft paper, the stencil outline is drawn on to the quarter that is revealed after the A.4. sheet is folded twice. The outline is then cut out so that FOUR identical stencils are produced.
- Stencils are reflected, rotated and/or translated to create kowhaiwhai patterns.
- Oral presentations are encouraged where patterns are displayed and the associated storytelling is re-told.

Post-visit Activities

- As a class or in small groups or as individuals, brainstorm impressions of the kowhaiwhai patterns on display at the Museum. These impressions are published for display in the classroom.
- A class survey is carried out to identify and collect examples of kowhaiwhai patterning in Logo designs e.g. Auckland Museum - Weird & Wonderful logo, Air New Zealand logo, Auckland City Council logo.
- The teacher and students collaborate in writing a story that reflects the school/class as a "big family" having ancestral ties that are as many and as varied as the members of the school/class.
- In groups or as individuals, students participate in creating a "Logo" for their class or school that is based on kowhaiwhai design elements.

SEE ALSO CURRICULUM LINKS FOR MORE IDEAS AND LESSON OUTLINES.

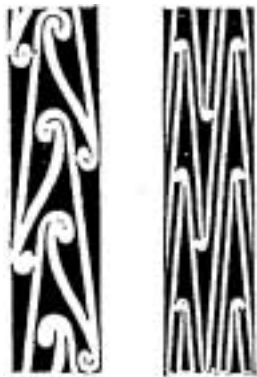
Auckland Museum Worksheet

The Kowhaiwhai Patterns of Hotunui

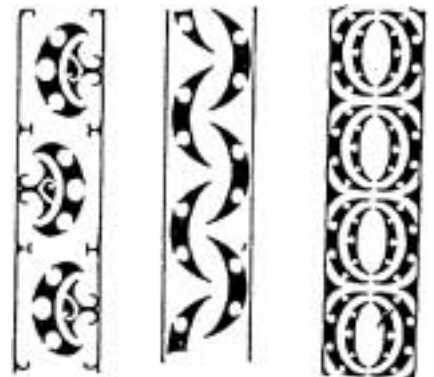
The following kowhaiwhai patterns have been put into six groups of similar styles. Match each of the kowhaiwhai patterns in Hotunui to a particular group of designs on this Worksheet. Keep track by entering the tally on the line beside each design group.

LOOK CLOSELY!

How many Group 1, 2, 3, 4, 5, 6, designs are there in Hotunui ?



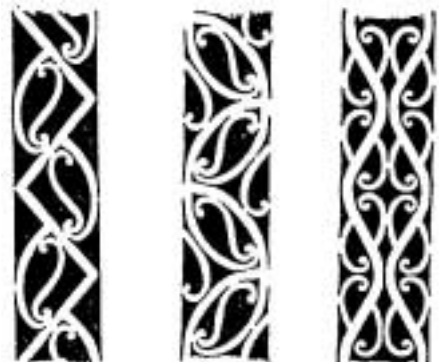
Group 1



Group 2



Group 3



Group 4



Group 5



Group 6



Activities

Te Papa Whakahiku. He Wharangi Mahi

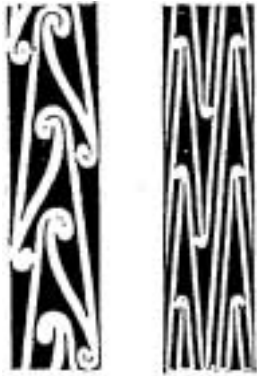
Nga Taura Kowhaiwhai o Hotunui.

Anei e whai ake nei, etahi roopu taura kowhaiwhai e ono. He ahua orite nga taura o ia roopu, engari, he rereke ia roopu.

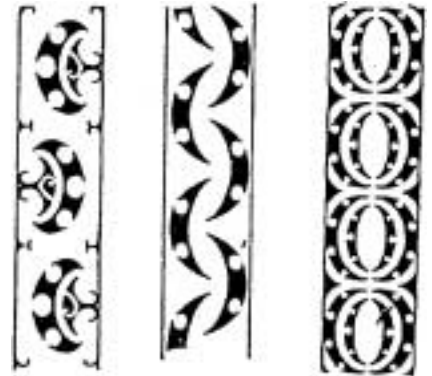
Kimihia nga mahi kowhaiwhai i roto i te wharenuui o Hotunui, kia taurite ki enei, nga roopu taura nei. Ki te haere pai, me tuhia he tohu kaute i runga i te raina i te taha o ia roopu taura.

ATA TITIRO!

E hia nga taura roopu 1, 2, 3, 4, 5, 6 kei roto i te wharenuui o Hotunui?



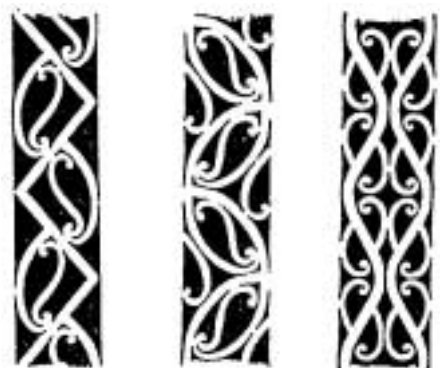
Group 1



Group 2



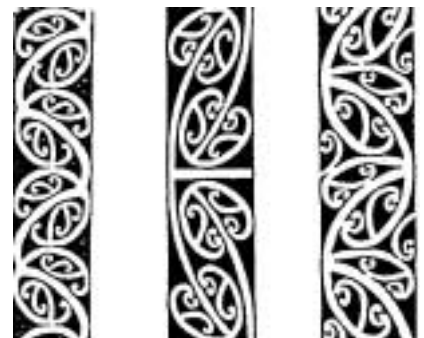
Group 3



Group 4



Group 5



Group 6



Auckland Museum

Te Papa Whakāhiko

Auckland Museum online:
<http://www.aucklandmuseum.org.nz>