

Grow
Waitaha

Tāwharau Shelter

We all require shelter from the environment.
What are our best options?

Focus

This set of resources supports ākonga to consider why we as a society have an increasing homeless population and how they live.

Students develop an understanding of the importance of the whare whakairo on the marae and plan a shared weekend experience for their families.

Horopaki Learning contexts

Choose a learning context:

Design and model

Shelter can provide cover, shade, and security. It can be a building, housing, or a tent, and it can be temporary or permanent.

Design and make

Temporary shelters have been used to house people after many natural disasters. Temporary shelters are also created by those that become homeless around the world.

Design and create

Shelter for Maori takes on many forms. The whare whakairo (carved meeting house) is typically a single large room with a pitched roof extending past the front wall to form an open porch.

3D modelling

Shelter can provide cover, shade, and security. It can be a building, housing, or tent. It can be temporary and permanent.

Links

[Technology in the New Zealand curriculum](#)
[Glossary of technological terms](#)

Elderly Kaumātua	Electric vehicles Waka hiko	Feed the team Whangāia
Health Hauora	Identity Tuakiri	Plastic Kirihou
Rubbish overload Tūwhiti rāpihi	Shelter Tāwharau	Transportation Waka
	Water Wai	

Keen to find more resources?

Go to the authentic curriculum resources on the Grow Waitaha website and select the Year 7/8 technology resources filter.

#growreallearning
#growcollaboration

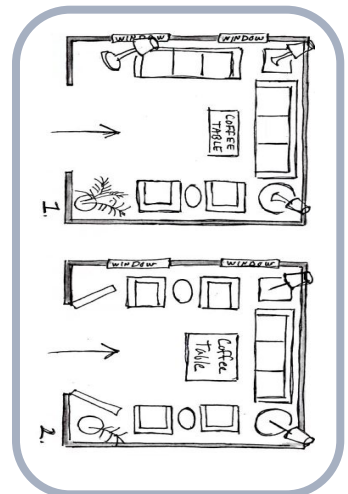
The Context/Horopaki: Shelter can provide cover, shade, and security. It can be a building, housing or a tent, and it can be temporary or permanent.

The Brief 1: Your family has decided to redesign a room to give everyone a better way of using the space. You are to talk with people in your family to identify their needs and how they want to use the space and design a fun and functional floor plan layout.

The Brief 2: You are to use cardboard and tape/glue to create a 3D model of the new layout designed in Brief 1. Create the model with a floor and at least two walls.

(WALT) We are learning to:

- sketch 2D-scaled drawings using the scale of 1:20
- create a 3D cardboard model of the chosen design.



Activity 1 Floor plan development

Added bonus—you have been gifted a new 70" TV.

1. Decide on the room. Talk with the others that will use the space to get their input, what they want the space to do, e.g. the couch facing the new TV. Make a list of ideas to use when designing.
2. Measure the room you are redesigning. Record these measurements. Measure and record your furniture as well.
3. Scale all your measurements for the floor plan, scale 1:20. This means dividing the actual room measurement by 20. There is also a [scale converter](#) below to help.
4. On A4 paper, sketch two possible floor plans to improve the use of the space, scaled 1:20.
5. Draw the overall sizes of the furniture onto card. Cut out the rectangular shapes that represent the furniture and trial these in different ways to make the room functional (useful for the things you want to do there).
6. Show the other stakeholders your designs and get their feedback.
7. Use the feedback to create a scaled drawing of your final design on A4 paper. Label the furniture.

An example

Your room is 5.5 m x 3.5 m
or 5500 mm x 3500 mm.

$5500 / 20 = 275 \text{ mm}$
 $3500 / 20 = 175 \text{ mm}$

Your floor plan will
measure 275 x 175 mm.

Activity 2 Making the 3D model

1. Using measurements from Activity 1, mark out the floor and at least two walls of the chosen room on cardboard. The height of the walls will be 2.4 m (= 120 mm when scaled down 1:20). Cut the card.
2. Watch the [video](#) on creating cardboard furniture below. Create cardboard models of your furniture, 1:20 scale. You can use old textile scraps/fabrics to improve the overall finish of the model.
3. You can paint the walls or use pens/pencils to cover the walls and glue.



4. Position the furniture in your cardboard model of the room.
5. Show the stakeholders and get feedback.
6. Take a picture of your model and send it with the final design plan to your teacher the furniture.

Material resources/Rauemi

Cardboard
Glue PVA, hot glue, or masking tape
Scissors
Craft knife/cutting board
Tape
Odd bits of textile/fabric to provide texture for the furniture items.

Digital resources/Rauemi

1. Scale converter
https://www.ginifab.com/feeds/cm_to_inch/scale_converter.html
2. Cardboard furniture
<https://www.youtube.com/watch?v=l03JnggdHEw>



The Context/Horopaki: Temporary shelters have been used to house people after many natural disasters—earthquakes, floods, fires, volcanic eruptions. Temporary shelters are also created by those who become homeless around the world.

The Brief 1: You are to plan and create a temporary shelter that will sleep two people in your lounge, using only household furniture, rugs, sheets, etc from your home (your bubble). It must be suitable for all conditions, hot and cold.

The Brief 2: You are to write a list of “must have attributes” for any future homeless shelters. If others have suggested good ideas, add theirs to your list of essential items.



(WALT) We are learning to:

- create a useful temporary shelter for two people out of everyday household items.
- identify the key attributes of a temporary shelter.



Activity 1 Create a temporary home

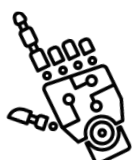
1. Watch the video clip below—“Transforming Trash into Incredible Tiny Homes”.
2. Clear an area in the lounge or family room.
3. Create a temporary structure using dining room chairs, a clothes rack, cardboard boxes, etc. It must be big enough to sleep two people.
NB: NO NAILS AND SCREWS ARE ALLOWED.
4. Cover the structure with rugs, bed sheets, etc. If you have a trailer tarp, use it to weather-proof your shelter.
5. Make some sketches of your shelter to show different ways that the space could be used. For example:
 - how to get in and out of the shelter (the door, window/s)
 - vents to keep it cool in the summer
 - spaces for a bed
 - storage of food, water, and clothes
6. Show the others in the house and have them comment on your sketches and your shelter design.

Activity 2 Planning ahead

1. Sleep overnight in the shelter you have made. You can use your mattress, pillow and bedding.
2. While in the shelter, write a list of at least 10 things that are essential to have in that space and the reasons for including them. Prioritise these, putting the most important items at the top of the list.
3. Write a brief description of your shelter. Make sure to answer these questions:
 - How can you make the shelter secure from the weather?
 - How will you keep things dry in your shelter? E.g. bedding, clothes ...
 - Where will you store your food?
4. Take a picture of your shelter. Send the picture, your list of items and your description to your teacher.

Digital resources/Rauemi

1. Small homes for the homeless
<https://www.youtube.com/watch?v=BxfRWBSI--4>



Material resources/Rauemi

Any useful household items such as: furniture, ladders, buckets, chairs, clothes racks, sheets, rugs, tarps, pegs to hold things in place, tape, ropes, a torch, water bottle.

The Context/Horopaki: Shelter for Māori takes on many forms. The **whare** whakairo (carved meeting house) is typically a single large room with a pitched roof extending past the front wall to form an open porch. The whare whakairo is a larger and more elaborate version of earlier house designs such as the wharepuni (sleeping house) and pātaka (storehouse).

The Brief 1: You are to research whare whakairo and find out who uses these buildings and how their interior walls tell a story. Using this information, you are to draw your own unique design that could be used as a tukutuku panel.

The Brief 2: You are to make a 3D model of a whare whakairo (meeting house).

(WALT) We are learning to:

- recognise the cultural importance of the whare whakairo and the significant role tukutuku panels play.
- create a 3D model of a whare whakairo.



Activity 1 Tukutuku panels

1. You are to research the purpose of a whare whakairo. Who uses them? How are they used?
2. The interior walls of the whare whakairo tell a story of its iwi. Tukutuku panels are positioned between the pou, and both these side wall posts and the panels are significant. Open digital resource #1 below. Look at the tukutuku designs and read about what they represent.
3. Draw your own tukutuku pattern. Use lined A4 paper and draw a large rectangle. Imagine the horizontal lines as the reeds. Give your design a title.

Notes

The **whare** itself is a representation of the eponymous ancestor (a person giving their name to something). The **poutokomanawa**—the inside centre post—represents a significant ancestor. The **tāhū**—ridgepole—is their backbone. The **heke**—ceiling rafters—are their ribs. The **heke lead**, as lines/blood lines, down to the pou. The **pou**—side wall posts—represent the ancestors.

Digital resources/Rauemi

1. Tukutuku patterns
<https://my.christchurchcitylibraries.com/puawaitanga-o-te-ringa/the-tukutuku-panels/>
2. Tukutuku patterns and mathematics
<https://nzmaths.co.nz/resource/tukutuku-patterns>



Activity 2 Whare whakairo

1. Create a 3D model of a whare whakairo. Begin by searching the internet to find pictures of one.
2. Sketch the different parts of the whare on cardboard. Cut them out. Cut a piece to form the floor that is 30 mm bigger than the whare.
3. Tape and glue the components together. Leave to dry. Paint or colour the details.
4. Add the front-facing panels and label them with their Māori names:
Koruru—carved face at the centre high point (representing the ancestor/tupuna)
Maihi—the diagonal bargeboards (arms)
Amo—upright carved figures on each side.
5. Take a picture to share with your class when you return to school.

Material resources/Rauemi

Cardboard for flat panels of whare
Glue PVA, hot glue, or masking tape
Scissors, craft knife and cutting board
Tape, pens, pencils, paint
Tissues—to clean up joints and the workspace

Remember

If you want to use a pattern from Pinterest, you need to cite it (acknowledge it correctly). Click through to the original item and use the citation provided. If there is no citation, use the title of the item and its URL.

The Context/Horopaki: Shelter can provide cover, shade and security. It can be a building, housing or tent. It can be temporary or permanent.

The Brief 1: *Work in pairs. Your whānau/families have the opportunity to spend time together outdoors after the lockdown has been lifted. Plan a camping weekend and build a low-cost shelter for a trip for your families. You are required to plan so that everyone can enjoy the time together.*

The Brief 2: *The younger members of the family have not put up a tent or tarp shelter before. You are to create a simple instruction sheet to help them to do so.*

(WALT) We are learning to:

- prepare a plan for a camping trip.
- create a step-by-step 'How to' guide for putting up a temporary shelter.



Activity 1 Plan a weekend away

1. Choose a partner to work with—this student can be from your class or a friend in another class. You are both to ask your families where they would like to go for a weekend get-away, e.g. beach, river, coastal, maybe in the backyard, on family farmland. Select which one will be best.
2. You are to research what essential equipment you would need, e.g. tents, tarps, flies, gazebos, BBQ, toilets. Make a list.
3. Ask your families what they already have that you could use as shelter. Tick off or add to your essential list. See if you can arrange to get any missing items from your extended families. Record who and what can help.
4. You are going to create and test a tarp shelter/fly. Watch video 2 and select one of the four methods for putting up a tarp shelter.
5. Put up a tarp shelter in your backyard.
6. Set up a sleeping bag on a ground sheet under the tarp. Leave it out overnight to test how waterproof it is.
7. Write a brief evaluation of your chosen method and identify how well the items stayed dry on a scale of 1–10. 1=wet, 10=dry.

Activity 2 How to put up a shelter

Part 1

1. You are to create a simple guide for younger children to follow when putting up a tarp shelter or tent.
2. Keep your instructions simple and not too wordy.
3. Use graphics to help explain what would otherwise take a lot of words to say.

Part 2

1. Create your own video of how to put up a tarp shelter/tent (max 2–3 minutes).
2. Video record yourself putting up the tarp shelter in your backyard.
3. Share the video with people in your bubble and get feedback.
4. Be prepared to share your video when you return to school.

Digital resources/Rauemi

1. Setting up a tent
<https://www.youtube.com/watch?v=tAFPLSfDEKs>
2. Four ways to set up a tarp shelter
https://www.youtube.com/watch?v=F-RIZGU2_kM
3. Tarp, prevention of ripping eyelets, plastic tarps
<https://www.youtube.com/watch?v=7E-r23PAKV0>
4. Bush tarp
https://www.youtube.com/watch?v=DbVErAQle_I

Material resources/Rauemi

Rope, tarp, hammer/mallet, pegs, rake, broom
Paper, pens, cellphone/camera.

