5

# A wharenui for your school

Imagine that your school has decided to build its own wharenui for the school community.

You are on the committee to help design the wharenui.
The area is to be fenced and landscaped.

You have been asked to come up with some ideas for the initial design.

The wharenui must have an ātea (verandah) with a courtyard in front of it and a separate whare paku (toilets etc).

The wharenui must face East and the whare paku must be at the rear of the wharenui.

If there isn't a suitable piece of land, choose a suitable size and shape for your wharenui and make a scale drawing of this.

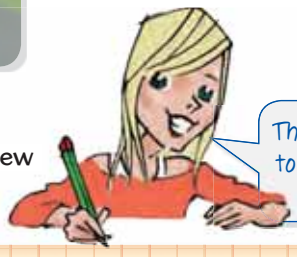
This task relates to chapters 1, 5, 6, 8, 11, 12, 13, 14, 16, 17

a Find an area of land either on your school grounds or nearby.
Measure it and make a scale drawing of the piece of land.
Draw the North line and put the scale on your drawing.

b Research how large the wharenui and whare paku should be to cater for the needs of your school.
Add the buildings, drawn to scale, on to your land scale drawing.
Put as many dimensions and angles as you can on your scale drawing.

c 

Work out the area and perimeter of the whole area and also of each building.
Write them on the drawing.
Use suitable units for each.



These views just need to show the outline of the shapes.

d Sketch a plan, side and front view of each of the buildings.

e Make a perspective or isometric drawing of the wharenui.

f The planning committee wants to make a model of the wharenui, whare paku and the area surrounding them to take to the council for approval.

Choose a suitable scale for making a model of the wharenui.

Draw a net and fold it up to make the building.


g Design the maihi for the front of the wharenui. Do this by researching the important motifs and designs of local iwi.

Translate, rotate, reflect, enlarge and/or tessellate your pictures or designs and put them onto your copy of the template of the maihi.

**maihi**

Explain in full what you have done to create your final design.

h Once the wharenui is built there will need to be a hui to celebrate.

Design an invitation to send out to the guests you would like to invite to the hui.

Include the use of transformations as part of your design.

Include a map and detailed directions on how to find the wharenui for out of town visitors. Make sure your map has a grid with numbers along each side so that you can give a four or six-figure grid reference for the entrance.

i Plan the menu for the hui.

Work out how much food would be needed and make a shopping list.

## 2 Face painting

Chapters this task relates to: 4, 5, 6, 9, 17

Rosa had a face painting stall at the school gala.

1 These were some of her designs.

A

B

C

D

E

F

G

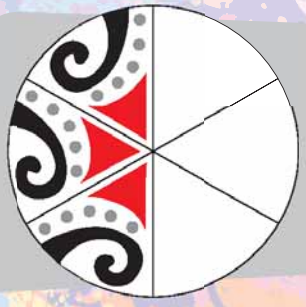
H

a Draw any lines of symmetry on your copy of the designs.

b Circle any designs or parts of designs that have rotational symmetry.

c Try to find examples of translation, rotation and reflection in the designs.

2



Rosa made this repeating pattern as a special design.
On your copy, draw the next **three** patterns of the design.

3 How much was Rosa paid for painting these?

a 8 full faces

b 9 part faces

c 3 special designs

d How much was Rosa paid altogether?

e Rosa estimated that she used two tubes of paint.
Each tube cost $6.
How much did the paint cost?

f How much money did Rosa have left after she paid for the paint?


4

I was paid $100 for 4 hours work.
The paint and brushes cost me $20.

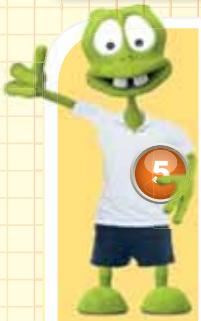
Rosa

a How much did Rosa earn for 4 hours work after buying the paint and brushes?

b How much did Rosa earn each hour?
Write an equation to record your answer.

5

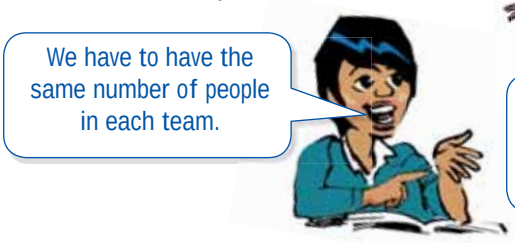
Design your own face-painting pattern.
Include some symmetrical parts and some repeating patterns.
Give your design to your partner.
Ask them to find any examples of symmetry or any repeating patterns.

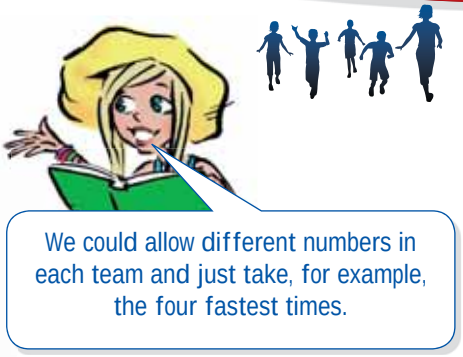


Chapters this task relates to: 1, 2, 3, 4, 11, 12, 16, 17, 18

# Top team

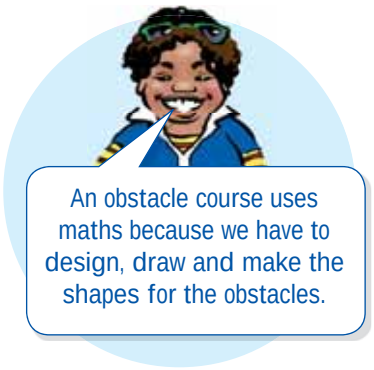

a Design a competition that teams of students from your school can enter.

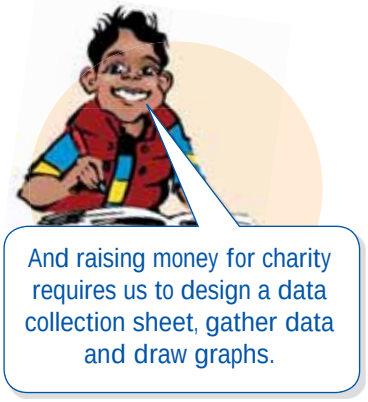



b Think of five interesting tasks for the teams to complete.

Make sure all of the tasks require you, as the organisers, to use maths to design them.



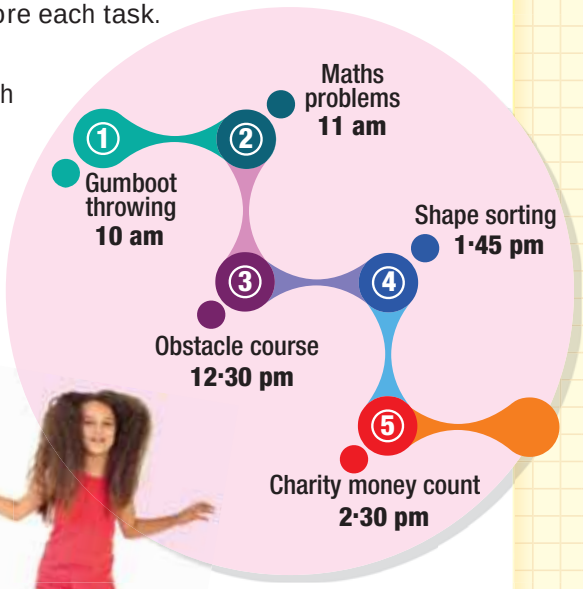





c Decide on each task and how you will score it. Write some notes about how maths was used by you to design or score each task.

d Write down the rules for each task for the teams to see.

e Decide on when and where the competitions will take place and write a timetable for this.




f Design advertising to attract entries into the competition.

g Make obstacles, write equipment lists, and instructions for the tasks etc, if you need to.

h Trial each task.

i Run your competition and collect data about the results.

j Draw suitable graphs and tables to display the results of the competition.

j Publish the results.