Trend Task: Shell Container

Approach:	Independent	Year:	4 & 8
Focus:	Generating and evaluating design		
Resources:	4 shells (same type and size), 4 rulers, 4 answer sheets		

Questions / instructions:

Show students a shell.

In this activity you are going to design a container for one of these shells. The container should be a good size for the shell, and it should be able to be opened and closed. Start by making two quick drawings or sketches of your ideas. Then choose one of your ideas for making a detailed plan for your container. Draw your plan so that if someone else used the plan, they would know exactly how the container is to be made. You will be working on your own.
Try to do your very best without getting help from the others in the group, and follow the instructions on your answer sheet.

Give each student an answer sheet, ruler and shell.
Ensure students work independently.

Student work sheet:

1. Make **two quick drawings** of your ideas for the container.
2. Draw a detailed plan for **one** of your ideas.
3. The container should be a good size for the shell.
   It should be able to be opened and closed.
4. The plan needs enough information to show someone exactly how it is to be made.

Which idea do you like best? Circle your answer: First Second

Now draw a plan for your best idea. Your plan needs to be clear so that someone else would know how to make the shell container.

Your plan should show:

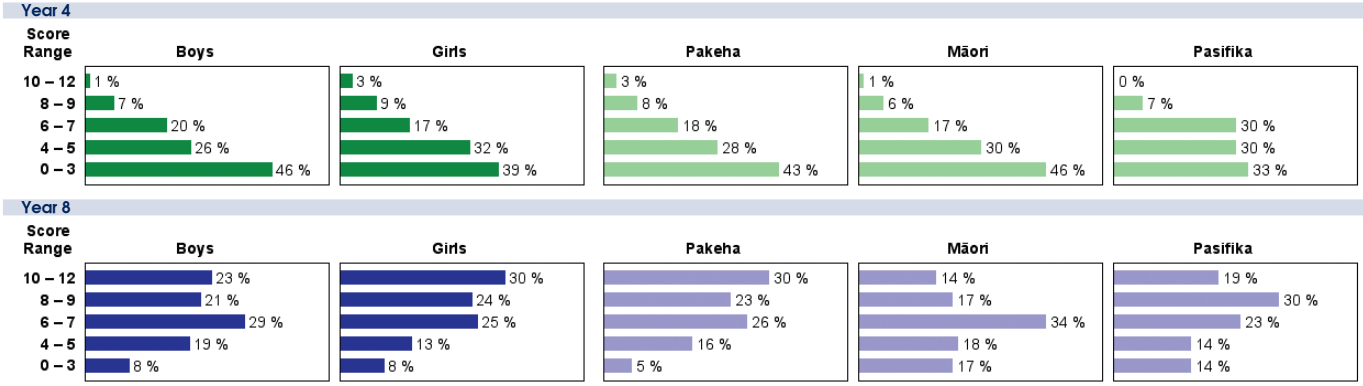
- The size and measurements of the container.
- What the container is made of.
- How the container is held together.
- How it opens and closes.

Put labels on your plan.

	% response 2008 ('04) year 4	year 8
Concept: included one or more conceptual drawings in addition to final plan	99 (99)	100 (99)
Plan included: 3D drawing and net	0 (1)	5 (11)
3D drawing	48 (44)	69 (59)
net	5 (6)	8 (20)
Shape of the container:		
special shape linked to shell shape	21 (26)	33 (42)
rectangular prism/shape	61 (57)	62 (53)
Is it possible to make a container from the plan? *(ignoring dimensions at this point)*		
yes, appropriate overlapping joins/tabs/seam allowance	1 (3)	9 (21)
yes, but with butt joins	28 (33)	61 (52)
Measurements included: *(including units)*		
sufficient to make container to size	3 (7)	31 (40)
some, but not sufficient	48 (63)	51 (42)
Measurements appropriate to size of shell *(base 7.5cm, height 7cm, sloping sizes about 9cm; can allow up to 2.5cm more for packing space.)* all	2 (2)	16 (22)
some	21 (33)	43 (44)
none	76 (65)	41 (34)

	% response 2008 ('04) year 4	year 8
Provided information on:		
material(s) for container	64 (86)	78 (82)
how container is held together	42 (57)	57 (71)
Clear where container opens and closes: yes, with details	8 (13)	28 (33)
yes, but without details	51 (51)	52 (53)
plan included a transparent "window" so the shell can be seen when the box is closed *(optional)*	7 (8)	11 (6)
Overall judgement of clarity and detail of plan for another person to make container:		
very good	0 (0)	5 (7)
quite good	2 (1)	22 (29)
key details missing or unclear	29 (51)	52 (45)
seriously inadequate	69 (49)	21 (19)
Total score: 10–12	2 (4)	26 (38)
8–9	8 (16)	22 (24)
6–7	19 (28)	27 (19)
4–5	29 (29)	16 (13)
0–3	43 (24)	8 (7)

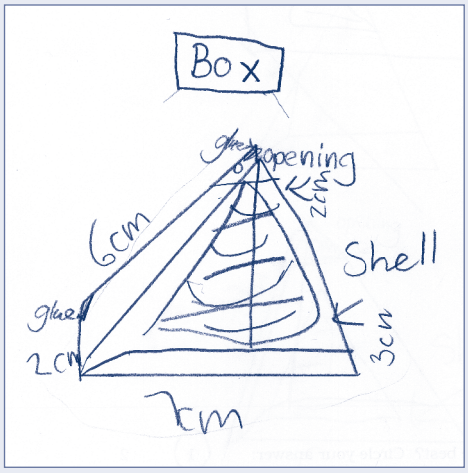
Subgroup Analyses:

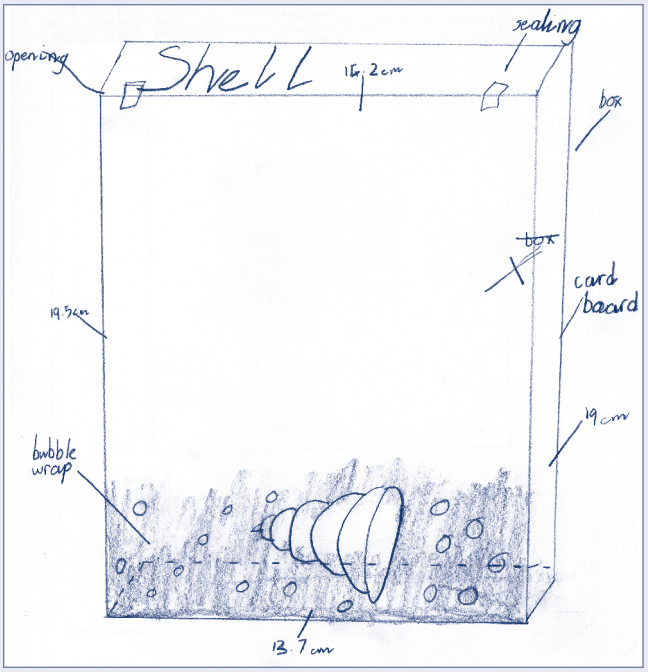


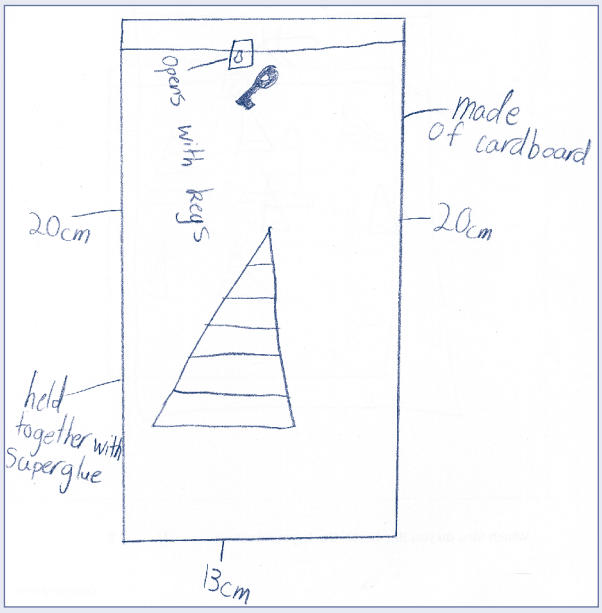
Commentary:

Strong growth from year 4 to year 8 was seen in this task involving generating and evaluating a design for a container. Year 4 students had particular difficulty in coming up with a thorough plan with good measurements of the dimensions. Pakeha, Māori and Pasifika students performed similarly at year 4; at year 8, Pakeha students performed better than Māori students. *[Exemplars overleaf.]*

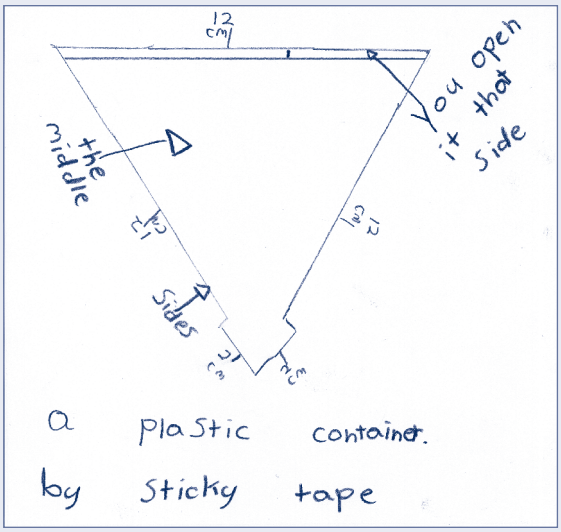
YEAR 4 : MID RANGE :

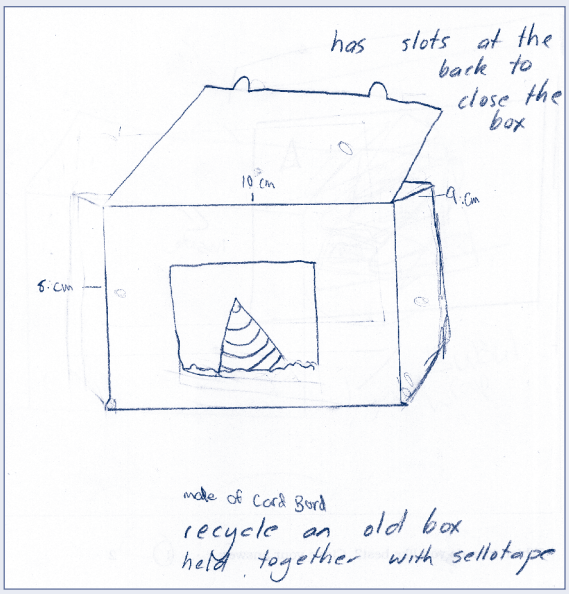


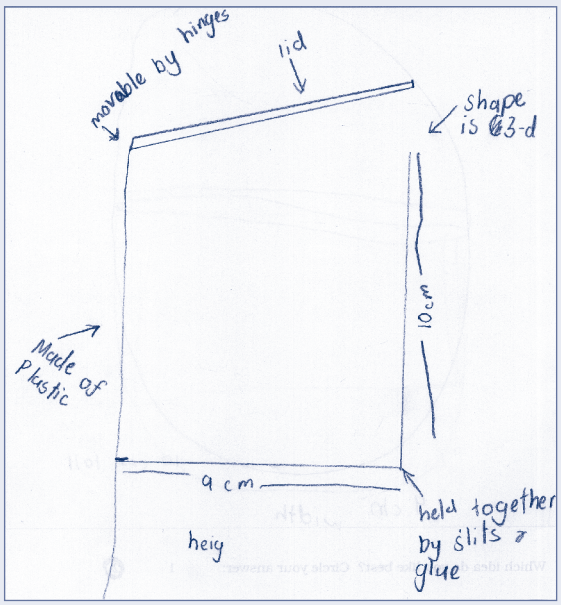




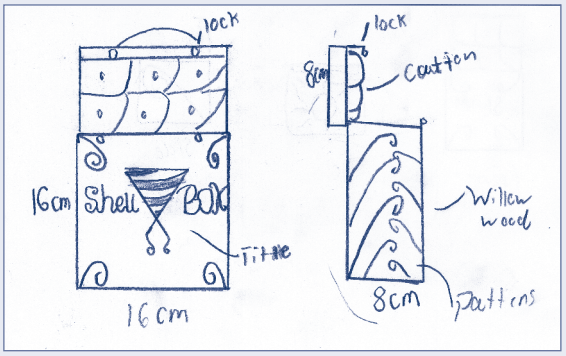
YEAR 4 : HIGH RANGE :

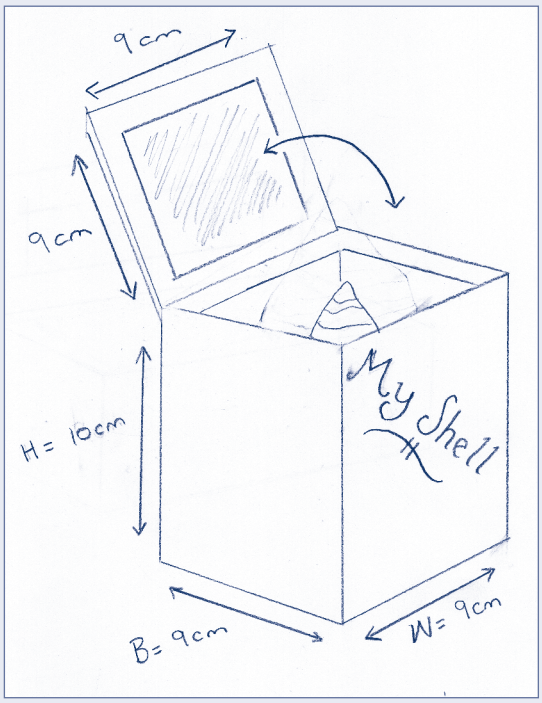


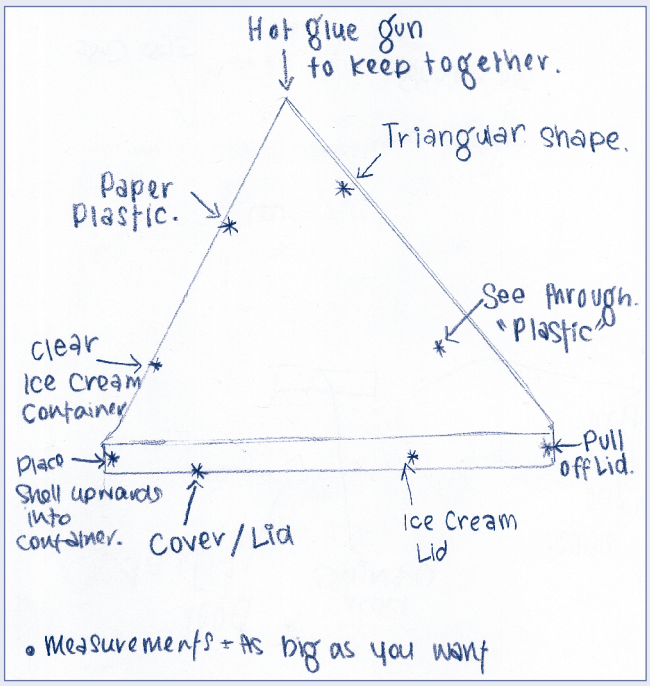




YEAR 8 : MID RANGE :







YEAR 8 : HIGH RANGE :