TASK 33

Granny's Rug

Equipment required:
- Task sheet
- Newspaper, scrap paper, rulers, tape measures, sticky tape.

TASK DESCRIPTION:

Pose the scenario: My granny bought a square rug for her hallway and each side measured one metre. When she got it home, it would not fit in the hallway, so she cut the rug up and joined the pieces together again to make the shape that would fit using all the rug. What might her rug look like now?

Make granny's original rug out of newspaper and work out the area and cut it up to make a rug that might fit. What does it look like and what is the area of the rug?

Draw a diagram of a number of different ways granny's rug might look like now, and write about what you did and what you found out.

MATHEMATICAL CONTENT:

- Area and perimeter

SNIPPETS FROM THE CLASSROOM

Students needed to use the newspaper to construct the different shapes as some found this a very challenging task, especially if they started with diagrams and then had to calculate the area when decimals were involved. Many of the work samples indicated their awareness of the need to create a long rug. They had difficulty in calculating the area or realising that the area would remain constant as the whole piece of paper was used but just arranged differently.

Scoring Rubric *Year 8 Focus*

Goes Beyond

- Generalises that the area of an enclosed shape remains the same when reconfigured, but can result in different perimeters. Similarly, shows an understanding that for a fixed perimeter, a shape can have different areas.

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4 

Task accomplished

- Three or more correct diagrams with clear explanation of the method used, and accompanying calculations are correct.
- Samples indicate an understanding that different configurations of the one shape have the same area but different perimeters.

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3 

Substantial progress

- Diagrams are correct and clearly labelled with measurements and there is a clear explanation of method used, but they haven't included the calculation or the actual area of the new rugs.

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2 

Some progress

- One correct diagram, but the calculation is incorrect or is of the perimeter of the new shape and not the area.

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1 

Little progress

- Realises the rug needs to be cut up and reconfigured in some way, but has little idea of how to calculate the area of the new shape. May attend to the perimeter rather than area.
- Not aware that the whole shape needs to be used.

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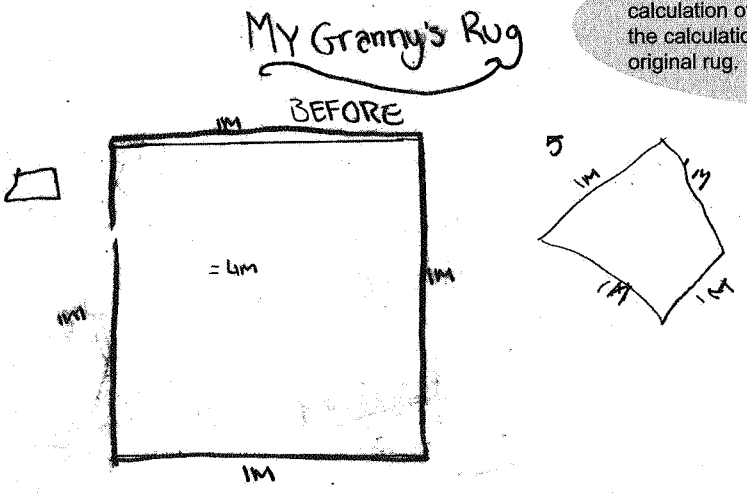
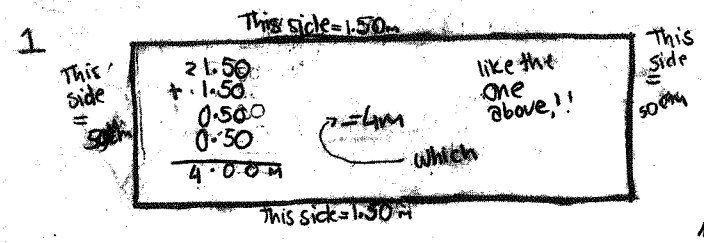
Samples include Year 5 and 6 work assessed according to Year 8 rubric.

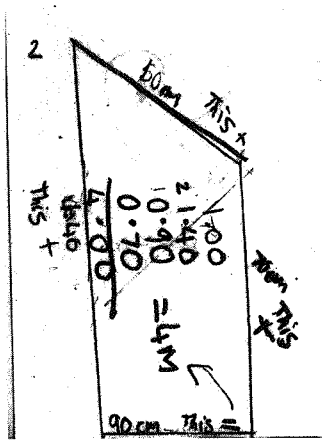
1

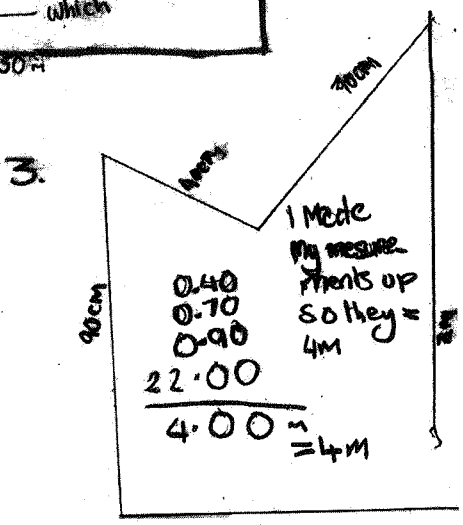
Little progress



This Year 5 student clearly attends to the calculation of the perimeter of the rug, but ignores the calculation of area and has not used all of the original rug.

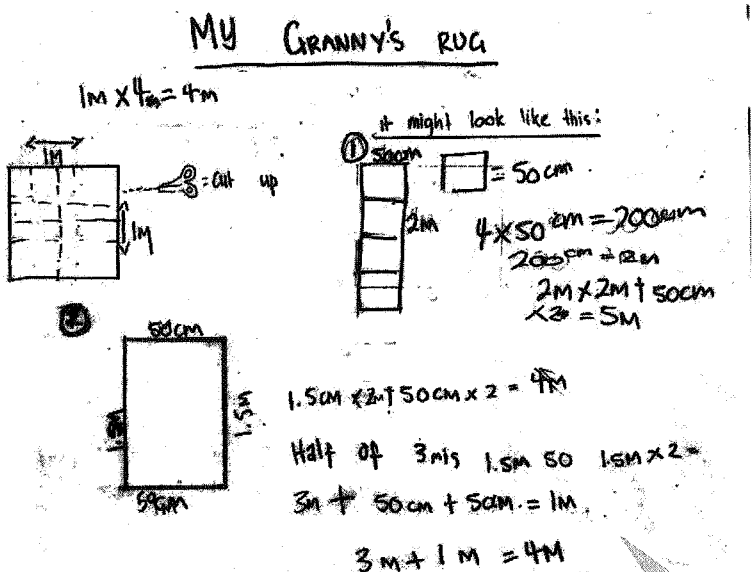






2

Some progress



This Year 6 student has some understanding of the process, but the calculations indicate some confusion between area and perimeter when calculating area.