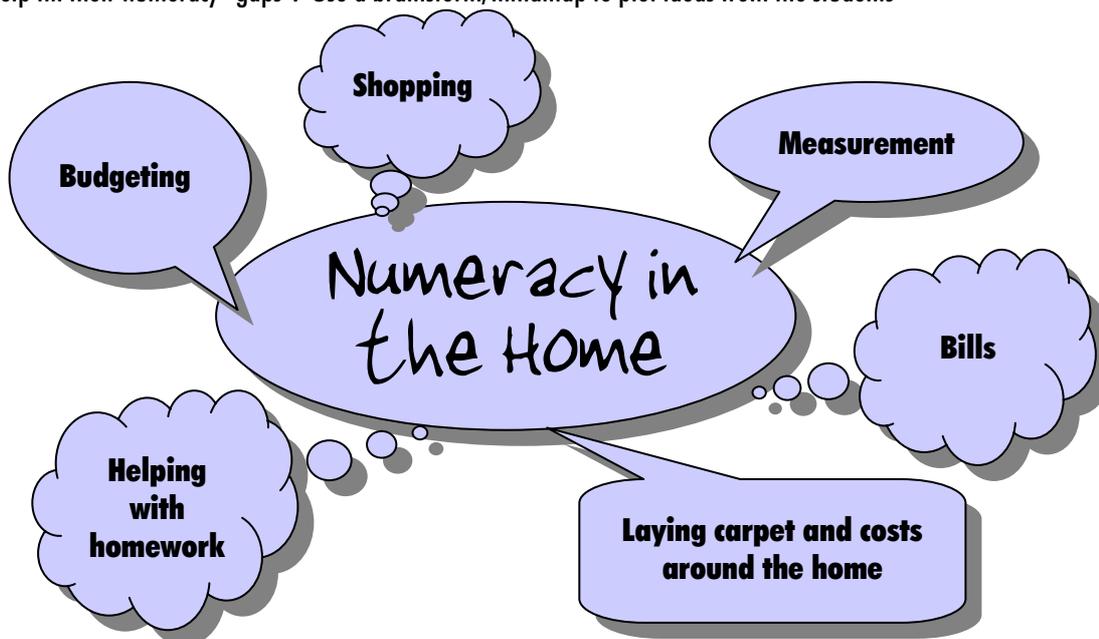# Numeracy in the Home

Functional numeracy is an important part of adult numeracy in students' lives. For adults to have confidence in their numeracy abilities, helps their confidence, their participation in their own personal lives and their local communities and also understand that money can be a positive influence in their lives instead of a negative.

Through my experience in teaching, I have had a variety of students with a huge variance in their numeracy abilities. I've had students who can't even read their own name, but can balance a cheque book; at the other end of the scale, I've had students who can read whole novels, but cannot do basic addition. The trick to getting adult students to be interested in numeracy is to embed it in real life activities. Have you ever notice that someone might not be able to do a pure sum (eg $3 + 4 = 7$), but the minute a dollar sign ($) is added, they can do it in their heads. Amazing??

Through this Tutor's Tip, I am going to explore the world of numeracy in relation to the home. I am going to show you some concrete examples to use in the classroom, and also some ideas that you can expand on and try with your own students. All these ideas and lessons, I have used in my classroom and they have been successful.

The first step to a successful home numeracy lesson is to find where the students need help and what you can do to help fill their numeracy "gaps". Use a brainstorm/mindmap to plot ideas from the students

Shopping

Budgeting

Measurement

Numeracy in the Home

Bills

Helping with homework

Laying carpet and costs around the home

These mind maps are useful when planning lessons. Another useful method for gathering information for lessons is a simple questionnaire. The students could also help design the answers for the survey.

The main areas that will be included are working out area in relation to working out costs around the home, eg laying carpet and tiles.

Area in the Home

When approaching the topic of area, ask students what the difference is between perimeter, area and volume. Then ask students when would these be used in the home.

Then discuss the measurements used and the difference between m, m² and m³. Use diagrams of rectangles and 3D shapes. Most adult learners are visual learners. They need to understand the visual concept behind the rules. When discussing this with the students, write the rules with the diagrams. See example below.

Perimeter	Area	Volume
Examples of area:	**Examples of Area:**	**Example of Volume:**
Fences, borders on gardens, running track	Capret, tiles, lino, turf, carpet squares	Pools, soil, mulch, concrete
Rule: $P = (L=W)$ x2	Rule: $A = L$ x W	Rule: $V = L$ x W x D
Measurement: m	Measurement : m²	Measurement : m³
Shape:	Shape:	Shape

After the students have grasped the concepts behind area, we have a few practise runs on the whiteboard. It is also a brilliant idea to have a look at L shaped areas as not all areas in the home are perfect rectangles. For example:

Shape A: 6m, 16m, 7 m, Shape A, 15 m

Shape B: 12m, Shape B, 8m, 17 m, 4 m
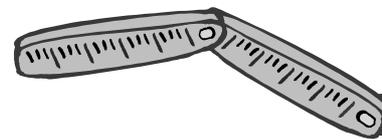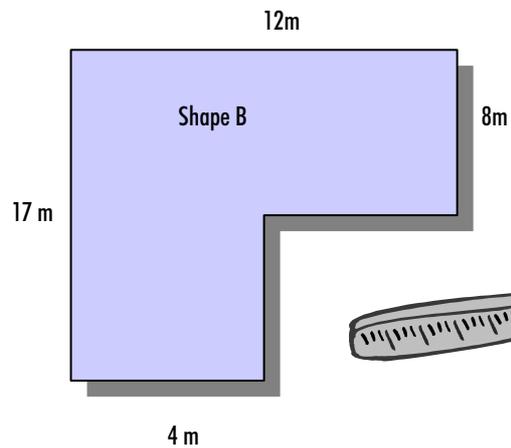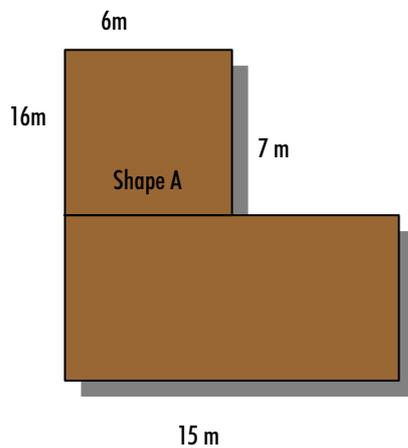
When using L shapes, some measurements will be missing. This is a great point in a lesson to teach students that not all the information will be present, but sometimes the student will have to "think outside the square" to find the measurements. By using the existing information, the students will be able to work out the missing measurements

Using L shape A, the missing information can be calculated by finding the vertical lines, and subtracting the biggest from the smallest amount. Eg: 16 m − 7 m = 9 m, repeat for the horizontal lines.

Once students feel at ease with area, start introducing real life questions. There a few below that I have used in class. Also, keep an eye out for junk mail from carpet and floor covering retailers. This will give something for the students to use something concrete and real.
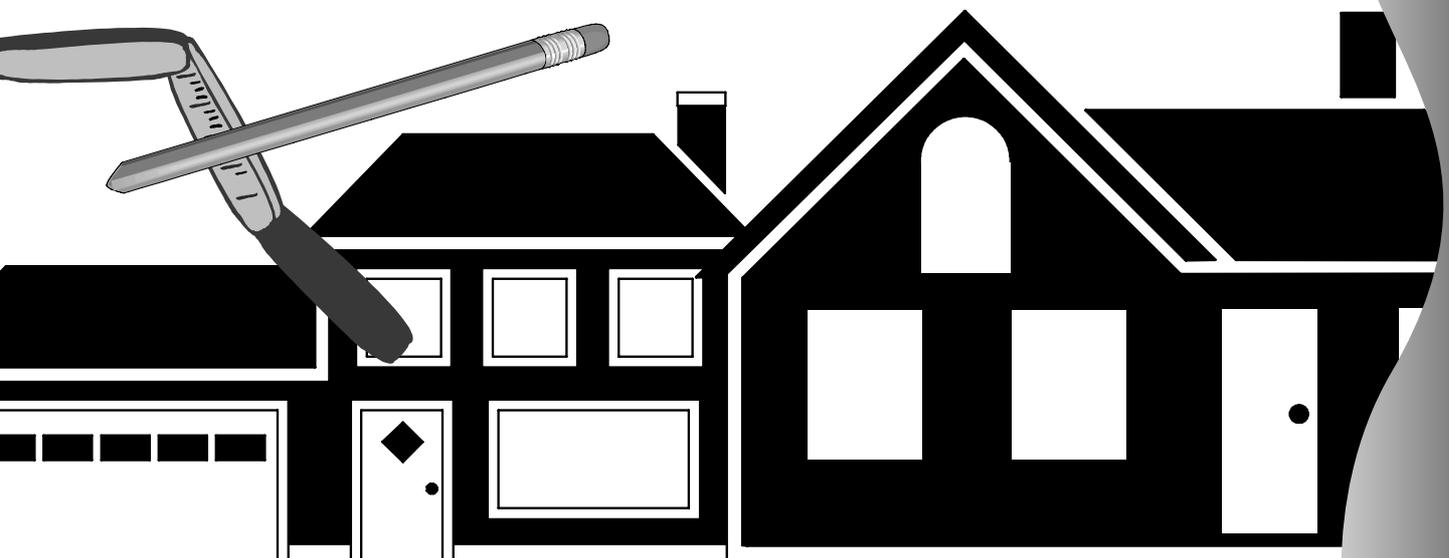
1. You would like to tile your lounge room. It is 7 metres by 9 metres. Tiles are $16 per metre squared ($m^2$). Calculate the area and the cost of the tiles.

2. You would like to carpet your bedroom and lounge room. The lounge room is 8 metres by 6 metres and the bedroom is 4 metres by 5 metres. Carpet is $24 per metre squared ($m^2$). Calculate the area and the cost of the carpet.

3. Peter is thinking about carpeting his whole upstairs of his house. He would like to carpet 4 rooms. The measurements are:

Bedroom 1	4 m and 3 m
Bedroom 2	5 m and 3 m
Study	3 m and 4 m
Lounge	7 m and 8 m

    The carpet is $15 per square metre. Calculate the area of all the rooms and how much it would cost to carpet the entire area.

4. I would like to turf my back yard. My yard is L shaped. Using the dimensions and if the turf is $18 per m^2, how much would it cost?
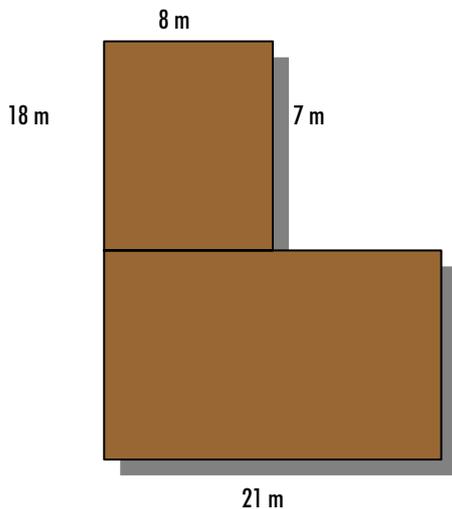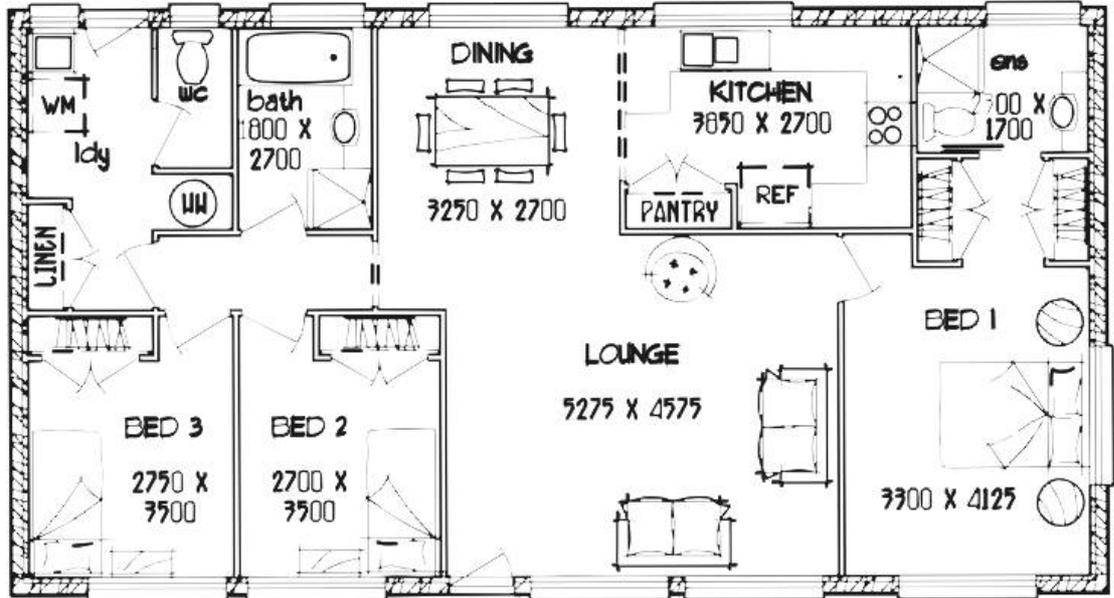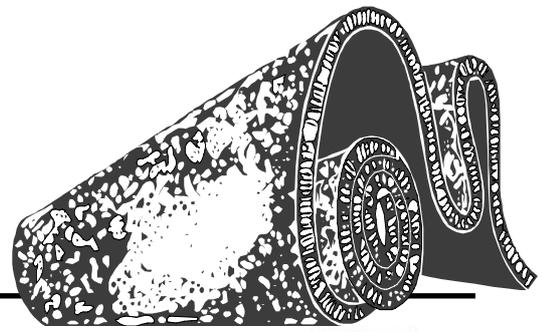

After making sure the students are confident with their abilities in area, you would give them a worksheet similar to the one below. This worksheet embeds the pure maths into real life activities. To add more depth to the worksheet, it is possible to include junk mail and/or advertisements from carpet and tile shops. Tutors could do an extended version and teach volume and include landscaping the gardens into the activity.

Floor coverings

Floor plan showing: WM, wc, bath 1800 X 2700, ldy, DINING 3250 X 2700, KITCHEN 3850 X 2700, ens 00 X 1700, LINEN, HW, PANTRY, REF, BED 1 3300 X 4125, LOUNGE 5275 X 4575, BED 3 2750 X 3500, BED 2 2700 X 3500

Please calculate the costs of the floor covering for my new house.
You will need to calculate the floor area of each room before calculating the costs.

1. Kitchen / dinning room / lounge room / passage.
   White tiles $28 per square metre.
2. Bedroom 2 and 3
   Blue carpet $23 per square metre
3. Bedroom 1 and walk in robe
   Cream carpet $34 per square metre
4. Ensuite bathroom
   Cream tiles $32 per square metre
5. Second bathroom / laundry / toilet
   Matt white tiles $22 per square metre
6. I would like to add a patio outside the dinning room.
   Size - 6m x 4m
   > a) Terracotta outdoor tiles $15 per square meter
   > b) Paint the patio with exterior concrete paint at a cost
   >   of $30 a litre.
   >   Each litre of paint will cover 3 square metres.
   >   How much will it cost to paint the patio and how many
   >   tins of paint will I need to buy?
   > c) Which option is the cheapest?_____
   >   How much money will I save if I use the cheaper?
   >   Covering?
7. Please will you calculate the total cost to carpet and tile the house excluding the   proposed patio covering.
8. What would the total cost be if I included the cost of the patio tiles?
9. What will the cost be if I include the cost of painting the patio?
10. What covering would you chose for the patio, terracotta tiles or exterior paint?
_____

Why?
_____
_____
_____
_____