THE UNIVERSITY OF WAIKATO

NATIONAL CENTRE OF LITERACY & NUMERACY FOR ADULTS

Inspiring Potential

Embedding Numeracy into a trades course.

Background to study

- Students were part of a 20 week course to get them back into employment.
- They were involved in a landscaping/carpentry context.
- Students were having difficulty retaining numeracy ideas that were being taught in a very traditional manner.
- The tutor was keen to look at other approaches.

The Students.

- Students had low numeracy skills.
- A number suffered from ‘maths anxiety’.

$$\text{Math Anxiety} = \text{Test Anxiety}\left(\text{Fear of numbers} + \text{Fear of unknown}\right)$$

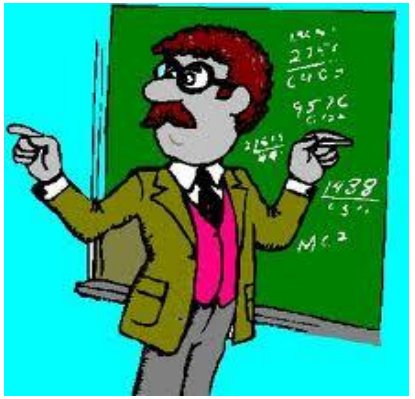
- Students had limited attention and retention.
- Eight learners were involved.

Discussion with Tutor

- What numeracy is required in the course?
  - four basic computations.
  - ability to measure.
  - knowledge of the metric system
  - Knowing about square numbers and square roots of numbers
  - Knowing what a right angled triangle looks like.
  - Knowing how to round numbers to 2 and 3 decimal points.
  - Being able to estimate the reasonableness of an answer.

What approach should we take?

- The traditional approach



- Using equipment (manipulatives)

Finding out what the learners know.

- We devised a short assessment.
- Students were allowed to use calculators.

1. 4 x 3 = _____ 2. 8 x 8 = _____ 3. 3 x 9 = _____

4. 28 ÷ 7 = _____ 5. 42 ÷ 6 = _____ 6. 3^2 = _____

7. 7^2 = _____ 8. $\sqrt{16}$ = _____ 9. $\sqrt{36}$ = _____

10. Round to the nearest 3 decimal places:

A. 3.4675 _____ B. 24.73924 _____ C. 682.07489 _____

11. Measure these lines:

A. _____ B.

Circle all right angled triangle:

How many 250mm measures are there in 3m? ☐

What is the area of this floor? 60m

25m

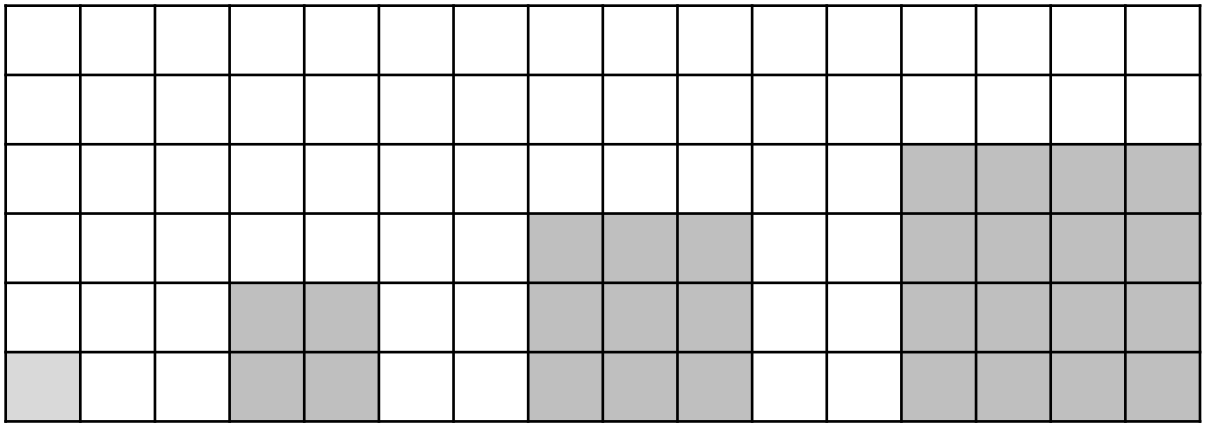
The Results

- Of the eight students no one got everything correct.
    - one learner got 13 correct.
    - one learner got 11 correct.
    - two learners got 7 correct.
    - four learners got less than 5 correct.

What to do?

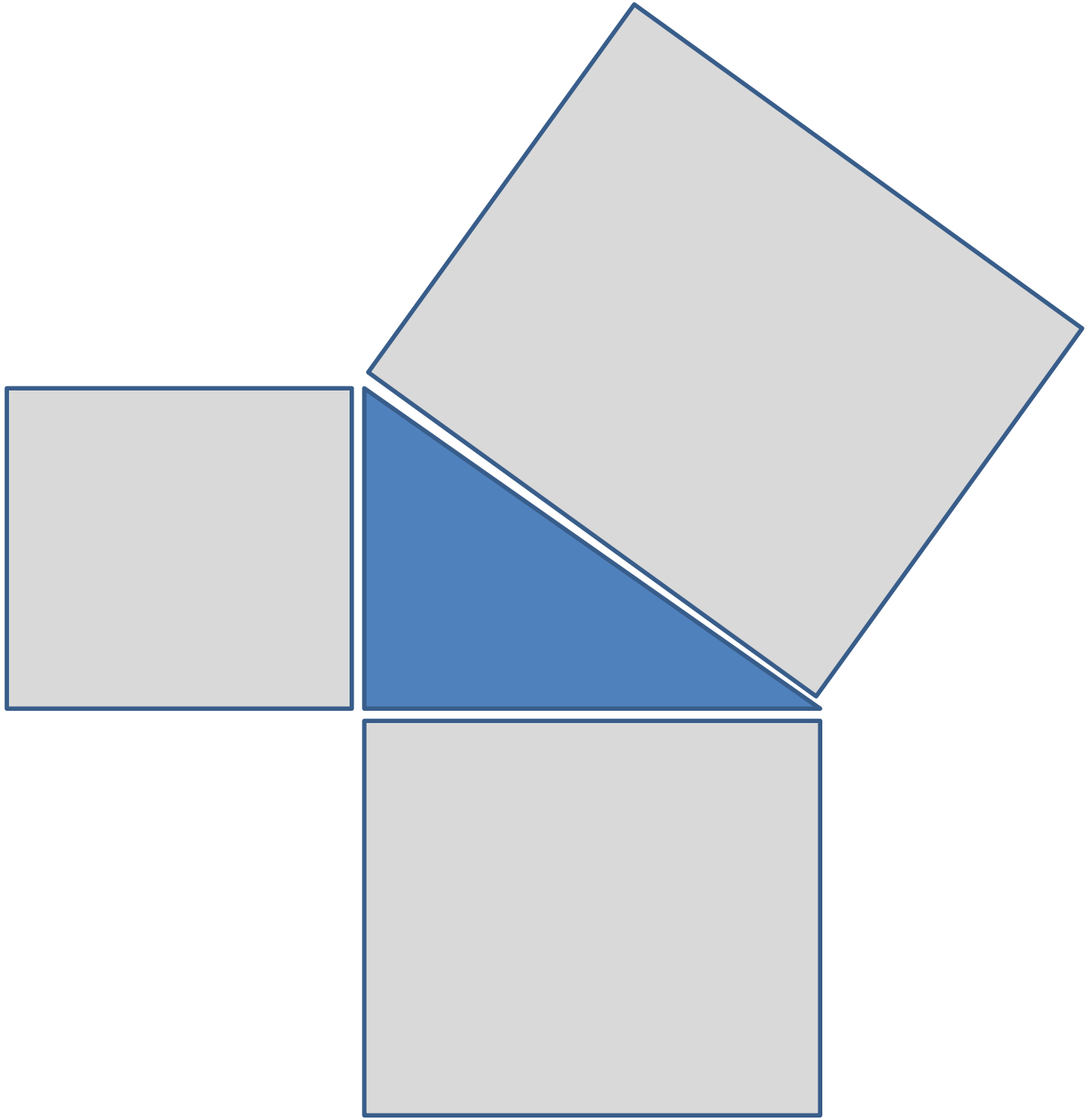
- Working along side the tutor we discussed what was practical to achieve.

- How were we going to teach some of the ideas needed?



1 x 1 2 x 2 3 x 3 4 x 4

1^2 2^2 3^2 4^2



After the teaching.

- For a week the tutor spent 15 to 30 minutes each day reviewing the teaching.

- After 3 weeks the learners were given a post-assessment.

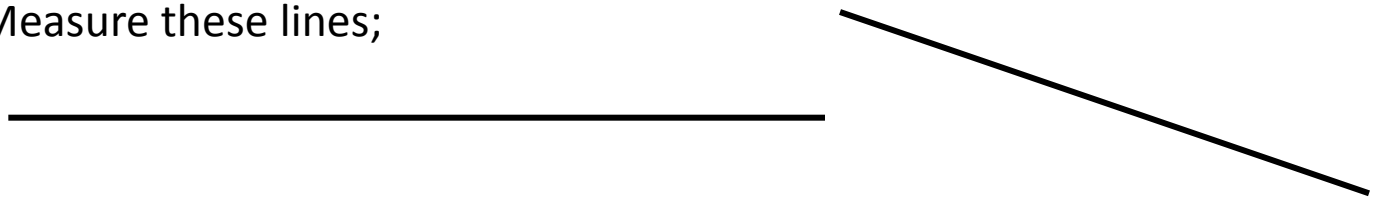
1. $3 \times 5 =$ 2. $7 \times 7 =$ 3. $45 \div 9 =$ 4. $28 \div 7 =$

5. 4^2 6. 5^3 7. $\sqrt{81}$ 8. $\sqrt{25}$

9. Round to the nearest hundredth;

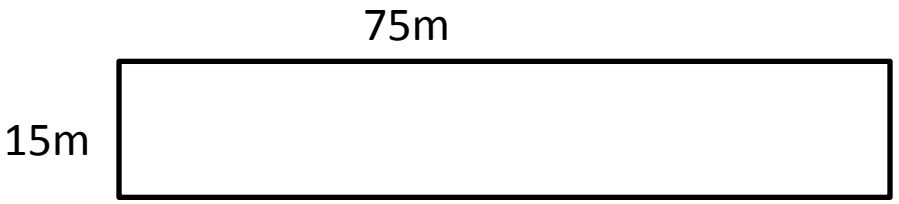
a. 3.486 _____ b. 24.9526 _____ c. 7.2891 _____

10. Measure these lines;

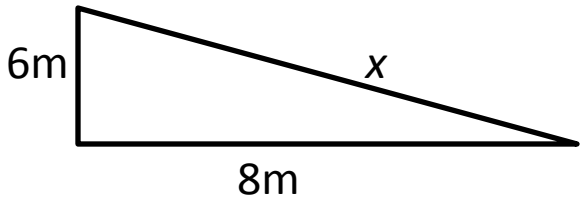


11. How many 200mm measures in 4m? _____

12. What is the floor area?



13. Find length '*x*'



The end results

- Number of students re-tested: 6
  - two learner got all the questions correct.
  - one learner got 11 correct.
  - two learners got 9 correct.
  - one learner got less than 5 correct.