**Ebook Code:
RENZ0020**

Ready-Ed Publications

For Year 6+

Remedial Maths Series:

Number

For students requiring assistance with number concepts.

Contents

Teachers' Notes

Mathematics education encompasses a wide range of topics and concepts, many of which are only briefly dealt with in the classroom due to time constraints. It is important that these fundamental concepts are understood before students move onto the next mastery level.

Students often fail to grasp all concepts and are unable to catch up to the level at which the rest of the class are working. It is here that the real difficulty for these students begins as they will sometimes withdraw from activities and miss further valuable concepts, simply because they had not mastered the prerequisite skills.

Remediation for many students is frequently associated with a reduced self esteem as students are aware that they are working behind the rest of the class, especially when text books and worksheets for lower grades are used to help them to catch up.

This remediation series is designed to provide upper primary students with the necessary skills and knowledge of mathematical concepts required for their year level and can be used both in the classroom and as a "take-home" package for extra consolidation of concepts.

The reading and style is appropriate to the age of the student, even though many of the remedial activities are focused on previous stages of the maths syllabus. It is hoped that this series will boost the students' self esteem as they realise that they are able to successfully complete the maths activities in the book. In addition, students will not feel as if they are doing "baby" work as is the case when maths sheets for 8 year olds are given to 12 year old students.

For best results the series should be used to complement a remedial maths programme for a small group or for individual students who need to catch up. Many of the worksheets explain the mathematical concepts and provide examples, however, it is assumed that this is not the student's first experience with the concept. Each book in the series follows the same format and is directed at upper primary groups, yet is appropriate for the secondary school if required.

The Challenge questions and word problems at the bottom of some pages test the child's knowledge of the mathematical concept for that particular page. The challenge is usually presented as a word problem in a real world context so as to highlight the need for the skill.

This book explains the basic concepts of number, exploring in detail the processes of addition, subtraction, multiplication and division. Decimals are explored in detail as well as the relationship between decimals and percentages. The activities are sequenced in line with the standard syllabus structure, covering a number of stages as opposed to activities restricted to one year level. The activities are basically designed to provide students with the opportunity to catch up on much needed mathematical skills.

Place Value 1

Our counting system is based on groups of ten and is known as a decimal system.

In this system   ten ones make ten;
                 ten tens make one hundred;
                 ten hundreds make one thousand.

In the table we can see how the same digit can represent a different amount. Where there is no number zeros are used to hold the place.

Thousands	Hundreds	Tens	Ones		
9	0	0	0	shows nine thousands	= 9000
	9	0	0	shows nine hundreds	= 900
		9	0	shows nine tens	= 90
			9	shows nine ones	= 9

1. **What is the place value of the underlined digits in each number below.**

e.g. 2764 = thousands .... 3678 = ... 7645 = ... 9078 = ... 5766 =

2. **What is the face value of the underlined digits below?**

e.g. 2873 = 800   2983 = ...   8765 = ...   5788 = ...   4565 = ...

3. **Write these numbers in expanded form. The first one has been done for you.**

a.   2389 = 2000 + 300 + 80 + 90   b.   3947 = ...

c.   3876 = ...   d.   7764 = ...

4. **Write these numbers in digit form.**

Five thousand, three hundred and seventy-six = ...

Seven thousand, eight hundred and thirty-nine = ...

Eight thousand and sixty-four = ...

Nine thousand, two hundred and six = ...

Three thousand and seventeen = ...

5. **Circle the number representing the tens in each amount below.**

$529.00   65 m   72 min   145 km   2535 mm $34.00

6. **Circle the number representing the hundreds in each amount below.**

$200.00   163 m   180 min   735 km   9465 mm   625 mL

7. **What is the value of 8 in each number below?**

e.g. 82 - 80   18 ....   835 ....   28 ....   8652 ....

Exploring the relation of digit placement to value in the base ten system for whole numbers up to 1000.

Decimals: Place Value 1

A decimal represents part of a whole. A decimal point separates the whole number and the fraction left over. For example the shaded blocks below show three wholes and one half of a block. We write this as 3.5. The 3 represents the complete blocks and the .5 represents the half block.

= 3.5

Look at the shaded areas below and write the decimal amount next to each one.

....

....

....

The left over amount is represented as tenths, hundredths and thousandths of one unit.
Look at this example. Express the amount as a fraction.

25.6 = ...

We can say that the amount left over is equal to six tenths. This is shown in the table below.

Hundreds	Tens	Ones	.	1/tenth	1/hundredth	1/thousandth
	2	5	.	6		

1. Record the following decimal amounts into the table: 36.7 23.5 12.52 525.3 0.755

Hundreds	Tens	Ones	.	1/tenth	1/hundredth	1/thousandth

2. Write the place value represented by the underlined number.

a. 1<u>5</u>6.2 ....

c. 68.<u>2</u> ....

d. 56.8<u>7</u> ....

e. 56.<u>3</u>8 ....

f. <u>2</u>36.87 ....

g. 2.<u>3</u>6 ....

Introduction to decimals - exploring place value.

Word Problems

1. Tiffany spent $1.30 at the lolly shop and Jacinta spent $6.55.

    What was the total amount spent? ....

2. Jake had $364 dollars saved in the bank. He also had $28.75 in his pocket and $3.80 in his car. How much

    money did he have altogether? ....

3. Brad ran 6.23 km on Sunday afternoon and then 5.79 km on Monday. On Tuesday he jogged a distance of 24.4 km. What

    was the total distance he ran over the three days? ....

4. Alison and Matt were comparing prices for computers and printers. They were shown three separate deals. The first deal included a printer costing $989 and a computer costing $2899. The second deal involved a second-hand printer at $755 and a computer marked at $2995 and the third deal had a printer for $905 and a computer for $2795.
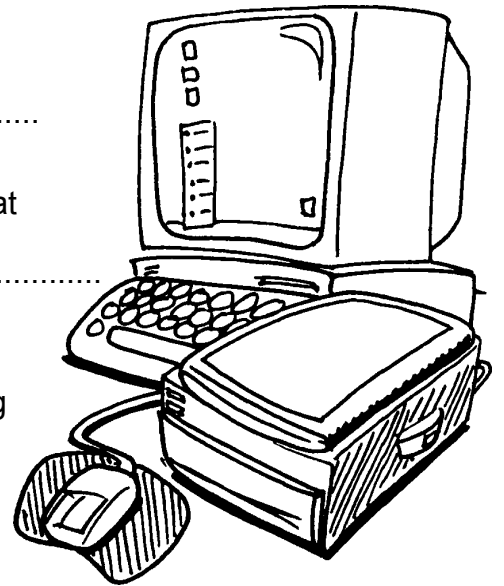
    Which is the least expensive package? ....

5. Chrissie and Shane were painting the lounge room. They used 395 mL of paint on the first coat and then another 275 mL touching up the corners. They then coated the walls another time and used up 455 mL.

    How much paint did they use altogether? ....

6. Donelle read six books during the week with the following amounts of pages - 354, 633,

    23, 855, 125, 122. How many pages did she read altogether? ....

7. Tarlie grows sunflowers in her garden. Last year she counted 276 flowers and this year she counted 452 flowers.

    What is the total amount of sunflowers she has grown? ....

8. Billy had 657 jellybeans in a jar. He gave some to Samantha, and he now has 534 left.

    How many jellybeans did he give to Samantha? ....

9. Kyle weighed 97.54 kg. After taking up exercise he lost 13.85 kg.

    What is his current weight? ....

10. Amanda and Taylor spent most of the weekend doing assignments. On Saturday they worked for 5 hours and 15 minutes. On Sunday morning they worked 3 hours and 10 minutes and in the evening they spent another 3 hours and 35 minutes studying.
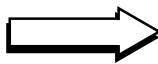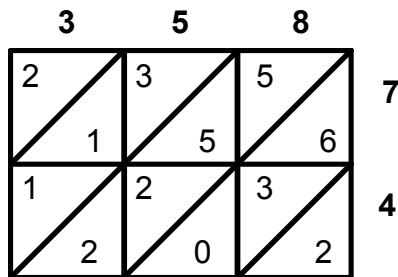
    What was the total amount of time they spent studying? ....

11. In a game of cricket, Michael scored 143 runs, Kimberly scored 167 runs and Megan

    scored 25 runs. What was their combined score? ....

Addition and subtraction using decimals and units of measure with regrouping.
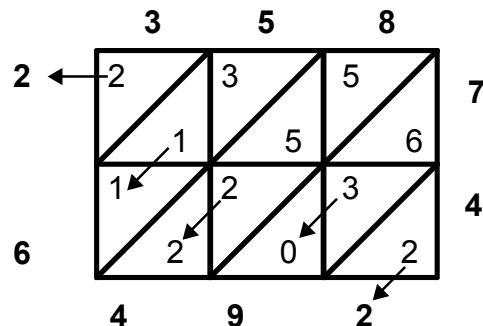
Multiplication Grids

There are a number of ways of working out multiplication problems. This grid works by multiplying the two numbers for each square and then adding the numbers diagonally. For example to calculate 358 x 74:
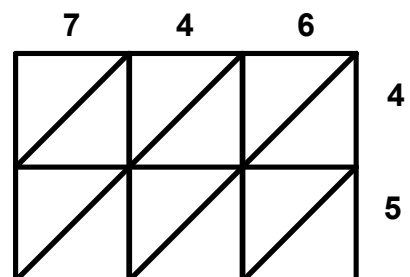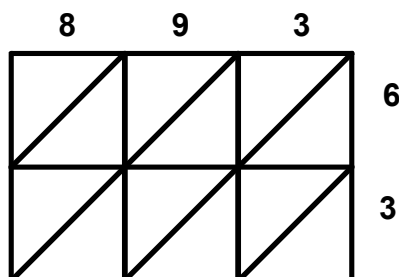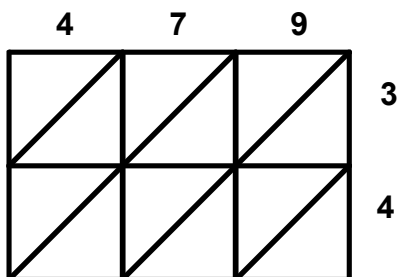
Step 1

```
      3     5     8
   ┌─────┬─────┬─────┐
   │2╱   │3╱   │5╱   │  7
   │  ╱1 │  ╱5 │  ╱6 │
   ├─────┼─────┼─────┤
   │1╱   │2╱   │3╱   │  4
   │  ╱2 │  ╱0 │  ╱2 │
   └─────┴─────┴─────┘
```

Step 2

```
      3     5     8
2 ←┌─────┬─────┬─────┐
   │2╱   │3╱   │5╱   │  7
   │  ↙1 │  ╱5 │  ╱6 │
   ├─────┼─────┼─────┤
   │1╱   │2╱   │3╱   │  4
6  │  ↙2 │  ↙0 │  ↙2 │
   └─────┴─────┴─────┘
      4     9     2
```

In Step 1 the individual numbers are multiplied and written in the appropriate box. For example, 3 x 7 = 21. The two goes into the first half and the one is in the second half.

In Step 2 all numbers are added in the direction of the arrows. The answer is 26 492.

1. Try these grids using the same steps as above.

```
     4     7     9
  ┌─────┬─────┬─────┐
  │ ╱   │ ╱   │ ╱   │  3
  │╱    │╱    │╱    │
  ├─────┼─────┼─────┤
  │ ╱   │ ╱   │ ╱   │  4
  │╱    │╱    │╱    │
  └─────┴─────┴─────┘
```

```
     8     9     3
  ┌─────┬─────┬─────┐
  │ ╱   │ ╱   │ ╱   │  6
  │╱    │╱    │╱    │
  ├─────┼─────┼─────┤
  │ ╱   │ ╱   │ ╱   │  3
  │╱    │╱    │╱    │
  └─────┴─────┴─────┘
```

```
     7     4     6
  ┌─────┬─────┬─────┐
  │ ╱   │ ╱   │ ╱   │  4
  │╱    │╱    │╱    │
  ├─────┼─────┼─────┤
  │ ╱   │ ╱   │ ╱   │  5
  │╱    │╱    │╱    │
  └─────┴─────┴─────┘
```

Answer = ...   Answer = ...   Answer = ...

Word Problems.

Draw your own grids to find answers for these.

1. Lesley bought 25 metres of material at a cost of $3.25 a metre. What was the total cost of the material?

2. Carl runs 15.4 km each day to prepare for the cross country run. How far will he run over 15 days?

3. At Christmas Marie bought the same present for each of her brothers and sisters. Each present cost $8.59 and she has five brothers and seven sisters. How much did she spend altogether?

Using alternative methods for calculating multiplication problems.