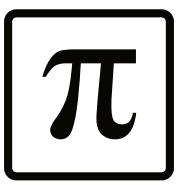
Milestone Maths D1

by

Kathy Gonzalez



Milestone Maths D1

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Introduction

G'day! I'm Dingo Dan and I'm here to help you learn maths. This year you are going to take charge of your learning! So I'm going to be talking you through everything. If you still need a bit of help from Mum or Dad at first, that's OK! Don't be afraid to ask for help when you need it.

Power Tips

Ask Mum or Dad how much you should do each day. **Most of the time you will do one full lesson per day.** A lesson starts with a title telling you the lesson number and ends with a "Skill Sharpener"

We won't be using Sumstix this year. Instead we'll be drawing lots of diagrams. Sometimes we'll draw pictures of base ten blocks which are a bit like Sumstix but they help us understand bigger numbers. You won't need a real base ten block set but if you feel you need a bit of extra help, ask Mum or Dad to find a 2D set on the Milestone Maths website (there's a couple to choose from, even a free one!).

What you will learn about this term:

- place value and rounding numbers to estimate calculations;
- adding and subtracting three-digit numbers;
- some cool tricks for mental calculations;
- bar models and how to use them;
- how to check your answers without the answer book!

There are a couple of special symbols used in this book:

This icon marks challenge lessons or activities. You might need a bit of extra help with these!

This icon says there's a note about this lesson or activity for Mum or Dad at the front of the book.

Parent Notes

Lessons or exercises marked with a book icon have extra notes here. 

A note on concrete materials

Concrete materials like Sumstix are great for younger learners because they make abstract maths concepts visible and tangible. They were a key part of earlier Milestone Maths levels. However, over-reliance on manipulatives can stunt the development of mental maths skills over time.

To avoid this, we move to visual models in this level to bridge the gap from concrete materials to pictorial models. One model we use extensively is drawings of base ten blocks. If your child is a kinesthetic (hands on) learner, you can create 2-D versions using the templates that are available on the Milestone Maths website.

Extension Work

Some lessons and activities in this book are marked with a graduation cap icon.

These activities are more challenging to stimulate more advanced students. Use your discretion as to whether you require your child to attempt these activities. If the child is keen to have a go, let them do so and give them help as and when they need it but do respect their wishes if they refuse help - the struggle to find the solution will do them the world of good.

Drills

Drills are an essential part of learning in mathematics and so a drill is located at the end of every lesson. If your child does not have the patience to do these drills, please see the Milestone Maths website for suggested alternatives. Visit milestonemaths.com.au/not-negotiable/

Answer Keys

Sample answers for all questions and exercises are available as a free download on the Milestone Maths website under the resources tab on this book's purchase page.

Pacing and Adapting for Special Needs

If you child is not yet reading independently read the lesson material and instructions to them. For older children with literacy issues, check out the advice on the growing Milestone Phonics page:

milestonemaths.com.au/milestone-phonics/

If your child does not like writing you can scribe for them or share the pencil: you write one answer then they write answer, etc. You can also treat the drills as oral drills and have your child "read off" the answers to you or you could use flashcard instead. I do suggest that you gradually increase the amount of writing that you expect your child to do.

If your child is taking a long time to complete lessons (40 mins or more) you could break the lesson into two parts and have the child complete the lesson over two days. The review and drill sections should also be divided in two.

If your child is finding the material very easy and finishing the entire lesson in 10 mins or less, consider having the child do two lessons a day. They only need to do one of the drills. Spare drills can be done on the day off.

Note: your child may find some milestones super easy and others harder. Be prepared to vary the pace as and when necessary!

2

Milestone 2

Addition I

In this milestone you will learn:

- How to fill in an addition table.
- How to use bar models to solve addition and subtraction problems.
- How to add more than two numbers together.
- How to estimate addition.

Lesson 2.1

The Addition Table

Show what you know!

Last year you learned about the addition table and how to use it to find the answers to sums BUT you should also have learned the answers to all the sums on the addition table from memory.

+	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
2	3	4	5	6	7	8	9	10	11	12
3	4	5	6	7	8	9	10	11	12	13
4	5	6	7	8	9	10	11	12	13	14
5	6	7	8	9	10	11	12	13	14	15
6	7	8	9	10	11	12	13	14	15	16
7	8	9	10	11	12	13	14	15	16	17
8	9	10	11	12	13	14	15	16	17	18
9	10	11	12	13	14	15	16	17	18	19
10	11	12	13	14	15	16	17	18	19	20

The row and column headings don't need to be in the right order. We can mix them up for a challenge!

Example

Fill in the missing numbers:

+	7	2	8	3	6	1	4	9	5	10
2	9	4	10	5	8	3	6	11	7	12
5	12	7	13	8	11	6	9	14	10	15

6 + 5 = 11

Lesson Practice

Fill in the missing numbers:

+	8	2	4	7	3	10	9	5	6	1
3										
7										

+	7	8	4	10	6	1	9	2	3	5
4										
6										

Make Your Own

Now you can make your own problems to solve! If you have a ten-sided die, grab it. If not, write the numbers 1-10 on slips of paper (one number per slip). Roll the die or shuffle the papers and pick one out at random. Use a coloured pencil and write the numbers that you get as the column headings. Do the same for the row headings. Then switch back to your writing pencil and fill in the blanks!

+										

+										

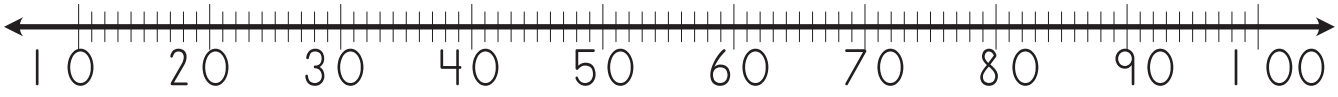
Review and Practice

Write the following number in words. (Lesson 1.2)

20,785

Plot the numbers on the number line. (Lesson 1.3)

11 52 48 95 36 92 15



Write the numbers you plotted above in ascending order (from smallest to biggest). (Lesson 6)

What is the value of the underlined digit in each number? (Lesson 1.9)

80 199 2365 9518 2322

Round the numbers below to the nearest 100. (Lesson 1.11)

Number	219	522	682	358	685
Rounded					

Challenge Puzzle — Just For Fun

Can you arrange the digits 1-9 in the boxes so that all the rows, columns and the diagonals sum to 15?

6		
		3
2		

Here's a super challenge! There's more than one way to arrange the numbers to add like this, can you come up with your own?

Skill Sharpener

15 − 6	11 − 4	18 − 8	10 − 1	17 − 7	4 − 1
10 − 5	4 − 2	6 − 2	11 − 1	18 − 9	7 − 1
11 − 5	13 − 4	15 − 5	3 − 1	12 − 3	13 − 6
17 − 8	12 − 6	10 − 2	20 − 10	14 − 6	14 − 5
5 − 1	7 − 2	12 − 2	9 − 2	2 − 1	8 − 2
8 − 3	10 − 4	10 − 3	16 − 8	12 − 4	9 − 4
9 − 1	15 − 7	9 − 3	8 − 1	5 − 2	12 − 5
7 − 3	11 − 2	13 − 5	14 − 4	6 − 3	11 − 3
19 − 9	14 − 7	16 − 7	13 − 3	16 − 6	8 − 4

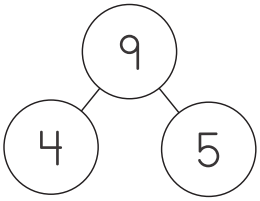
Lesson 2.2

Bar Models

Show what you know!

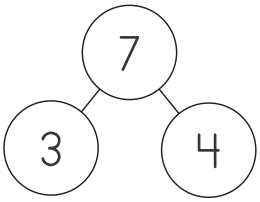
Last year we used Sumstix a lot to help us learn our addition and subtraction facts and to help us understand a bunch of different concepts.

Write the four equations represented by the Sumstix model and the number bond.



4 + 5 = 9 5 + 4 = 9

9 − 5 = 4 9 − 4 = 5



Something New

This year, we will be working with BIG numbers and Sumstix will become less useful to us. So we 're going to use bar models instead. Bar models look a bit like Sumstix patterns but we only draw them on paper. The bars can represent any number and we show this by writing the number inside the bar.

17 + 72 = 89

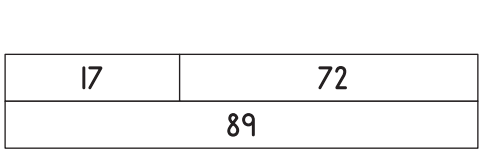
17	72
89	

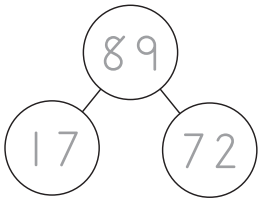
The length of the bars is not important but it's good to make them look like they match the question!

Just like Sumstix patterns, we can make a number bond from a bar model and we can write four different equations using the model.

Example

Complete the number bond and write the four equations that match the bar model.

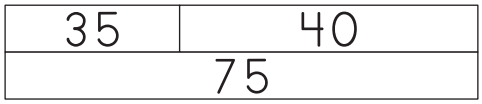


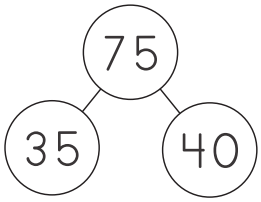


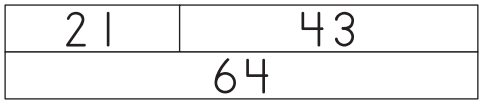
17+72=89 72+17=89
89−72=17 89−17=72

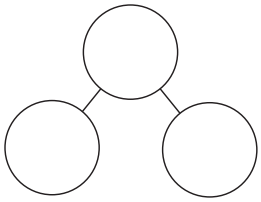
Lesson Practice

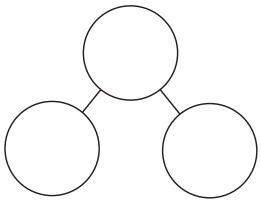
Fill in the blanks.



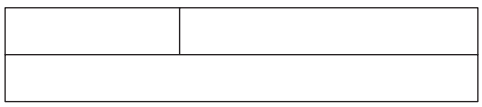


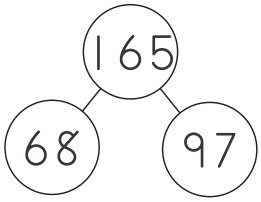






25+65=90 65+25=90
90−65=25 90−25=65





Review and Practice

Write the following as a number and in expanded form. (Lessons 1.2 and 1.8)

one thousand, two hundred and two

Write the numbers below in order from smallest to largest. (Lesson 1.3)

16 38 29 14 64 85 46

Compare each pair of numbers (<, =, and >). (Lesson 1.7)

124 ___ 124 3776 ___ 3180 8147 ___ 9876

What is the **number value** of the underlined digit in each number? (Lesson 1.9)

8<u>0</u>1 9<u>8</u>41 63<u>0</u>1 <u>4</u>416 259<u>7</u>

Round the numbers below to the nearest 100. (Lesson 1.11)

Number	115	929	651	428	509
Rounded					

Complete the addition table. (Lesson 2.1)

+	7	10	3	4	5	9	8	2	1	6
10										
2										

Skill Sharpener

10 − 6	8 − 6	15 − 8	14 − 10	13 − 8	18 − 10
8 − 7	8 − 5	17 − 9	18 − 9	11 − 9	9 − 7
17 − 10	15 − 9	10 − 7	12 − 7	12 − 6	6 − 4
16 − 8	9 − 5	9 − 6	8 − 4	4 − 2	7 − 5
13 − 10	10 − 5	11 − 6	16 − 10	4 − 3	14 − 8
2 − 1	3 − 2	14 − 7	12 − 8	13 − 9	6 − 5
5 − 3	12 − 9	7 − 6	11 − 7	9 − 8	10 − 9
13 − 7	14 − 9	15 − 10	5 − 4	10 − 8	12 − 10
11 − 10	11 − 8	16 − 9	20 − 10	19 − 10	6 − 3

Lesson 2.3

Problem Solving and Bar Models

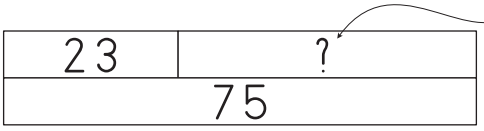
We can use bar models to help solve lots of number problems, just like we used Sumstix last year. Today we are going to decide what calculation we need to perform to solve a problem.

Example 1

Find the equation you would use to find the missing number:

$$23 + \_\_\_\_\_ = 75$$

Step 1: Draw a bar model.



This is the number we want to find. We don't know what it is yet, so we'll just use a question mark.

Step 2: Write the four equations represented by the bar model and choose the one that we can use to find the missing number.

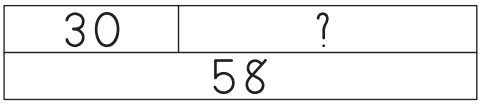
$23 + ? = 75$ $\quad$ $75 - ? = 23$

$? + 23 = 75$ $\quad$ $75 - 23 = ?$

We can solve this equation to find what the missing number is!

Example 2

Write the four equations represented by the bar model and circle the one that you would use to find the missing number.



$30 + ? = 58$ $\quad$ $? + 30 = 58$

$58 - ? = 30$ $\quad$ $58 - 30 = ?$

Lesson Practice

Draw a bar model to represent each problem then write the four equations that the model represents. Finally, circle the equation that you would use to find the missing number.

____ + 19 = 65

30 + ____ = 51

13+ ____ = 72

____ + 15 = 42

Review and Practice

Write the following number in words and in expanded form. (Lesson 1.8)

98,386 words: _____

expanded form: _____

Write the numbers below in order from smallest to largest. (Lesson 1.6)

74 37 71 54 62 37 58

_____

What is the **place value** (Th, T, H, O) of the bold digit in each number?

(Lesson 1.9)

801 984**1** 630**1** 4416 **2**597

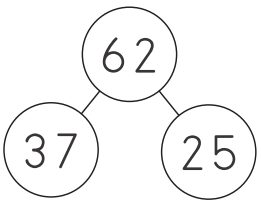
Round the numbers below to the nearest 100. (Lesson 1.11)

Number	125	870	910	737	652	326
Rounded						

Complete the addition table. (Lesson 2.1)

+	4	1	5	6	2	9	3	7	8	10
7										
3										

Draw a bar model for the number bond then write the four equations represented by it. (Lesson 2.2)



_____

_____

_____

_____

Skill Sharpener

5 − 1	16 − 6	16 − 7	10 − 2	17 − 8	10 − 5
11 − 4	11 − 1	20 − 10	13 − 5	6 − 1	19 − 9
15 − 6	14 − 6	9 − 1	8 − 4	18 − 9	9 − 4
12 − 5	12 − 3	7 − 2	13 − 4	7 − 3	11 − 3
17 − 7	15 − 5	11 − 5	13 − 6	10 − 4	16 − 8
14 − 7	10 − 3	8 − 1	12 − 2	6 − 3	4 − 2
12 − 4	15 − 7	8 − 3	7 − 1	13 − 3	9 − 3
9 − 2	3 − 1	4 − 1	2 − 1	5 − 2	8 − 2
12 − 6	14 − 4	18 − 8	6 − 2	11 − 2	14 − 5

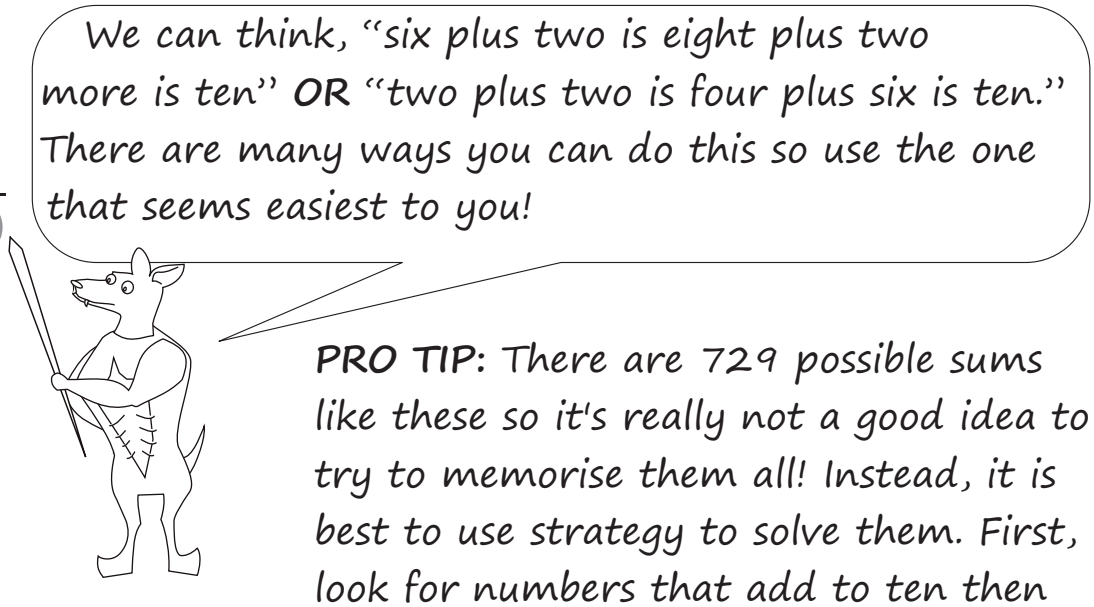
Lesson 2.4

Adding Three Numbers Together

You already did this last year when you learned to add with carrying but we didn't practice it as a skill on its own. It can be useful, though, so we will concentrate on this in the drills for most of the rest of this term.

Example

$$\begin{array}{r} 2 \\ 2 \\ +\,6 \\ \hline 10 \end{array}$$



PRO TIP: There are 729 possible sums like these so it's really not a good idea to try to memorise them all! Instead, it is best to use strategy to solve them. First, look for numbers that add to ten then adding the last number on will be easy peasy! If you can't find a ten, it's usually easier to add the two biggest numbers first.

Lesson Practice: Riddle

What has four legs and a back but no body?

5	8	4	6	3
8	1	9	8	6
+ 3	+ 8	+ 8	+ 9	+ 1
(H)	(C)	(I)	(R)	(A)

10	17	16	10	21	23	

Review and Practice

Write the following number in words and in expanded form. (Lessons 1.2 & 1.8)

32,980

Words: _____

_____

Expanded form: _____

Write the numbers below in order from smallest to largest. (Lesson 1.3)

18 70 47 84 60 22 32

_____

Compare each pair of numbers (<, =, and >). (Lesson 1.7)

55 3221 | 2706 3673 | 341 4251

Round the numbers below to the nearest 10. (Lesson 1.11)

Number	28	65	14	37	25	13
Rounded						

Complete the addition table. (Lesson 2.1)

+	8	6	2	3	5	7	4	9	10	1
9										
4										

Draw a bar model for the equation then write the four equations represented by the bar model and circle the one you would use to find the missing number. (Lesson 2.3)

30 + ____ = 51

_____

_____

_____

_____

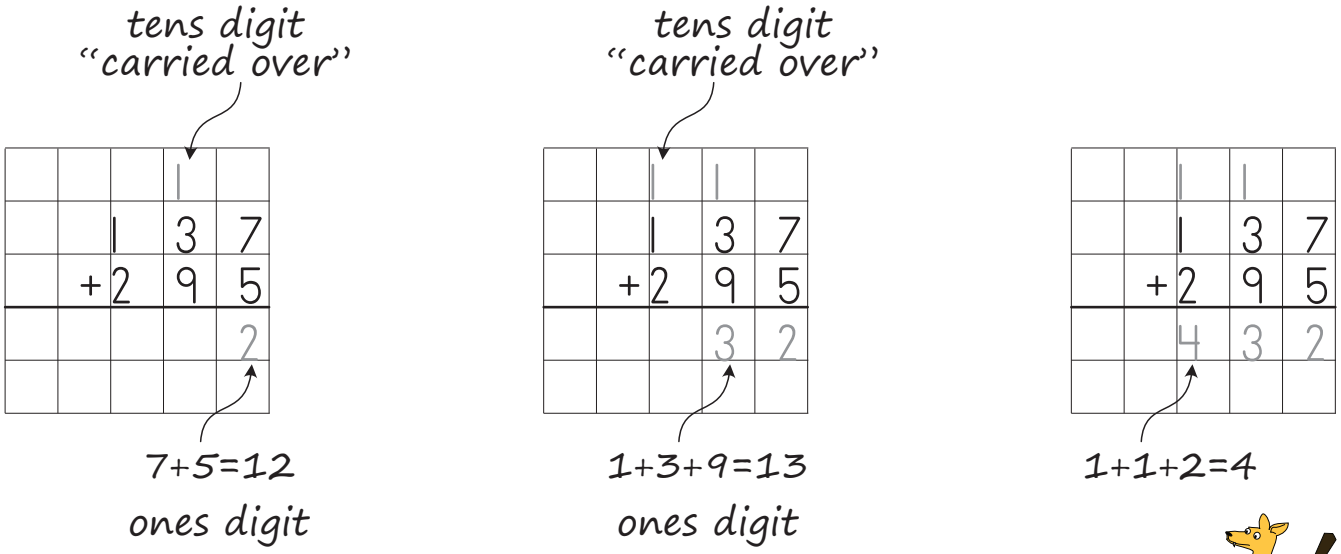
Skill Sharpener

7 − 6	8 − 7	18 − 9	20 − 10	13 − 10	5 − 4
13 − 7	4 − 3	8 − 6	16 − 9	15 − 9	12 − 8
5 − 3	2 − 1	9 − 8	10 − 8	11 − 6	11 − 8
12 − 9	6 − 5	12 − 7	11 − 7	7 − 5	9 − 7
12 − 10	11 − 9	16 − 8	15 − 10	8 − 4	17 − 10
18 − 10	7 − 4	9 − 5	8 − 5	19 − 10	12 − 6
3 − 2	16 − 10	14 − 8	10 − 5	14 − 10	6 − 3
14 − 9	9 − 6	10 − 6	6 − 4	13 − 8	10 − 7
10 − 9	17 − 9	4 − 2	15 − 8	13 − 9	14 − 7

Lesson 2.5

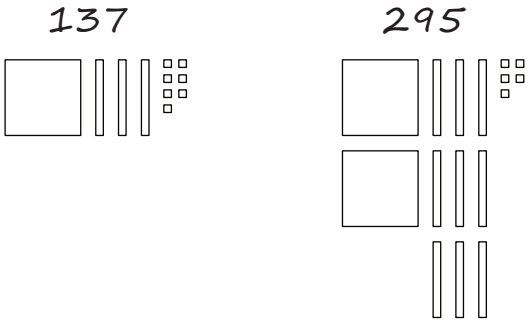
Adding Three-Digit Numbers

Adding three digit numbers is just like adding two digit numbers which we did last year. Here's a quick recap:

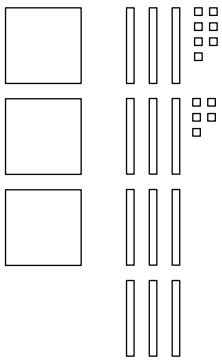


If you would like to know why this works, check out the base ten block diagrams below. Otherwise, just flip the page for a practice riddle.

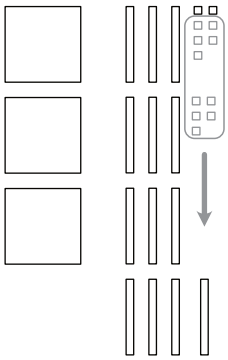
Step 1: Make the numbers.



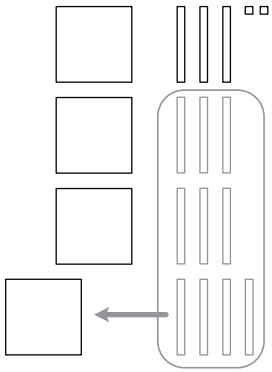
Step 2: Rearrange the blocks.



Step 3: Regroup the ones.



Step 4: Regroup the tens.

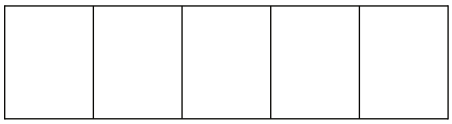


Lesson Practice: Riddle

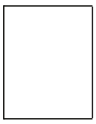
What is the difference between a man and a dog?

588 + 181	394 + 234	459 + 297	389 + 834	100 + 864
(A)	(H)	(J)	(T)	(I)
866 + 988	565 + 902	521 + 621	288 + 590	863 + 710
(N)	(W)	(U)	(E)	(R)
	808 + 721	339 + 470	971 + 793	
	(O)	(P)	(S)	

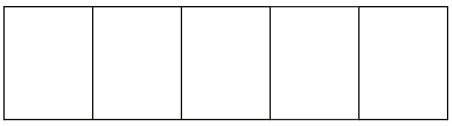
1529 1845 878



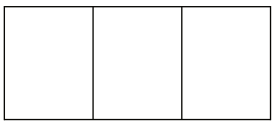
1467 878 769 1573 1764



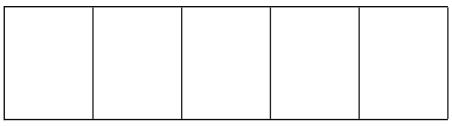
769



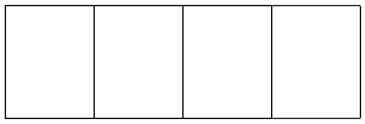
1764 628 964 1573 1223



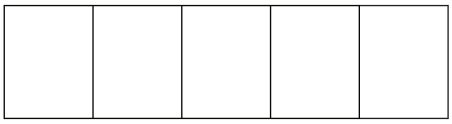
1223 628 878



1529 1223 628 878 1573



756 1142 1764 1223



809 769 1854 1223 1764

Review and Practice

Write the following number in words and in expanded form. (Lessons 1.2 & 1.8)

24,057

Words: _____

_____

Expanded form: _____

Write the numbers below in order from smallest to largest. (Lesson 1.3)

51 20 10 92 94 67 80

_____

Compare each pair of numbers (<, =, and >). (Lesson 1.7)

170 58	6986 1337	7449 7776

Round the numbers below to the nearest 10. (Lesson 1.11)

Number	30	97	55	84	63	72
Rounded						

Complete the addition table. (Lesson 2.1)

+	8	4	2	10	1	3	6	7	5	9
6										
3										

Draw a bar model for the equation then write the four equations represented by the bar model and circle the one you would use to find the missing number. (Lesson 2.3)

73 + ____ = 97

_____

_____

_____

_____

Skill Sharpener

3 9 +2	5 6 +5	2 8 +3	7 1 +4	3 7 +2	3 4 +6
7 9 +7	7 2 +6	3 9 +5	6 5 +6	3 2 +6	8 7 +9
2 4 +9	3 6 +7	4 2 +1	6 1 +8	6 2 +9	2 4 +9
4 6 +4	7 9 +8	1 1 +6	3 4 +6	7 5 +4	6 6 +9
9 1 +8	2 9 +2	6 3 +6	8 2 +5	8 6 +9	6 6 +5

These skill sharpeners may take some getting used to, and it will probably be a while before you can get really fast at them. I suggest you start with a five minute time limit and see how far you can get!

Lesson 2.6

Adding Whole Tens & Hundreds

Today we are going to add whole tens and whole hundreds. This might seem like a silly thing to do but you will see the point of it in a few lessons. If you can add single digit numbers, this lesson should be easy for you!

Examples

70 + 10 = 80

200 + 300 = 500

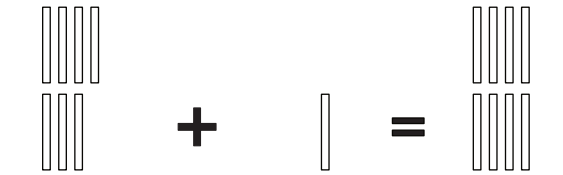
40 + 90 = 130

600 + 800 = 1400

How this works

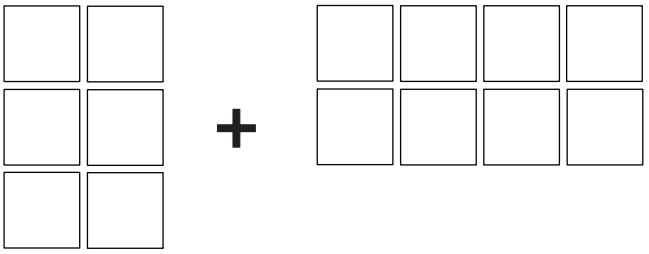
Let's look two examples from above using base ten blocks to understand how it works.

70 + 10 = 80



7 tens plus 1 ten is 8 tens

600 + 800 = 1400



6 hundreds plus 8 hundreds is 14 hundreds

Lesson Practice

20 + 20 = ____

70 + 10 = ____

90 + 30 = ____

40 + 70 = ____

60 + 90 = ____

50 + 50 = ____

500 + 800 = ____

200 + 500 = ____

400 + 200 = ____

800 + 700 = ____

700 + 400 = ____

300 + 600 = ____

Review and Practice

Compare each pair of numbers (<, =, and >). (Lesson 1.7)

740 ___ 968 | 2,689 ___ 2,810 | 2,378 ___ 2,374

Challenge: Round to the nearest 10 instead!

Round the numbers below to the nearest 100. (Lesson 1.11)

Number	852	569	401	644	387	480
Rounded						

What is the **place value** (Th, H, T, O) of the underlined digit in each number? (Lesson1. 9)

4,4<u>0</u>4 <u>6</u>04 <u>5</u>,973 7<u>2</u> 3,4<u>1</u>9

What is the **number value** of the underlined digit in each number? (Lesson 1.9)

4,4<u>0</u>4 <u>6</u>04 <u>5</u>,973 7<u>2</u> 3,4<u>1</u>9

Complete the addition table. (Lesson 2.1)

+	8	6	2	3	5	7	4	9	10	1
8										
6										

Draw a bar model for the equation then write the four equations represented by the bar model and circle the one you would use to find the missing number. (Lesson 2.3)

10 + ____ = 53

Skill Sharpener

6 2 +5	1 4 +4	2 8 +3	2 8 +9	4 9 +5	1 4 +9
8 4 +1	7 1 +3	6 6 +9	3 1 +9	2 5 +9	8 3 +4
2 6 +6	2 8 +1	3 3 +7	5 9 +4	1 1 +8	6 4 +5
8 4 +4	7 4 +3	6 7 +4	8 1 +2	1 8 +7	4 4 +6
4 6 +8	8 4 +8	8 6 +7	1 7 +1	4 5 +4	1 6 +5

Lesson 2.7

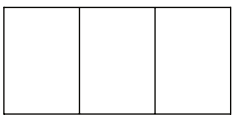
Adding Whole Tens & Hundreds Part 2

This lesson combines the ideas from the previous two lessons.

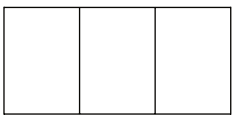
Riddle

How can you tell that hot is faster than cold?

20	30	90	20	90
40	90	60	70	30
+80	+90	+10	+40	+30
(C)	(A)	(D)	(L)	(H)
40	50	80	50	70
40	50	80	50	90
+90	+80	+60	+10	+30
(N)	(O)	(U)	(T)	(Y)

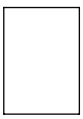


190 180 220

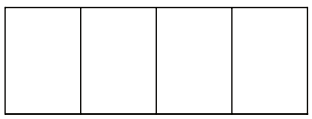


140 210 170

140 210 110 140 150



210



140 180 130 160

Review and Practice

Write the following as a number and in expanded form. (Lessons 1.2 & 1.8)

forty-three thousand, nine hundred and five

Number: _____

Expanded form: _____

_____

Round the numbers below to the nearest 10. (Lesson 1.11)

Number	51	89	14	32	90	45
Rounded						

Complete the addition table. (Lesson 2.1)

+	10	3	1	5	9	4	2	6	7	8
7										
5										

Draw a bar model for the equation then write the four equations represented by the bar model. (Lesson 2.2)

____ + 17 = 32

_____

_____

_____

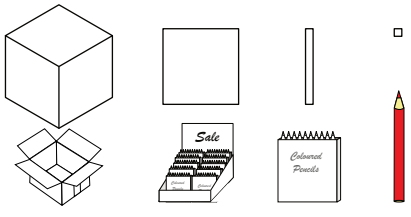
_____

Problem Solving

Mr Grub, the toy shop owner, is doing a stocktake, which means he is counting everything he has in his shop. Coloured pencils are sold in packs of ten. The packs come in a "shelf ready" display box of ten. Ten display boxes are packed in a carton. When Mr Grub counts the pencils, he finds that he has 2 cartons, 7 full display boxes, and 9 packs on display. How many pencils does Mr Grub have in the toy shop?

Psst...
There's a hint over there!

_____



Skill Sharpener

4 6 +3	2 3 +4	9 7 +9	6 8 +2	5 3 +7	4 3 +4
1 2 +7	8 9 +3	4 9 +3	4 4 +3	8 2 +7	6 5 +7
4 4 +8	5 5 +9	3 1 +9	9 8 +3	9 7 +7	3 2 +2
3 8 +1	5 6 +4	2 1 +4	1 2 +9	3 4 +3	4 1 +6
9 9 +4	8 4 +8	9 3 +3	6 1 +9	5 3 +3	5 1 +4

Lesson 2.8

Estimating Addition

Today you will see why we bothered adding whole tens and hundreds.

Think about this example. Joe is at the spare parts shop and has fifty dollars to spend. He needs engine oil which costs 28 dollars and spark plugs which cost 16 dollars. On his way to the counter he sees a sticker he would really like for his car that costs 9 dollars. How can he quickly decide if he can afford it?

Your first idea might be, "use the calculator on his phone," but what if his battery is flat or he left his phone in his car?

And what if I tell you that estimating is faster than typing the numbers into a phone?!

Example

Let's estimate the sum \$28 + \$16 + \$9 to see if Joe has enough money to buy his sticker! Then we'll work out the actual sum to see how close we got.

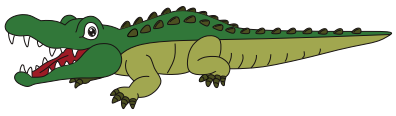
Estimate

Notice that we round the numbers to the nearest 10 before adding!

$$\begin{array}{r} 30 \\ 20 \\ +\ 10 \\ \hline 60 \end{array}$$

Actual Sum

$$\begin{array}{r} {\scriptstyle 2} \\ 28 \\ 16 \\ +\ 9 \\ \hline 53 \end{array}$$



The estimate is higher than the actual sum but it does tell us accurately that Joe can't afford the sticker which is all he needs to know in this case!

Lesson Practice

Estimate the sum and calculate it accurately. Then, write the correct sign (< = >) in the circle between the sums to compare the answers.

37 + 26

Estimate

		4	0
	+	3	0
		7	0

Actual

		1	
		3	7
	+	2	6
		6	3

47 + 25

Estimate

Actual

94 + 12

Estimate

Actual

63 + 20

Estimate

Actual

You can round these numbers to the nearest 100 to estimate the sums!

158 + 214

Estimate

Actual

722 + 311

Estimate

Actual

Review and Practice

Calculate: (Lesson 2.7)

90 + 40 + 10 = ____ 700 + 700 + 600 = ____

Round the numbers below to the nearest 10. (Lesson 1.11)

Number	63	48	75	57	84	88
Rounded						

What is the **place value** (Th, H, T, O) of the bold digit in each number? (Lesson 1.9)

29 3,998 364 8,575 2,004

What is the **number value** of the bold digit in each number? (Lesson 1.9)

29 3,998 364 8,575 2,004

Complete the addition table. (Lesson 2.1)

+	10	3	6	2	4	8	7	9	5	1
2										
9										

Draw a bar model for the equation then write the four equations represented by the bar model and circle the one you would use to find the missing number. (Lesson 2.3)

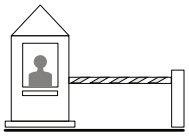
30 + ____ = 98

Skill Sharpener

4 2 +1	4 6 +4	1 1 +4	6 5 +1	7 1 +4	7 9 +2
6 4 +3	5 2 +5	7 2 +5	9 1 +3	7 6 +1	7 8 +2
4 1 +7	2 9 +7	4 2 +8	6 7 +3	6 3 +7	1 2 +5
8 2 +7	5 4 +8	6 5 +5	2 1 +6	4 3 +3	2 7 +3
4 5 +1	6 1 +2	5 3 +7	5 6 +8	5 4 +9	7 4 +8

Lesson 2.10

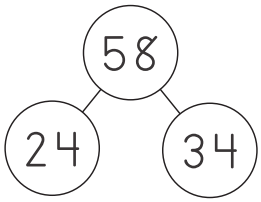
Checkpoint



Complete the addition table. (Lesson 2.1)

+	7	10	3	4	5	9	8	2	1	6
7										
5										

Draw a bar model for the number bond then write the four equations represented by it. (Lesson 2.2)



Draw a bar model for the equation then write the four equations represented by the bar model and circle the one you would use to find the missing number. (Lesson 2.3)

27 + ____ = 63

Estimate the sum and calculate it accurately. Then, write the correct sign (< = >) in the circle between the sums to compare the answers. (Lesson 2.7)

35 + 45 ◯ 21 + 43

Estimate **Actual** **Estimate** **Actual**

Skill Sharpener

6 9 +4	2 3 +4	3 7 +9	2 6 +6	9 1 +7	1 3 +2
6 6 +8	4 5 +6	9 8 +6	7 1 +8	2 8 +7	2 1 +1
8 9 +5	6 5 +6	4 4 +4	4 3 +7	6 7 +9	2 9 +1
1 6 +5	8 4 +8	2 4 +7	1 5 +6	2 5 +9	2 9 +1
7 5 +7	8 8 +1	4 4 +3	8 6 +2	1 3 +9	8 8 +2

Lesson 2.10: Real World Application:

Calculating Fuel Usage Across the Nullabor Plain

The Thompson family are on their trip around Australia. They are about to cross the Nullabor Plain along the Eyre Highway. The family are spending a few days at Norseman, the last big town before the road enters the Nullabor Plain.

When he comes out of the the caravan in the morning, Ben notices his dad staring at a map with his notepad and pencil in hand. He asks, "What are you doing, Dad?" Mr Thompson glances up and says, "I'm just working out how much fuel we'll need to get across the plain."

Ben looks puzzled, "What do you need to do that for?"

"Well, we don't want to run out and get stranded in the middle of the desert, do we?" answered Mr Thompson.

"Sounds fun. Can I help?" asks Ben.

"Sure," answers his father. "Grab yourself a piece of paper and a pencil!"

Let's work this out with the Thompsons! 

"OK, Ben, here are the distances between fuel stops on the road. Can you tell me what the biggest distance is that we need to drive?"

Segment	Starting Point	Ending Point	Distance (km)
1	Norseman	Balladonia Roadhouse	190
2	Balladonia	Ciaguna Roadhouse	181
3	Ciaguna Roadhouse	Cocklebiddy Roadhouse	66
4	Cocklebiddy Roadhouse	Madura Roadhouse	92
5	Madura Roadhouse	Mundrabilla Roadhouse	114
6	Mundrabilla Roadhouse	Eucla Roadhouse	112
7	Eucla Roadhouse	Border Village Roadhouse	12
8	Border Village Roadhouse	Nullabor Roadhouse	183
9	Nullabor Roadhouse	Yalata Roadhouse	92
10	Yalata Roadhouse	Nundroo Roadhouse	51
11	Nundroo Roadhouse	Penong	85
12	Penong	Ceduna	75

Find the biggest distance in the table on the previous page and write it down here:

_____

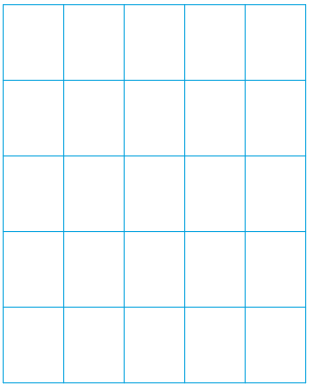
"Yep, that's right! Now, let's work with round numbers. So, what is that distance rounded to the nearest hundred?"

Round the value you wrote above to the nearest 100km:

_____

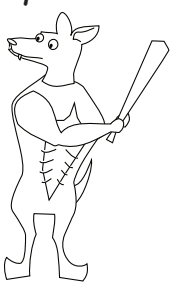
"Now, let's be really careful and plan for the worst. What's the longest distance we'd have to travel if one of the fuel stops can't give us any fuel? Just give me an estimate."

The longest distance from the start of one segment to the end of the next segment is the distance from Norseman to Ciaguna Roadhouse. Estimate that distance (add the rounded lengths of the two segments):



"Good job! With a full tank our car will go around 500km on a good run, but they tell me that cars often use more fuel on the Nullabor Plain than they normally do. So, I think we better buy a jerry can and fill it up, just in case!"

Now for a fun challenge, estimate the total distance the Thompson family will travel on their crossing of the Nullabor Plain.



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I hope you've had a chance to explore some of the lessons together.

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www.milestonemaths.com.au

If you're not quite sure where to go next, or you'd like a hand getting started, feel free to reach out — I'm always happy to help.

A quick note…

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Rather than sharing this file, please feel free to share the website with friends so they can download their own copy and join in.

Thanks,

Kathy