# Milestone Maths C2 by Kathy Gonzalez

Answers



# Introduction

Welcome to the second book in Milestone Maths level C. This book contains 40 lessons and is intended to be used by an average student in term two of year two in an Australian school year. This allows for four lessons per week in a regular term. If desired, the fifth day may be used to complete any outstanding work, for review, or extension or for some of the practical/enrichment activities that are suggested from time to time in this book and on the Milestone Maths website. You may also elect to complete a drill on the fifth day or to take a break from maths. Please see the next page for advice on how to structure and pace lessons for children with special needs.

# RESOURCES

The only essential resource for this curriculum is a set of Sumstix (also known as Cuisenaire rods). These may be purchased from the same place that you obtained this book. Optional resources include Number Bond Flashcards and Number Game Cards. Check the Milestone Maths website for details.

www.milestonemaths.com.au

# PARENT INVOLVEMENT

Milestone Maths is designed to foster independent learning as quickly as possible. For this reason, parent instructions are kept to a minimum and are contained within this book. The next few pages contain introductions to each of the milestones and some teaching notes for selected lessons. It would be a good idea to consult these pages when your child commences each milestone If you child is not yet reading, you will have to read the instructions for each lesson.

At this level, it is still advisable to demonstrate examples practically whenever possible. So, when counters or Sumstix are drawn in the student instructions and examples, you should recreate the same examples using actual concrete materials - use whatever items you fancy for counters (buttons, beans, beads, small toys, found natural materials etc) when required. Also, when algorithms are described in the text, it would be a good idea to demonstrate the same examples by writing out each example on a separate piece of paper or a black/whiteboard one step at a time. After you have completed the demonstration, which should only take a few minutes, should read the instructions to your child and and then allow them to complete the rest of the lesson on their own. You may need to read word problems or instructions for review activities that are not yet familiar to the child.

# QUESTIONS OR COMMENTS?

If you have any questions whatsoever about any aspect of this course's implementation, or if you need help understanding any maths related concept, please do not hesitate to contact the author at

author@milestonemaths.com.au

Hi! Cookie Kookaburra is back to help you learn more exciting maths.

This term we'll learn how to count to one thousand and how to skip count by hundreds, twos and fives. We'll also learn all about adding and subtracting two-digit

So get ready to do some maths!



Milestone Maths C2

First Edition (2025)

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Error reports and comments are most welcome.

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# EXTENSION WORK

Some activities in this book are marked with a graduation cap icon. These activities are more challenging and intended to stimulate the more advanced students. Use your discretion as to whether require your child to attempt these activities. If the child is keen to have a go, let them do so, but give them help as and when they need it but 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. 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/

# ADAPTATIONS FOR CHILDREN WITH SPECIAL NEEDS

If your child has special learning needs, there are a number of adaptations possible.

For older yet illiterate students: you should read all instructions to the student just as you would to a young child that is still learning to read.

For children who have difficulty writing: you may act as scribe and have the child tell you what to write. When numbers or equations are required, have the child "build" the answers using the number game cards. Also, you may use the number bond flashcards for drills instead of the written drills or you could treat the written drills as oral drills until writing is easy. Unless the child has a physical handicap that makes writing difficult or impossible, I would suggest that you gently encourage them to do more and more triing on their own every day. Begin by taking turns with the pencil - you write one number then the child writes one, etc and slowly increase the amount of writing that your child does until they achieve independence.

For children who need a slower pace: some lessons could consist entirely of warm up/review activities or the student book activities could be assigned over two or more days.

 $Extra \ writing \ practice \ can \ be \ done \ on \ a \ reusable \ drawing \ board \ (eg \ whiteboard, LCD \ tablet, etc.), \ on \ scrap \ paper \ or \ in \ a \ separate \ exercise \ book.$ 

For children who need a faster pace: If your child is finding the lessons very easy and is learning the concepts quickly, you may consider doing two lessons a day and completing the Review and Practice section of only one of the lessons. Special care needs to be taken that the child is mastering the drills at this pace as well. Over learning is always a good thing however, a particularly bright child will need to be challenged to maintain motivation.

# **Parent Notes**

# Milestone 6

### INTRODUCTION

This milestone is an extension of Milestone 2. Place value is taught in Milestone Maths purely as much as it is helpful for solving various mathematical problems at this stage. In the next two milestones, the student will see how a basic understanding of place value is useful when trying to add or subtract multidigit numbers.

# CONCEPTS AND SKILLS TAUGHT

- · Counting to 1000 and the patterns inherent in our base 10 number system.
- · Reading and writing numbers to 1000.
- . The importance of the number 10.
- Writing three-digit numbers on a place value chart and in expanded form.
- Counting by 100's.
- · Bundling objects into 10s and 100s to facilitate

### PRACTICE IDEAS

Give your child plenty of practice in counting and Give your child pienty of practice in counting and reading numbers. One way to practice reading numbers it to have your child read numbers up to 1000 where ever you see them: on road signs, on number plates, labels and packaging, etc.

### LESSON NOTES

### LESSON 41

To give your child practical experience with this concept, you could get a bag of craft sticks or match sticks and have them bundle them into tens and then group the tens into hundreds.

The last activity on the Review and Practice page may be challenging for some children. Try to guide the student rather than solving the whole thing for them. Start with the bottom equation to find the value of the square. At that point the other two equations become simple missing number problems.

### LESSON 42

This lesson requires significant teacher involvement listening to the student reading the numbers but it need not take too long. This should be an enjoyable exercise for the student so do not labour it. To avoid tedium, it would be best to only 'play' with the spinner for a minute or so and then repeat the activity as the introduction to the next couple of lessons.

Note that the word problem in the Review and Practice can be solved at least two ways: or by setting up a missing number equation:

There is often more than valid one way to approach a problem as we see in this example, so finding alternative ways to solve a problem should be encouraged.

### Milestone 7

### INTRODUCTION

This is the first milestone dealing with addition and subtraction of two-digit numbers. Only problems that do not involve regrouping are studied in this milestone to give plenty of practice with the concept before the complication of regrouping is introduced.

A slow gentle introduction is given to addition with lots of practice. Then the idea is extended to subtraction. For slower students it may be necessary to repeat the sequence of lessons from 45-48 for subtraction. If this is the case, pause the lessons for a few days and adapt lessons 45-48. You may invert the addition examples from 45-48 and have the child do them using the same tools. So, for example, instead of 23 + 34 (=57) the child will solve 57-23 (or 34). Blank grids appear at the back of this book to facitilate this extra practice.

### **CONCEPTS AND SKILLS TAUGHT**

Adding 2-digit numbers with Sumstix. This lesson is purely a proof of concept. The child should be encouraged to dispense with Sumstix as soon as possible for addition of

### Adding 2-digit numbers on a place value mat. A "hands-on" introduction to the next skill.

- Adding 2-digit numbers on a place value chart. The first step towards a pencil and paper algorithm.
- Adding 2-digit numbers on paper. A basic pencil and paper algorithm is introduced.
- Using place value knowledge to add 2-digit numbers mentally. This is straightforward when no regrouping is involved.
- Subtracting 2-digit numbers on paper. A basic pencil and paper algorithm is introduced.
- Subtracting 2-digit numbers manually

# Lesson 45

This lesson is an example of how we will eventually transition the child away from using Sumstix to mental or pencil and paper methods.

For more complicated problem solving tasks, Sumstix will eventually be replaced with bar models and other graphical methods. This will only be hinted at later this year when we study fractions and will begin formally next year.

### LESSON 46

This lesson introduces the concept of adding together two, two-digit numbers. We use the place value mat as an introduction to the pencil and paper algorithm. The place value mat appears at the back of this book. Keep it safe, perhaps in an envelope or sheet protector, as it will be used often during this term.

### GAME IDEA

This could be competitive or a solitary game.

Set up (using Number Game Cards deck)

Create two special card decks by selecting cards:

Deck one: all the digit cards with a face value of 0-4

Deck two: all the two digit numbers where both digits are less than nine.

The above restrictions ensure that the child will not need to deal with regrouping at this stage.

How to play

The dealer turns the top card of deck 2 face up.

The players draw four cards from deck one and try to arrange them into a sum to get as close as possible to the two-digit number. If playing competitively, each player draws four digit cards and the one who gets closest to the card value wins the round. If two players make the same total, the first to complete it wins.

Allow the children to use scraps of paper for working if they need it.

If you don't have the Number Game deck, use the digit cards from the back of this book and two dice. The dice are rolled and the two numbers showing are then used to compose the 2-digit number. If you use dice of different colours, you can assign one to be the tens digit and the other to be the ones digit.

### LESSON 51

This lesson introduces a mental strategy for adding two-digit numbers. As the instruction in the student book implies, mental strategies are only useful if the student has the basic number facts mastered to the point of instant recall.

In this course, various methods to solve a given class of problem are presented and the student is given freedom to choose which one to use. This encourages creative thinking by encouraging the child to come up with their own methods and also promotes the development of number sense.

### LESSON 53

With the foundation laid thus far in the milestone, this lesson should be relatively easy for your child. However, if your child does have difficulty understanding the concept, pause work in this workbook and repeat the sequence given in lessons 45-48 but for subtraction. You can invert the examples and questions given in lessons 45-48 for this purpose. So, for example, the first problem in lesson 45 is 34 + 21 (= 55). When repeating the lesson for subtraction you would give your child the problem 55 - 34 (or 55 - 21). For a drill exercise on these days you could either use flashcards or do the drills in the could either use flashcards or do the drills in the workbook for lessons after 49 as oral drills.

### GAME IDEA

Extend the addition game given on page 6 to allow subtraction. The players can decide whether they want to use addition or subtraction to come up with the number. In this case you will need to include all the digit cards and the players may need help until they learn about regrouping.

# Milestone 8

# INTRODUCTION

This milestone introduces mental strategies involving a number chart for adding larger numbers

The Milestone Maths practice mat and number chart will be helpful here but any number chart that is arranged in rows of 10 and ranges from 1 to 120 will do

# CONCEPTS AND SKILLS TAUGHT

- Adding and subtracting 10.
- Adding and subtracting 9.
- Completing number chart "puzzles" by finding the missing numbers in a random piece of a number chart.
- Skip counting by 10s from an arbitrary starting point.

# LESSON 57

The "Count by tens" activity on the Review and Practice page is an extension of this idea. You should show the student that to find the sequence they only need to read down the column on their

# LESSON 59

Being familiar with a number chart and finding the missing values in these 'pieces' of a number chart is excellent mental calculation practice and will also help to develop number sense. The exercise is also very much like a puzzle which helps to make it enjoyable.

# Milestone 9

# INTRODUCTION

Skip counting is not only a good introduction to multiplication, it is a useful skill in and of itself. This Milestone teaches skip counting by exploiting the obvious patterns on the number chart. The the obvious patterns on the number chart. The Review and Practice activities for the rest of the year practice this skill. The child may use a number chart to help with these counting activities initially but they should be encouraged to give up the chart as soon as possible.

Skip counting is applied to counting money in

Milestone 12. You could motivate the lessons in this milestone by previewing Milestone 12 and showing your child how to count real two dollar, five cent and ten cent coins.

The child should be very familiar with the skip counting patterns for 2, 5 and 10 by the time multiplication is introduced formally in Milestone

# GAME IDEA

Play a variation on "Duck, Duck, Goose" where players take turns counting with a twist.

Two or more players are required. Choose one to be the leader. The leader chooses a noise (for example "beep" or "quack") and a "noisy number" (2, 5 or 10 the game can be extended as the children learn to skip count by other numbers).

The leader begins the count and the players take The leader begins the count and the players take turns counting but they do not say any of the multiples of the "noisy number". Instead, they should make the noise. So, if the noisy number is two, the leader says, "one," the next child says, "beep," the next child says, "beep," etc. If a child says the number instead of a sound, they are out. Last one in is leader for the next round.

# LESSON 62

Ensure that the student completes the table across the rows so that they get practice counting by twos rather than counting by tens.

It would be a good idea to have the child read the numbers out to you once they have finished writing them.

You can also practice skip counting by counting in turns. You say, "one," the child says, "two," you say, "three," the child says, "four," etc until you reach 100.

# Lesson 63

This lesson is a transition to skip counting without the help of the chart. It also presents an application of skip counting to the child. Help your child as needed.

# LESSONS 64-68

The remainder of this milestone repeats the same sequence for counting by fives and then gives further practice skip counting by both twos and fives.

# Milestone 10

# INTRODUCTION

This milestone introduces addition subtraction where regrouping is required. It follows a similar sequence to milestone 7. Because the concepts are more difficult to understand, they are carefully demonstrated with Sumstix before algorithms are introduced.

Practicing algorithms gives plenty of practice at recalling the basic number facts. Unless these basic number facts are overlearned, the mental methods that are taking precedence over algorithms in the modern classroom are, at best cumbersome, and at worst, useless to the child.

With the logical thinking ability developed through practicing pencil and paper algorithms, and a firm grasp of the basic number facts, mental methods can then be applied with skill and ease.

Because logical thinking and calculation skills are developed in understanding this process, it is recommended that you do not move forward until your child understands, and is able to easily complete, each lesson. If you need to pause for a few days and practice one of the steps. Do so.

There are few things as important to the future success of your child in mathematics as these foundational skills.

# LESSON 69

This lesson introduces addition where regrouping (or carrying) is necessary. You might need to do several examples with your child before they get the idea. If this concept is difficult for your child to understand, spend two or three days on this lesson. The first day/s you should only do the following practical activity and an oral drill. The last day the child can complete the workbook lesson.

Separating the Sumstix into tens and units is key to understanding the concept of carrying when we get to the pencil and paper algorithm.

# PRACTICAL ACTIVITY

Use four ten-sided dice or four piles of digit cards (see back of this book). Shuffle the cards and draw one card from each pile and turn them over or throw the dice. Form two, 2-digit numbers using the digits showing. Write out the sum on a piece of paper (preferably with a grid printed on

it - see back of this book) and have your child It - see back of this book) and have your child solve it (or demonstrate the solution until they understand the concept and are able to solve the problem on their own). You may skip numbers where there will not be any regrouping required or, to increase the likelihood of generating problems with regrouping, you could remove the digits 0-5 from one of the piles.

# Lesson 70

While Sumstix are used to prove the result to the child, the child should be encouraged to do the sums on the place value mat.

Remind the child that they are only concerned with calculating one column at a time. When they have three numbers to add together in the column, they should add two of them together then add the third one to the total.

If you read the directions in the Student Book to the child carefully and then demonstrate the process, they should soon get the idea.

You may use examples from Skill Drill series 8 in the Student Book for extra practice with the child before they work on the riddle independently.

# GAME IDEA

The addition game introduced in Milestone 7 can now be extended to include regrouping. All the single digit cards can now be included in deck one and all the two-digit cards can be included in deck two.

# LESSON 71

This is the pencil and paper version of last lesson. You should model the process a few times for your child on a separate sheet of grid paper (see back of book) before allowing them to the lesson independently.

You can also make a sum on a place value mat then write it out on a place value chart drawn on grid paper to link the previous lesson with this one.

# LESSON 72

The scaffold of the place value chart is now taken away. By now your child should be getting the idea. If you need to, pause and spend a few days practicing with the place value mat and place value chart before moving on.

### LESSON 74

We now move onto subtraction with regrouping (or borrowing). Subtraction is more difficult than addition so feel free (and be prepared) to take the next few lessons slowly. Adapt the practical activity given on page 8 for subtraction and spend as long as you need to on each lesson to allow the child to understand the concepts taught.

This Sumstix illustration of the process will help the child understand the two algorithms that are presented in the lessons that follow.

### LESSON 75

This lesson introduces two algorithms for subtraction. Contrary to popular belief these are not a "new" way and an "old" way: both appear in textbooks from the nineteenth centuary, sometimes side-by-side.

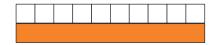
Neither one is particularly superior to the other and neither is mandated by the Australian Curriculum, although some teachers do mandate one method over another in their classrooms. As mentioned in the student book, I prefer the "borrow and payback" method for its simplicity and applicability to computing. I suggest that you spend two days on this lesson and teach each method on a separate day.

If your child finds one method very difficult to understand and the other easy, allow them to use the easy method excusively and disregard any instructions to use a particular method in later lessons. In any case, it is best for the child to decide on a favourite method to use exclusively by the time they have completed this milestone.

# **LESSONS 76-80**

The remainder of the lessons in this milestone provide further practice with the algorithms taught. As these concepts are foundational, I do not recommend that you skip any of these

Our number system is brilliantly designed to make counting super easy. Using our Sumstix we learned that ten ones make one ten:



Now take a close look at your number chart. How many squares are there in each row? Yes, ten. Now find the number 100. How many rows of ten squares are there from the top of the chart to the number 100? Yes, it's ten. Now, look back at what we just learned about counting the 'hundreds' at the bottom of the previous page. How many hundreds make one thousand? Yes, it's ten again! Ten is a very important number.

So, let's see how Cookie uses this idea to count sticks...

I've got this huge pile of sticks to count. If I count them oneby-one, I'll be here all day!



I've stacked them together to make it easier. Each bundle has ten sticks and each stack has 10 bundles of sticks which makes 100 sticks.

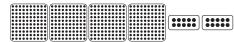


# LESSON PRACTIC



This grid contains 100 dots. Count the dots in the pictures below and write the number in the box.





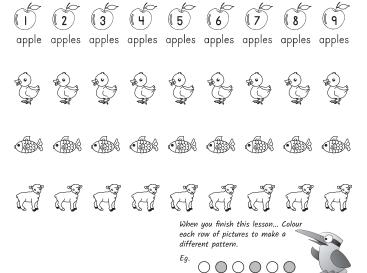
421

# Lesson 41



# COUNTING TO 1000 AND MORE PLACE VALUE

By now counting to 100 should be easy and you should have a feel for the pattern of numbers. When you can count to 100, counting past 100 is super easy. Let's start with skip counting by 100's, but before we do, I want you to count every row of objects below just like the first one is labelled.



Call this object a "hundred" and count the row of "hundreds" below exactly like you counted each line of objects above. Pretend that a "hundred" is counted the same as sheep, that is "one-hundred, two-hundred..."



You just counted by hundreds all the way to 900!

Ten hundred is usually called 1000 so now you are ready to count to 1000.

# REVIEW AND PRACTICE

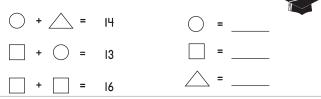
A group of kids were playing tug-of-war. There were six kids at each end of the rope. How many kids were there all together?

There were 12 kids.

Fill in the missing numbers on the number chart.

	2	3	4	5	6	7	8	9	Ю
Ш	12	13	14	15	16	17	18	19	20

The same shape is the same number. Work out what number each shape represents.



# New Drill Details

The drills which follow practice the following concepts and facts:

- 10 plus a number
- A number plus 10
- Reviewing facts that add to values up to 10.

This new section will help you to get ready for the drills. If you would rather use flashcards or games, you'll know which facts and concepts to practice! This section will come up whenever the

whenever the drills change focus!

# - Drill 41 -

+   =_	
IO + IO =_	20

Stop when you "get it!" You can

always practice more tomorrow.

# Lesson 42

# READING AND MAKING 3-DIGIT NUMBERS

Today we're going to practice counting past 100 using a sort of number flipper. Cut out three sets of digit cards from the back of this book and arrange them into three piles on the table as shown below. The digits in each pile should be in order from 0-9.

If you have the Milestone Maths Number Game cards, you can use them for this activity!

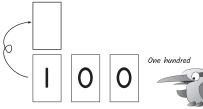








Now "flip up" the top card on the left hand pile to reveal the number 100.



Then flip through the cards in the right hand pile and read the numbers out loud to your parent. When you get to 109, flip the whole pile of cards above the nine in the right most pile back over so that the zero is at the top again. Also, flip the middle zero over to reveal the one.













Flip through the right hand pile and read the numbers formed. Keep doing this for a while and then see if you can make any random number that your parent tells you to.

Put your digit cards somewhere safe when you're done. You'll need them again later in this book!

# LESSON PRACTICE

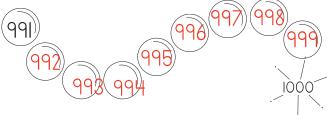
Read the following numbers aloud to your parent.

	O .			
445	501	700	848	905
652	198	897	331	309
260	519	561	656	982

Each row below shows a piece from a number chart. Fill in the missing numbers. The first one is done for you.

331	332	333	334	335	336	337	338	339	340
621	622	623	624	625	626	627	628	629	630
441	442	443	444	445	446	447	448	449	450
191	192	193	194	195	196	197	198	199	200
661	662	663	664	665	666	667	668	669	670

Write the missing numbers in the bubbles to count from 991 to 1000.

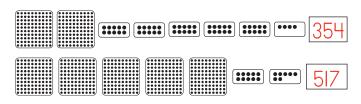


# REVIEW AND PRACTICE

Helen and Mary were playing with their dolls. They had 12 dolls all together. When they were finished playing, Helen put away 5 dolls and Mary put away the rest. How many dolls did Mary put away?

Mary put away \_\_\_/ dolls.

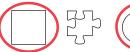
Write down the number of dots shown in each line:



Fill in the missing numbers on the number chart.

21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

Circle the symmetrical shapes:















$$10 + 10 = 20$$

$$2 + 10 = 12$$

# PLACE VALUE AND EXPANDED FORM

We can represent three digit numbers on a place value chart and in expanded form just like we did for

## **EXAMPLES**

# LESSON PRACTICE

Build the following numbers on your place value mat using digit cards and then complete the place value chart.

	h	†	0
672	6	7	2
	h	+	0
584	5	8	4

h	†	0
2	6	9
h	†	0
Ω	Ц	3
	2 h	2 6

Write each number below in expanded form:

$$723 = \frac{700 + 20 + 3}{100 + 90 + 2}$$

$$192 = \frac{100 + 90 + 2}{400 + 60 + 7}$$

467 = 
$$\frac{400 + 60 + 7}{200 + 70 + 11}$$

# REVIEW AND PRACTICE

There were 12 birds in a tree, 4 birds flew away. How many birds were left?

There were 8 birds left.

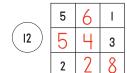
# Fill in the missing numbers:

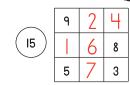
251	252	253	254	255	256	257	258	259	260
781	782	783	784	785	786	787	788	789	790

Fill in the missing number on the number bond then write the four equations represented by it.



**PUZZLES**Fill in the missing numbers so that each row and column add to give the





# Drill 43

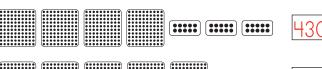
$$6 + 2 = 8$$
  
 $2 + 10 = 12$ 

# CHECKPOINT SIX



Count the dots and write the number in the box.





Write each of the numbers below on the place value chart.

	h	t	0	_	h	t	0
724	7	2	4	871	8	7	

	h	†	0		h	†	0
518	5	1	8	452	4	<u></u> 5	2

# Drill 44



Write each number below in expanded form:

$$856 = 800 + 50 + 6$$
  $994 = 900 + 90 + 4$   
 $713 = 700 + 10 + 3$   $874 = 800 + 70 + 4$ 

Each row below shows a piece from a number chart. Fill in the missing numbers. Count by ones.

421	422	423	424	425	426	427	428	429	430
951	952	953	954	955	956	957	958	959	960
681	682	683	684	685	686	687	688	689	690
741	742	743	744	745	746	747	748	749	750
881	882	883	884	885	886	887	888	889	890



My hundreds digit is half my tens digit and two more than my ones digit. My ones digit is more than nothing but less than two. What number am I?



# Lesson 45

# ADDING AND SUBTRACTING BIG NUMBERS PART 1

# ADDING BIG NUMBERS WITH SUMSTIX

We can add two-digit numbers using Sumstix in much the same way we used them to add single digit numbers. Of course, you will not always have Sumstix in your pockets to help you add numbers when you need to, but I am showing you this now so you can use it to prove to yourself that the other methods .... we will look at actually work.

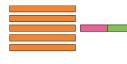
EXAMPLE

Step 1: Make each number with Sumstix.



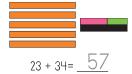


Step 2: Rearrange the Sumstix.



Using Sumstix to add bigger numbers can get tedious, not to mention that you'll probably run out of sticks! In the rest of this milestone. we'll learn some better ways to solve these sums.

Step 3: Find the result.





# LESSON PRACTICE

Use Sumstix to find the answers to the following:

$$34 + 21 = 55$$

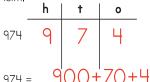
$$12 + 65 = \frac{77}{34 + 65} = 99$$

$$34 + 32 = \underline{66}$$
  $45 + 32 = \underline{77}$ 

Edith is 7 years old. How many years will it be before she is 11 years old?



Write the numbers on the place value charts then write them in expanded



_	h	†	0
28		2	8
28 =	20	)+8	

Colour the fraction of the shape shown:









# **NEW DRILL DETAILS**

The drills which follow practice the following concepts and facts:

- A number between 11-20 take away 10 (eg 15 - 10)
- A teen number take away the units (eg 12 - 2)
- Reviewing subtraction facts for values up to 10.

Taking 10 away from a 'teen' or 'tween' is super easy. Eq: 15 - 10. Since 15 = 10 + S, taking ten away we just end up with 5. So, 15-10=5.

Taking the units from a 'teen' or 'tween' is even easier because the answer is always 10! Eg 12 - 2. Since 12 = 10 + 2, when we take 2 away. we end up with ten. So, 12-2=10.



# Lesson 46

# ADDING BIG NUMBERS WITH A PLACE VALUE MAT

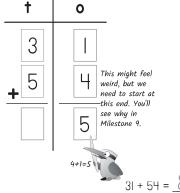
So far we have only seen sums written horizontally (across the page). Sums can also be written vertically:

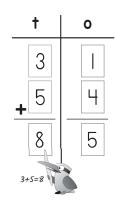
+61

# EXAMPLE

There's a place value mat at the end of this book!







# LESSON PRACTICE

Build the following sums on your place value mat, solve them and then write the answers here.

# Drill 45 -

10 - 7 =

18 - 10 = 8

# **REVIEW AND PRACTICE**

There are 12 boys in Jack's class, 5 of them are 7 years old and the rest are still 6. How many boys are 6 years old in Jack's class?

Write the numbers in expanded form:

$$_{857} = 800 + 50 + 7$$
 $_{979} = 900 + 20 + 900$ 

$$231 = 200 + 30 + 1$$

$$929 = 900 + 20 + 9$$

Write the four equations represented by number bonds.



$$\frac{4 + 7 = 11}{7 + 4 = 11}$$

$$|| - 4 = 7$$
  
 $|| - 7 = 4$ 

# RIDDLE

You can find my hundreds digit by adding 3 to 1, my tens digit is 1 less than my hundreds digit and my units (ones) digit is the sum of my other two digits. What number am 1?



# Drill 46

-  0 = _		
19 - 10 =	9	2

# Lesson 47

# ADDING BIG NUMBERS WITH A PLACE VALUE CHART

Last lesson we saw how to use a place value mat to add big numbers. This is more convenient than using Sumstix but only a little bit.

Today we will get one step closer to being able to do these sums on a scrap of paper or, even better, in our heads.

42 + 15

# EXAMPLE

12 ' 10	)	
†	0	†
4	2	4
+	Remember to start at this end!	+
	7	5

### LESSON PRACTICE

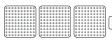
Write the sums on the place value charts and then add each column to find the sum

# **REVIEW AND PRACTICE**

Kate's grandmother gave her 15 dollars. She spent 5 dollars on a gift for her grandmother and 3 dollars on something nice for her mother, How much money did she have left to spend on herself?

Kate had 7 dollars left.

Count the dots:















Use the number bond to fill in the blanks:



A toy shop owner asked a group of kids what their favourite toy was. The pictogram below shows the results:

Which toy was most popular? art sup

blocks 💥

Which toy was least popular? blocks

art supplies 袋袋袋袋 How many kids did he ask? \_\_\_\_\_\_\_

# Drill 47

19 - 10 =

20 - 10 =

12 - 2 =

II - IO =

13 - 3 =

20 - 10 =

18 - 10 = 8

17 - 7 = 10

14 - 4 =

7 - 3 =

4 - 2 =

# ADDING BIG NUMBERS ON PAPER

Today we're going to get rid of the place value chart and just write out the sums vertically to solve them. To keep things neat, we will write them on a grid. It's important to keep your numbers lined up!

# EXAMPLE 61 + 18Starting here we and 6 plus 1 say, "I plus 8 is is 7. LESSON PRACTICE 64 + 21 22 + 2637 + 42 14 + 3322 + 75 46 + 23 58 + II 53 + 43 32 + 21

# - Drill 48 -18 - 8 = 14 - 4 = 18 - IO = **8** II - IO = 14 - 10 = |3 - |0 =19 - 9 = 19 - 10 = 20 - 10 = 12 - 10 = 15 - 5 = 10 - 7 = 15 - IO = 17 - 10 = 10 - 2 =10 - 9 = 4 - 3 = ||-|= | IO - 8 = 17 - 7 = 6 - 4 = 5 - 3 = 13 - 3 = 7 - 4 = 10 - 5 = 20 - 10 = 7 - 5 = 9 - 5 = 16 - 6 = 10 - 3 =12 - 2 = 9 - 4 = 16 - 10 = 6 9 - 8 =

# REVIEW AND PRACTICE

Tom had 5 one dollar coins saved in his piggy bank, He was given 6 one dollar coins by the neighbour for washing his car, How many one dollar coins did he

Tom had \_\_\_\_\_ dollar coins.

Fill in the missing numbers:

421	422	423	424	425	426	427	428	429	430
831	832	833	834	835	836	837	838	839	840

**RIDDLE**Why was six afraid of seven?

Solve the sum below to find the answer to the riddle:

613 + 176								
h	†	0						
6	-	3						
+	7	6						
7	8	9						

Write the digits from the answer above in the boxes below and read each digit as a separate number.

Six was afraid of seven because



# Lesson 49

# PRACTICE ADDING BIG NUMBERS

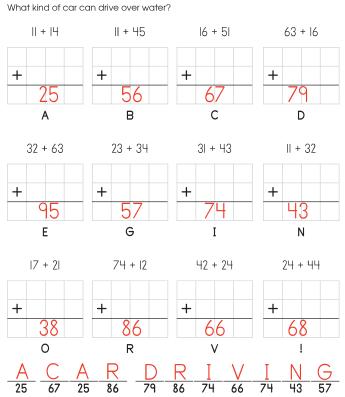
# RIDDLE

43

25

56

86



57

95

68

Lilly is 7 years old. Her sister, Mia, is 5 years older. How old is Mia?

Mia is 17 years old.

Fill in the missing numbers on the number chart.

	2	3	4	5	6	7	8	9	Ю
	12	13	14	15	16	17	18	19	20

Use Sumstix (if you need them) to find:

1	of	4	=	2
2	ΟĪ	- 1		

$$\frac{1}{2}$$
 of 8 =  $\frac{1}{2}$ 

$$\frac{1}{2}$$
 of 8 =  $\frac{1}{2}$  of 10 =  $\frac{5}{2}$ 

$$\frac{1}{2}$$
 of 12 =  $\frac{6}{1}$ 

$$\frac{1}{2}$$
 of 18 =  $\frac{9}{1}$ 

$$\frac{1}{2}$$
 of 18 =  $\frac{9}{2}$  of 24 =  $\frac{12}{2}$ 

# **NEW DRILL DETAILS**

The drills which follow practice the following concepts and facts:

- A number plus 9
- 9 plus a number
- Reviewing addition facts for totals up to 10.

Adding 9 to a number is the same as adding 10 then taking one away. You can do these easily on a hundreds chart by finding the number, dropping down to the next row and then moving back one square.

OR for another way to think about these, you can review lesson 32 in book CI.



# Lesson 50

# More Practice Adding Big Numbers

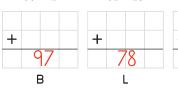
# RIDDI F

Why is an optometrist like a teacher?







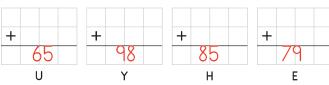




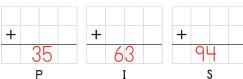








$$21 + 14$$



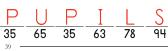


Ι

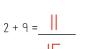








# Drill 49



6 + 3 =

$$7 + 10 = 17$$

# REVIEW AND PRACTICE

Quinn had 13 dollars. His grandmother gave him 25 dollars for his birthday. How much money did he have then?



Quinn had  $\frac{38}{}$  dollars.

Fill in the missing numbers:

491	492	493	494	495	496	497	498	499	500
	II2	113	114	II5	116	117	118	119	120

Write the four equations represented by the number bond.



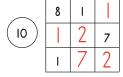
$$6 + 7 = 13$$
  $13 - 6 = 7$ 

$$13 - 6 = 7$$

# 7 + 6 = 13

# **P**UZZLES

 $\mbox{\it Fill}$  in the missing numbers so that each row and column add to give the number in the circle.



	1	3	3
7	2	2	3
	4	2	_

# Drill 50

9 +   =	_IC

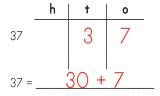
9 + 2 =

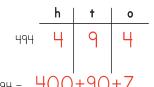
# REVIEW AND PRACTICE

Emily got a new set of colouring pencils for her birthday. There were 12 pencils in set but she lost 3 of them. How many pencils did she have then?

Fmilv had pencils left.

Write the numbers on the place value charts and in expanded form.



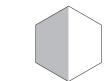


Fill in the missing numbers:

 $\frac{1}{2}$ 

Write the fraction of the shape that is shaded:





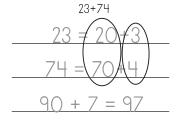
# Lesson 51

# **EXPANDED NOTATION AND ADDING BIG NUMBERS**

The numbers we have been dealing with in this milestone are actually pretty easy to add up in your head but ONLY if you know your sums to ten really well. Remember to practice those number facts!

The easiest way to add numbers in your head is to think of them as being written in expanded notation.

## EXAMPLE



# LESSON PRACTICE

# Drill 51

2 + 9 =

$$6 + 2 = 8$$
  
 $5 + 2 = 7$ 

$$2 + 3 = 5$$
  
 $8 + 2 = 10$ 

# ADDING BIG NUMBERS: A SHORTCUT

Last lesson I told you that it is easiest to add numbers in your head by thinking of them as being written in expanded form. This is true but it doesn't work really well if you try to visualise all the working we did last lesson. What you actually do in practice is work the sum out from left to right (instead of working right to left which is still important to remember to do when working on paper).

### EXAMPLE



# 25 + 64 =

If you have a big working memory, you'll find this easy to do even if you don't see the numbers but are only told the sum. If your working memory is like mine, you'll have to see them written down but, as long as you know your sums to ten really well, sums written like this will be easy peasy! If sums to ten are still hard for you... get practicing those drills and flashcards!

# LESSON PRACTICE: RIDDLE

What gets wetter the more it dries?

$$22 + 37 = 59 (W)$$

$$43 + 15 = 58$$
 (L)

$$73 + 14 = 87$$
 (A)

$$46 + 23 = 69$$
 (E)





# Drill 52



# REVIEW AND PRACTICE

Flecher had six pebbles in his pocket and found 7 more. How many did he have then?

Flecher had 3 pebbles.

Write the numbers in expanded form:

$$125 = 100 + 20 + 5$$
  $107 =$ 

Fill in the missing number on the number bond then write the four equations represented by it.



$$|| - 2 = 9$$
  
 $|| - 9 = 2$ 

# RIDDLE

I end with two and start with five hundred. My middle digit is between seven and nine. What number am I?

# Lesson 53 SUBTRACTING BIG NUMBERS

By now you should realise from our work with number bonds that if you can add two numbers you can also subtract one number from another. So, it should be no surprise that subtracting big numbers is almost the same as adding them. We'll go straight to the simple paper version. All you do is subtract the bottom number from the top number in each column. Remember to start on the right hand side!

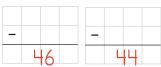
EXAMPLE



Starting here we say, "7 take away 4 is 3 and 5 take away 2 is 3.

# LESSON PRACTICE

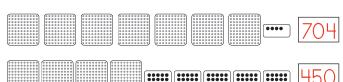








Count the dots:



Use the number bond to fill in the blanks:





The toy shop owner counted the number of each colour toy car in his shop and presented the results in a graph:

-= 10 cars

blue 🏎 🏎

Which colour is there most of? black

 $\operatorname{red} \, \widehat{ {\rm dos} }$ 

What colour should the owner

yellow 🚕 🚕

order more of?

red

black 60606060

How many cars are in the shop? \_\_\_\_\_\_

Fill in the missing numbers on the number chart.

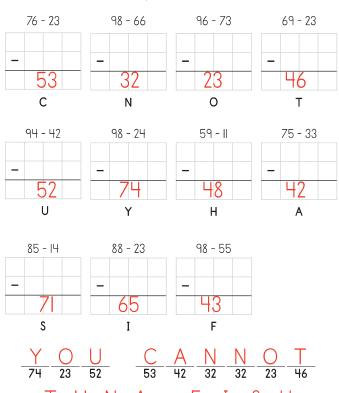
		_		_					Ю
	12	13	14	15	16	17	18	19	20

# Lesson 54

# MORE PRACTICE SUBTRACTING BIG NUMBERS

# RIDDLE

What's the difference between a piano and a fish?



# Drill 53

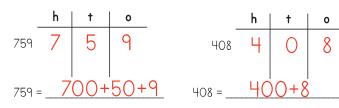
$$7 + 2 = 9$$
  
 $8 + 1 = 9$ 

**REVIEW AND PRACTICE** 

Harry's mother gave him 14 dollars to pay for an excursion with his home school friends to a wildlife park and his lunch. He gave 8 had to pay for the entrance fee to the park. How much did he have left to buy his lunch with?

Harry had 6 dollars to spend on lunch.

Write the numbers on the place value charts and in expanded form,



Fill in the missing numbers on the number chart.

2								
12	13	14	15	16	17	18	19	20

Use Sumstix (if you need them) to find:

$$\frac{1}{2}$$
 of 6 =  $\frac{3}{2}$ 

$$\frac{1}{2}$$
 of  $4 = \frac{2}{2}$ 

$$\frac{1}{2}$$
 of 6 =  $\frac{3}{2}$  of 4 =  $\frac{2}{2}$  of 2 =  $\frac{1}{2}$ 

$$\frac{1}{2}$$
 of 14 =  $\frac{7}{1}$ 

$$\frac{1}{2}$$
 of 16 =  $\frac{8}{1}$ 

$$\frac{1}{2} \text{ of } 14 = \frac{7}{2} \text{ of } 16 = \frac{8}{2}$$

$$\frac{1}{2} \text{ of } 28 = \frac{14}{2}$$

# Drill 54

9	+	9	=	8
		- 1		L

# REVIEW AND PRACTICE

Isabella had 12 markers and 24 coloured pencils in her pencil case. If Isabella had only markers and coloured pencils in her pencil case, how many things were in her pencil case?

Isabella had 36 things in her pencil case.

Fill in the missing numbers:

269	270	271	272	273	274	275	276	277	278
318	319	320	321	322	323	324	325	326	327

Fill in the missing number on the number bond then write the four equations represented by it.



Fill in the missing numbers on the number chart.

	2	3	4	5	6	7	8	9	Ю
П	12	13	14	15	16	17	18	19	20

# Lesson 55

# SUBTRACTING BIG NUMBERS MENTALLY

If you know your number bonds to ten really well, solving simple subtraction problems in your head should be pretty straight forward.

# EXAMPLE

# step 2



# LESSON PRACTICE: RIDDLE

What have eyes but can't see?

$$74 - 31 = \frac{43}{(N)}$$

# Drill 55

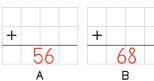
7 + 10 =

# **CHECKPONT SEVEN**

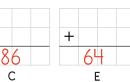


**RIDDLE**Why can't you keep secrets in a bank?











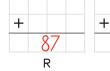






$$15 + 61$$

$$52 + 15$$

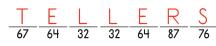






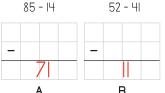




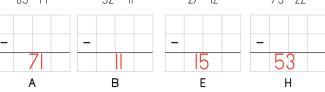


# RIDDLE

Why are dogs like trees?

















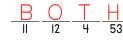


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Υ

You may solve these subtractions (and the sums on the previous page) however you like. If you can do them in your head, you don't need to use the grids!









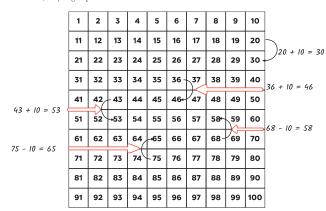
# Drill 56

# Lesson 57

# ADDING AND SUBTRACTING ON A NUMBER CHART

# ADDING AND SUBTRACTING TEN

Remember that I told you a while back that adding one and counting are really just the same thing? Well, counting by tens is just adding ten. On a number chart we count by tens by reading the numbers in the last column of the chart in order, so we can add ten to any number just by dropping down a row. To subtract ten, we just go up a row.



# **LESSON PRACTICE**

Use your number chart to add or subtract ten.

$$87 - 10 = 77$$

Watch the signs!

$$64 - 10 = \underline{54}$$
 $94 + 10 = \underline{104}$ 

$$43 + 10 = \frac{53}{86}$$
  
 $96 - 10 = \frac{86}{8}$ 

$$68 + 10 = \frac{8}{4}$$
 $55 + 10 = \frac{65}{4}$ 

Jayden saved up 55 dollars then he bought a model car kit for 32 dollars. How much money did he have left?

Jayden had 23 dollars left.

Count by tens.

42	52	62	_72_	82	92	102	112
27	37	47	57	67	77	87	97
16	26	36	46	56	66	76	86

Calculate:

5 <i>7</i>	7 2
+ 3	+   3
8 8	8 5

### **NEW DRILL DETAILS**

The drills which follow practice the following concepts and facts:

- A number minus 9
- Subtraction with the answer 9
- A teen minus 10 or the unit.
- Subtraction facts within 10.

Subtracting nine from a number is the same as subtracting ten and then adding one back on. On a hundreds chart, you jump up one line then move forward one square.

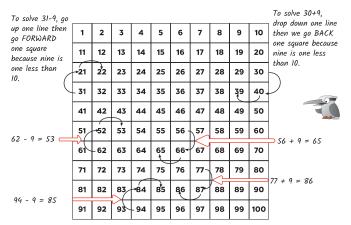
If you see a subtraction like this: 14-5, where the units digit in the first number is one less than the number being taken away, the answer is always nine!



# Lesson 58

# ADDING AND SUBTRACTING NINE

Adding and subtracting nine is nearly as easy as adding and subtracting ten. The only thing you need to remember is that nine is one less than ten.



# LESSON PRACTICE

Use your number chart to add or subtract nine

ose your number chair i	o add or subfract time.	
21 + 9 = 30	48 + 9 = 57	57 + 9 = <u>66</u>
51 - 9 = 42	26 - 9 = 17	89 + 9 = 98
64 - 9 = 55	89 + 9 = 98	95 - 9 = 86
14 - 9 = 5	57 - 9 = <u>48</u>	31 - 9 = 22
70 - 9 = 61	96 + 9 = 105	53 + 9 = <mark>62</mark>

3 - 2 =

# **REVIEW AND PRACTICE**

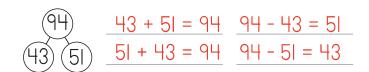
Kaitlyn and her sister wanted to make a flower stall at the market. They picked  $24\ \mbox{white}$  roses and  $35\ \mbox{coloured}$  roses. How many roses did they pick?

Kaitlyn picked 59 roses.

Write the numbers in expanded form:

$$390 = 300 + 90$$
  $299 = 200 + 90 + 9$   
 $85 = 80 + 5$   $243 = 200 + 40 + 3$   
 $403 = 400 + 3$   $541 = 500 + 40 + 1$ 

Write the four equations represented by the number bond.



# RIDDLE

My tens digit is just one, add one more and you have my units digit then add the tens and units digits to make my hundreds digit. What number am I?

# Drill 58

# REVIEW AND PRACTICE

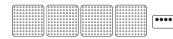
Leo had 85 dollars in his bank account. He deposited another 12 dollars. How much money did he have then?

Leo had 97 dollars in his bank account.

Count the dots:









Calculate:

Molly asked some friends what their favourite fruit is. She made the following

Each picture represents one person who likes that fruit.



Which fruit is most popular? banana



Which fruit is liked by three people? Cherry

How many more people like bananas than pears?

# Lesson 59

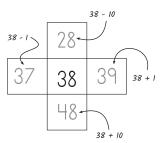
# PATTERNS FROM A NUMBER CHART

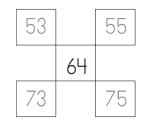
If you can add and subtract nine or ten on a number chart, you can also find missing numbers in a piece from a number chart. Look at the shaded squares below, can you figure out the missing numbers

21	22	23	24	25	26	27	28	29	30
31	32	33	34	35		37	38	39	40
41	42	43	44				48	49	50
51	52	53	54	55		57	58	59	60
61	62	63	64	65	66	67	68	69	70

### EXAMPLE

Fill in the missing numbers in the number chart patterns:





## LESSON PRACTICE

Fill in the missing numbers in the number chart patterns:

	13	
22	23	24
	33	

51	52	53
	62	
	72	

# Drill 59

$$5 - 3 = 2$$
 $12 - 2 = 10$ 

$$9 - 1 = 8$$
 $10 - 2 = 8$ 

### **CHECKPOINT EIGHT**



# RIDDLE

Why is an island like the letter T?

$$49 + 10 = \frac{59}{4}$$
 (A)  $39 + 10 = \frac{49}{4}$  (M)  $22 + 9 = 3$  (D)

$$16 + 9 = 25$$
 (B)  $77 + 9 = 86$  (N)  $38 + 10 = 48$  (E)

$$62 + 9 = 7$$
 (C)  $51 + 10 = 6$  (O)  $24 + 9 = 33$  (I)

$$54 + 9 = 63$$
 (D)  $75 + 9 = 84$  (R)  $57 + 10 = 67$  (S)

$$44 + 10 = 54$$
 (E)  $17 + 9 = 26$  (S)  $74 + 9 = 83$  (T)

$$63 + 10 = \frac{73}{(F)}$$
  $78 + 10 = \frac{88}{(T)}$   $71 + 10 = \frac{81}{(E)}$ 

$$58 + 10 = 68$$
 (H)  $72 + 10 = 82$  (U)  $61 + 9 = 70$  (I)

$$52 + 10 = 62$$
 (I)  $37 + 10 = 47$  (W)  $29 + 10 = 39$  (T)

$$69 + 9 = \frac{78}{(L)}$$
 (L)  $67 + 9 = \frac{76}{(A)}$  (A)  $40 + 10 = \frac{50}{(E)}$ 

# Drill 60

What would happen if everyone in Australia had a pink car?

$$72 - 9 = 63$$
 (A)  $57 - 9 = 48$  (I)  $14 - 10 = 4$  (O)

$$80 - 10 = 70$$
 (A)  $69 - 9 = 60$  (I)

$$78 - 10 = 68$$
 (A)  $21 - 9 = 12$  (I)  $73 - 9 = 64$  (R)

53 - IO = 43 (P)

$$51 - 9 = 42$$
 (A)  $68 - 9 = 59$  (K)  $24 - 9 = 15$  (R)

$$35 - 9 = 26$$
 (A)  $49 - 9 = 40$ (L)  $59 - 10 = 49$  (S)

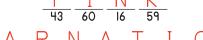
$$54 - 10 = 44$$
 (A)  $78 - 9 = 69$  (I)  $20 - 9 = 11$  (T)

$$72 - 10 = 62$$
 (C)  $26 - 10 = 16$  (N)  $46 - 9 = 37$  (U)

$$37 - 9 = 28$$
 (D)  $62 - 10 = 52$  (N)  $30 - 9 = 21$  (U)

$$37 - 10 = \frac{27}{10}$$
 (E)  $18 - 9 = \frac{9}{10}$  (O)  $48 - 10 = \frac{38}{10}$  (W)





52

# Lesson 61

# SKIP COUNTING

Write how many dots are shown in the pictures:





# In the above you were skip counting first by hundreds and second by tens. We can skip count by any number. In this milestone we will learn how to count by 2s and 5s.

# **LESSON PRACTICE**

Colour every second square in the hundreds chart yellow (the first row is done for you). Then read the yellow numbers out loud.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Matilda was selling cookies for her club, She started with 27 boxes, By lunch time she had sold 11 boxes. How many more boxes did she have left to sell?

Calculate:

64 + | |

Use Sumstix (if you need them) to find:

$$\frac{1}{2}$$
 of  $4 = 2$ 

$$\frac{1}{2}$$
 of 8 =  $\frac{1}{2}$ 

$$\frac{1}{2}$$
 of 8 =  $\frac{1}{2}$  of 10 =  $\frac{5}{2}$ 

$$\frac{1}{2}$$
 of 18 =  $\frac{9}{1}$ 

$$\frac{1}{2}$$
 of 12 =  $\frac{6}{12}$ 

$$\frac{1}{2}$$
 of  $18 = \frac{9}{2}$   $\frac{1}{2}$  of  $12 = \frac{6}{2}$   $\frac{1}{2}$  of  $26 = \frac{13}{2}$ 

### **NEW DRILL DETAILS**

The drills which follow practice the following concepts and facts:

- A number plus 8
- 8 plus a number
- Reviewing 9+ and 10+
- Reviewing facts with totals to 10

Adding eight is like adding ten then taking away 2. On your number chart you can drop down a line then move back 2 squares.

OR Review Lesson 33 in book CI for another way to do it.



# Lesson 62

# LESSON PRACTICE

Fill in the missing numbers on the hundred chart. Work ACROSS the rows.

1	2	3	4	5	6	7	8	9	Ю
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

We can also skip count on a number line, Fill in the missing numbers:



# Drill 61

10 + 1 =

9 + 2 =

# REVIEW AND PRACTICE

Nathan wants to buy a model car that costs 15 dollars and a construction kit that costs 42 dollars. If his grandmother gives him 50 dollars for his birthday, will he be able to afford to buy both toys?

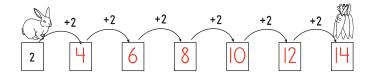
> \_ do**ll**ars all together Can Nathan buy them both? Yes of No? (Circle one)

Write the four equations represented by the number bond.



Calculate:

Take Bunny to his carrots by solving the puzzle below. Follow the directions on the arrows to fill each box.



# Drill 62

8 + 6 =	4
---------	---

9 + 2 =

# REVIEW AND PRACTICE

Olivia was planting seeds in the garden for her mother. Her mother gave her 26 seeds to plant. After she had planted 16 seeds, her friend arrived for a play date. How many seeds did Olivia need to finish planting before she could play?

Olivia had seeds left to plant.

Write the four equations represented by the number bond.



Calculate:

Colour the fraction of the shape shown:









# Lesson 63

Skip counting by two is useful when we want to count things that come in pairs or to quickly count a large number of objects that we can easily bundle into two.

## **E**XAMPLES















# LESSON PRACTICE











































# Drill 63

$$6 + 3 = 9$$
  
 $2 + 10 = 12$ 

$$10 + 10 = 20$$
  
 $4 + 2 = 6$ 

8 + 6 = 14

8 + | = 9

8 + 7 = 5

I hope you're starting to get the hang of counting by 2s. Counting by 5s is the other skip counting pattern that is pretty easy for most people to learn.

# LESSON PRACTICE

Use a highlighter or yellow pencil to colour every fifth number in the hundreds chart (the first two rows are done for you). Then read the yellow numbers out

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Skip count on the number line. Fill in the missing numbers:



# Drill 64 -

9	+	8	=	7
٦	+	٥	-	/

| + |() =

# REVIEW AND PRACTICE

While on a long car trip, Paul decided to count passing vehicles. In one hour he saw 22 cars and 23 trucks. How many cars and trucks did he see in the hour?

Paul saw  $\frac{45}{}$  cars and trucks.

Write the numbers in expanded form:

$$770 = 700 + 70$$
  $177 = 100 + 70 + 7$ 
 $14 = 10 + 4$   $42 = 40 + 2$ 
 $177 = 100 + 70 + 7$ 
 $177 = 100 + 70 + 7$ 
 $177 = 100 + 70 + 7$ 
 $177 = 100 + 70 + 7$ 
 $177 = 100 + 70 + 7$ 
 $177 = 100 + 70 + 7$ 

$$0 = \frac{177}{400} = \frac{100 + 70 + 7}{40 + 2}$$

Calculate:

# RIDDLE

You'll find my tens by starting at 10 and then jumping down seven rows on the number chart. My hundreds digit is half my tens digit and my units digit is one more than my hundreds digit. What number am I?

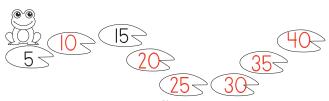
# Lesson 65

# LESSON PRACTICE

Fill in the missing numbers on the hundred chart. Work ACROSS the rows.

1	2	3	4	5	6	7	8	9	Ю
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Count by fives, Fill in the missing numbers.



Continuing the question from last lesson. If Paul also saw 12 motorcycles and 22 busses in the same hour, how many vehicles did he see all together?

Paul saw 79 vehicles

Count the dots:



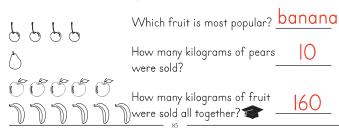


Calculate:

5 5	5 I	8 9	95
+   4	+ 4 2	- 3 9	-95
69	93	50	O

The chart below shows how many kilograms of each fruit were sold one day at

Each picture represents 10 kilograms of that fruit.



# Lesson 66

Practice counting objects by fives

# EXAMPLE



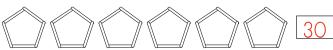
# LESSON PRACTICE

Count the objects by fives.

Fingers:



Sticks



Dots



Arms



Bricks



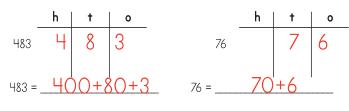


# REVIEW AND PRACTICE

Ruth counted 52 birds on the water. For some reason 41 of them suddenly flew away. How many birds were left on the water?

\_ birds were left on the water.

Write the numbers on the place value charts and in expanded form.



Calculate:

2 7 16 7 8 65 + 7 2 + 8 3 - 3 I 99

Use Sumstix (if you need them) to find:

$$\frac{1}{2} \circ f = \frac{1}{2} \circ f = \frac{2}{2} \circ f = \frac{3}{2}$$

$$\frac{1}{2}$$
 of  $18 = \frac{9}{2}$  of  $20 = \frac{10}{2}$  of  $22 = \frac{11}{2}$ 

# Drill 66

8 + 6 =	14
---------	----

### Lesson 67

Daisy dolphin loves jumping through hoops. Help her find the way through the hoops by filling in the missing numbers. Count by fives. Then use the letter clues to solve the riddle.

























20

**RIDDLE**What would happen if a white stone was dropped into the black sea?

# REVIEW AND PRACTICE

Stephen bought an 86 piece construction set from the op shop. When he got it home, he found that 13 pieces were missing. How many pieces were left in the box?

There were  $\frac{1}{3}$  pieces in the box.

Write the four equations represented by the number bond.



Calculate:

PUZZLE Each shape stands for a number (choose from 1-8). The same shape is the same number in all the equations. Find the number that is missing at the end.

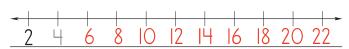
Drill 67

2 + | =

# CHECKPOINT NINE



Complete the number lines counting by twos.





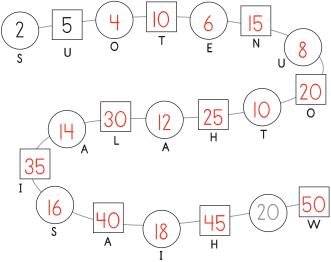


Complete the number lines counting by fives.



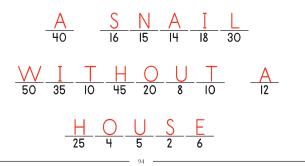


This exercise will test how careful you can be! The circles are counting by twos and the squares are counting by fives. Fill in the missing numbers and then use the letter clues to solve the riddle.



# RIDDLE

What is a slug?



# - Drill 68 -





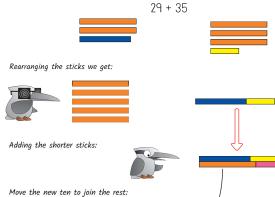
# Lesson 69

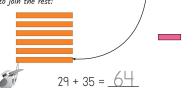
# ADDING AND SUBTRACTING BIG NUMBERS PART 2

# **ADDITION USING SUMSTIX**

So far I have been very careful to only give you numbers to add where each column in your addition add up to less than ten. In this milestone we are going to learn how to add any two 2-digit numbers. Let's start with seeing how it works with Sumstix.

**E**XAMPLES





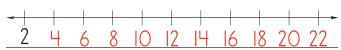
**LESSON PRACTICE**Use Sumstix to find the answers:

Tara was working on a jigsaw puzzle. There were 15 pieces on the table and 45 still in the box. How many pieces were in Tara's puzzle?

Tara's puzzle had 60 pieces.

# Calculate:

# Count by twos:



## **NEW DRILL DETAILS**

The drills which follow practice the following concepts and facts:

- A number minus 8
- A teen take away a number which is greater than the units.
- Reviewing all previous subtraction

Subtracting eight is like taking away ten and then adding two back on. On your number chart you jump up one row then move forward 2 squares.

Taking a number away from a teen is easiest if you take the number from ten then add the answer to the units of the original number. See Lesson 38 in book CI.

Drill 69

13 - 8 =

12 - 8 =

|| - 8 =

17 - 7 =

18 - 8 =

**9** |8 - |0 =

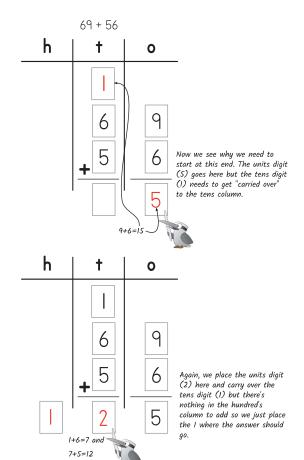
13 - 5 =

9 - | =

# Lesson 70

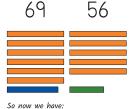
# USING THE PLACE VALUE MAT

# EXAMPLE





Let's "prove" this to ourselves with Sumstix.

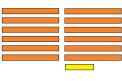


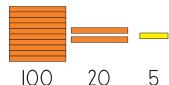
First, add the short sticks.





Group ten tens to get one hundred:





# LESSON PRACTICE

Use your place value mat to solve the following sums then use the clues to solve the riddle.

$$51 + 59 = 10$$
 (N)

# RIDDLE

What is made of water but dies when it gets put in water?





Victor had 55 marbles. He gave 23 of them away. How many did he have left?

Victor had 32 marbles left

Count by fives:



Calculate:

Fill in the missing numbers in the number chart patterns:

72		74
	83	
92		94

31	32	33
	42	
	52	

# Lesson 71

# USING A PLACE VALUE CHART

Let's use a place value chart to practice adding big numbers with carrying.

# EXAMPLE

57 + 78

Step 1: Write the numbers in the grid.

	h	t	0
		5	7
+		7	8

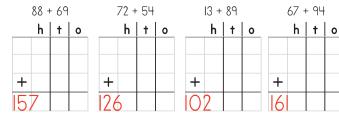
Step 2: Add the ones

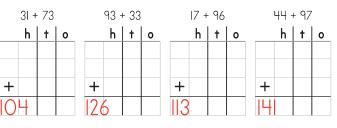
column. Carry over the b						
	h	†	0			
		1				
		5/	7			
+		\	8			
			5			

Step 3: Add the tens column. Carry over the ten.

	h	†	0
		$\overline{}$	\
		5	7
+		7	8
	-1	3	5

# LESSON PRACTICE





# Drill 70

10 - 8 = 7

# REVIEW AND PRACTICE

Wendy was cleaning her room and found 34 old coloured pencils and 44 new coloured pencils. How many coloured pencils did Wendy find all together?

Wendy found 78 coloured pencils.

Write the four equations represented by the number bond.



Calculate:

$$\frac{33}{-21}$$

Count by tens.

# Drill 71

10 - 4 =

# REVIEW AND PRACTICE

Zack collected 35 shells on the beach. 13 of them were broken. How many were not broken?

22 shells were not broken.

Count by fives:

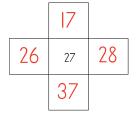


Calculate:

48

$$\frac{62}{-12}$$

Fill in the missing numbers in the number chart patterns:



# Lesson 72

### ON PAPER

Now it's time to practice adding big numbers that involve carrying without the help of the place value

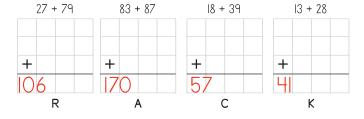
# EXAMPLE

27 + 54					
	1				
	2	7			
+	5	4			
		1			

	27 + 54				
		-1			
		2	7		
+	•	5	4		
		8	Ī		

# LESSON PRACTICE

Write the sums on the grid and solve them. Then use the clues to solve the riddle.



### RIDDLE

What can you put in a glass but never take out?

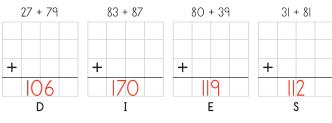


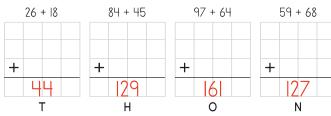
# Drill 72

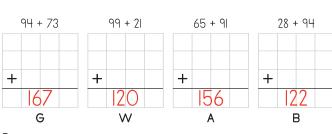
13 - 9 = 4

$$13 - 8 = 5$$
 $18 - 8 = 0$ 

$$10 - 4 = 6$$
 $18 - 10 = 8$ 







# RIDDLE

When is a car like a frog?

$\bigvee$	Н	Ε	Ν	I	Τ		I	S
120	129	119	127	170	44		170	112
		<u>I</u>		 _	T 44	161		

# Drill 73

# REVIEW AND PRACTICE

Abby was drying and putting away cutlery after a party. There were 41 pieces in the draw and 14 pieces still on the draining board. How many pieces of cutlery were there altogether?

There were 55 pieces of cutlery.

Write the four equations represented by the number bond.



Calculate:

### **NEW DRILL DETAILS**

The drills which follow practice the following concepts and facts:

- A number plus 7
- 7 plus a number
- Reviewing all previous addition drills

Adding seven is like adding ten then taking away 3. On your number chart you can drop down a line then move back 3 squares.

OR Review Lesson 34 in book CI for another way to do it.



# Lesson 74

# SUBTRACTION USING SUMSTIX

# EXAMPLE

This problem will be easier if you think of the 29 as if it is in expanded form: 29 = 20 + 9

56 - 29







Step 4: Take the nine away.

Step 5: The final answer.

56 - 29 = \_27

I can't take nine from six so I need to 'borrow' a ten. Now I just need to find a , stick to fill in this gap.

# LESSON PRACTICE

Use Sumstix to solve the subtractions then use the clues to solve the riddle.

$$31 - 13 = 18$$
 (E)

52 - 36 = <del>6</del> (O)

40 - 28 = 12



39

Continuing the problem from last lesson. The cutlery set originally had 72 pieces but Abby's mother put some pieces in storage because they were rarely used. How many pieces are in storage?

\_ pieces are in storage.

53

Count by twos:

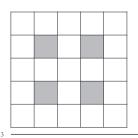


Calculate:



Fill in the missing numbers in the first grid then use the second to make your own!

2	+	2	ıı.	4
+		+		+
ı	+	4	=	5
=		=		=
3	+	6	ıı.	٩



# Lesson 75

# SUBTRACTION USING A PLACE VALUE MAT

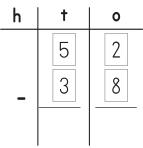
Last lesson we saw that, when we subtract two digit numbers, we sometimes have to "borrow" a ten. When we do this on paper, there are two different ways to perform the calculation. One is called the "borrow and pay back" method and the other is called the "regrouping" method.

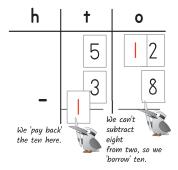
# **EXAMPLE 1: BORROW AND PAYBACK**

Step 1: Make the problem up on the place

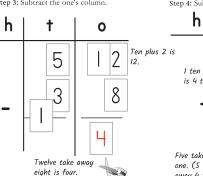
52 - 38

Step 2: Borrow and payback.

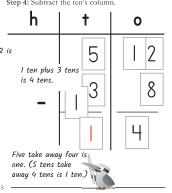




Step 3: Subtract the one's column.



Step 4: Subtract the ten's column.



Drill 74

5 + 8 =

|0 + | =

- 114 -

I prefer the "borrow and payback" method because it always works just as described in the example above, it is simple to learn and perform and, therefore, is less prone to errors. It is also the way that all computers do subtraction internally. Some people prefer the regrouping method so I will describe it here.

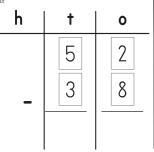
In a later level, I will explain why and how both of these methods work.

**EXAMPLE 2: REGROUPING** 

step 2 can get quite tricky.

52 - 38

Step 1: Make the problem up on the place value | Step 2: Regroup.



	h	<b>†</b>	0
	52 = 4 tens plus 12 ones.	4	12
_	-		ubtract eight, so we regroup

Step 4: Subtract the ten's column.

In this method, step 4 is a tiny bit easier, but

Step 3: Subtract the one's column.

h	ایدا	۔ ا
n	Т	0
	4	[12]
_	3	8
		4
	Twelve take eight is four	
	cigire is rour	

h † 0 12 3 8

Four take away three is one.

116

# LESSON PRACTICE

Use your place value mat and digit cards to solve the following subtractions. You may use either of the methods described in this lesson.

After you're done, use the letter clues to solve the riddle.

$$63 - 56 = 7$$
 (A)

$$63 - 56 = 7$$
 (A)  $41 - 16 = 25$  (H)

$$32 - 28 = 4$$
 (S)

$$73 - 67 = 6$$
 (K)

$$73 - 67 = 6$$
 (K)  $62 - 15 = 47$  (T)

$$61 - 25 = 36$$
 (R)

# RIDDLE

Why do bees hum?



$$\frac{\mathsf{K}}{6} \frac{\mathsf{N}}{8} \frac{\mathsf{O}}{28} \frac{\mathsf{W}}{38}$$

$$\frac{\text{W}}{38} = \frac{\text{O}}{28} = \frac{\text{R}}{36} = \frac{\text{D}}{17} = \frac{\text{S}}{4}$$



# Drill 75

\_\_\_\_ 117 \_\_\_

# REVIEW AND PRACTICE

Blake went bushwalking and saw 32 birds flying or perched in trees and 16 birds on the ground. How many birds did he see all together?

Blake saw  $\frac{48}{9}$  birds.

Find the missing number in the number bond then write the four equations represented by it.



## Calculate:

$$\frac{34}{-32}$$

Count by fives:



# Lesson 76

# SUBTRACTION USING A PLACE VALUE CHART

# **E**XAMPLE

Using borrow and payback.

	h	t	0		h	t	0		h	t	0			h	†	0
		8	8			8	8			8	8				8	8
_		6	9	-	Л	16	9	-		16	9		-		16	9
						Borrow Paybad	and k.		18 -	9 = 9	9	30	8	- 7 =	,	9

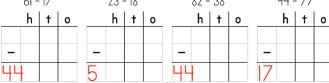
Using regouping.

8 8 8 8 18	70/10		
0 0 0	8 18		8 18
- 6 9 - 6 9 -	6 9	-	6 9
V Regroup. 18 -	9 = 9		1 9

# LESSON PRACTICE

Use your favourite method to solve the subtractions:

73	- 19			94 -	69			72 -	26			83 -	75	
h	<b>†</b>	0		h	t	0		h	t	0	_	h	t	0
-			-				_				-			
54			25				46	)			8			
61	- 17			23 -	- 18			82 -	38			94	- 77	



Chloe was colouring pictures. If she had 48 pencils all together, and 12 of them were on the table, how many were still in her pencil case?

 $\underline{36}$  pencils were in her pencil case,

Count by tens.

31	_4 _	_5 _	_6	<u>_7</u>  _	81	91	101
67	_77	87	97	107	117	127	137

<u>58</u> <u>68</u> <u>78</u> <u>88</u> <u>98</u> <u>108</u> <u>118</u> <u>128</u>

Calculate:

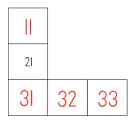


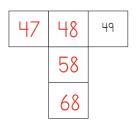
$$\frac{62}{73}$$

$$\frac{23}{-11}$$

$$\frac{34}{-14}$$

Fill in the missing numbers in the number chart patterns:





121

# Drill 76

122

# Lesson 77

# SUBTRACTION ON PAPER

Let's remove the place value chart and subtract on paper.

# EXAMPLE

Borrow and payback:

	6	4
_	1	9

	6	14
-	ı	9

	6	14
-	il	9
		5

	6	14
-	П	9
	4	5

# Regrouping:

	6	4
-	1	9

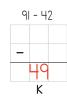


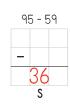
# LESSON PRACTICE

Use your favourite method to solve the subtractions then use the letter clues to solve the riddle.









# RIDDLE

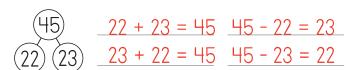
What vegetable are sailors afraid of?

# REVIEW AND PRACTICE

Daniel had two boxes of cookies to share with his friends. If each box contained 42 cookies, how many cookies were there all together?

There were 84 cookies all together.

Find the missing number in the number bond then write the four equations represented by it.



Calculate:

Count by twos





SUBTRACTION PRACTICE
Use your favourte method to solve the following subtractions, then use the letter clues to solve the riddle.



Lesson 78







94 - 27

39

D



64 - 29

Ε



84 - 56



43 - 39



81 - 63

18



# RIDDLE

Did you hear about the boy who only knew 25 letters of the alphabet?





# REVIEW AND PRACTICE

Edith had 75 stickers. She gave 11 to one friend and 23 to another friend. How many did she have left?

Edith had stickers left.

# Count by fives:

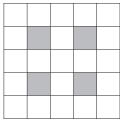


# Calculate:

PUZZLE

Fill in the missing numbers in the first grid then use the second to make your

8	+	6	II	14
-		-		-
6	+	3	=	9
=		=		=
2	+	3	=	5





Drill 78

$$10 + 2 = 12$$
 $7 + 10 = 17$ 

3 + 8 =

$$9 + 9 = 8$$
  
 $9 + 1 = 10$ 

3 + 7 =

$$2 + 1 = 3$$
  
 $6 + 2 = 8$ 

# Addition and Subtraction Word Problems

A man had 64 crates of apples. He sold 27 of them at a market. How many did he have left to sell?



Old Macdonald had 35 cows in one paddock and 47 in another. How many cows did he have all together?



Old Macdonald had 82 cows.

A baker made 50 loaves of sandwich bread in the morning. At the end of the day, there were 14 loaves left. How many loaves of sandwich bread did the



The baker sold  $\underline{36}$  loaves.

# REVIEW AND PRACTICE

Freddie started with 15 dollars. He earned 11 dollars by washing the neighbour's car and then he spent 14 dollars on a toy. How much money did he have in the end?



Find the missing number in the number bond then write the four equations represented by it.



$$64 - 32 = 32$$

# Calculate:

	3	7
+	5	2

89

# **NEW DRILL DETAILS**

The drills which follow practice the following concepts and facts:

- A number minus 7
- Reviewing all previous subtraction

Subtracting seven is like subtracting ten then adding 3. On your number chart you can drop down a line then move forward 3 squares.

Remember that taking a number away from a teen is easiest if you take the number from ten then add the TIP answer to the units of the original number. See Lesson 38 in book CI.

— 130 —

# - Drill 79

- 129 -

# Lesson 80

# **CHECKPOINT TEN**



RIDDLE Use your favourte method to solve the following subtractions, then use the letter clues to solve the riddle.



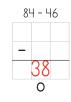






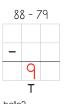






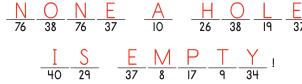


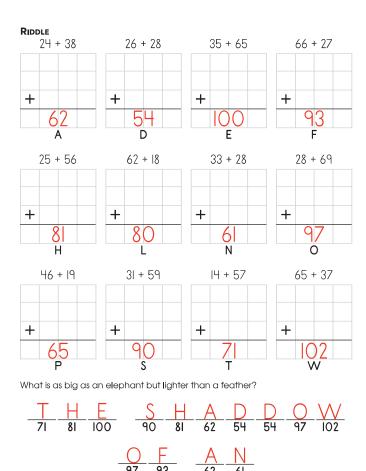






How much dirt is there in a one metre deep hole?





# Resources

81

62

100

80

100

65

The following pages contain various resources for use with some lessons in this book. Where noted, you may photocopy some of these pages to use multiple times, or to save paper waste and expense, you can make those sheets reusable by laminating them or placing them in sheet protectors and then allowing your child to use a whiteboard marker to complete the activity.

- 135 -

Drill 80



19 - 9 = 10

9 - 8 =

8 - 7 =

$$12 - 7 = 5$$
 $15 - 5 = 10$ 

134

# Blank grids for calculation practice

This page may be photocopied as required.

# Blank ten frames for calculation practice

This page may be photocopied as required.

	0	 t	0	†	0
	0	t	0	†	0
†	0	†	0	†	0

# **Number Chart**

This page may be removed from the book to facilitate ease of use. Alternatively, a high quality laminated version is available in the resources section of the Milestone Maths website.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

**π**MILESTONE

making maths simple

# Digit Cards For Place Value Mat

0	0	0			
2	2	2	3	3	3
4	4	4	5	5	5
6	6	6	7	7	7
8	8	8	9	9	9

# **Extra Digit Cards For Games**

0	0	0		1	
2	2	2	3	3	3
4	4	4	5	5	5
6	6	6	7	7	7
8	8	8	9	9	9

Place Value Mat						
Hundreds	Tens	Units				