●●○○○ Level 2 · Mathematics M2.1

Big numbers and place value

What each digit is worth, from ones up to a million.

Build numbers from ones, tens and hundreds, then thousands. Count in big steps, compare and round numbers, and read numbers up to a million, in lakhs too.

YOU ARE READY FOR THIS BOOK IF

You can show 64 as 6 tens and 4 ones with sticks.

One step up	M3.1 Negative numbers, factors and powers
This book	**M2.1 Big numbers and place value**
One step down	M1.2 Numbers to 100

Contents

M2.1.1 Hundreds, tens and ones

M2.1.2 Thousands

M2.1.3 Counting on in big steps

M2.1.4 Comparing and ordering

M2.1.5 Rounding and estimating

M2.1.6 Up to a million, and lakhs

Key words, A to Z

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M2.1.1 CHAPTER 1

Hundreds, tens and ones

The 5 in 538 is not worth 5. So what is it worth?

YOUR GUESS

Pick one before you read on. It is fine to be wrong.

- ☐ **A** It is worth 5 ones.
- ☐ **B** It is worth 5 hundreds, which is 500.
- ☐ **C** It is worth 5 tens, which is 50.

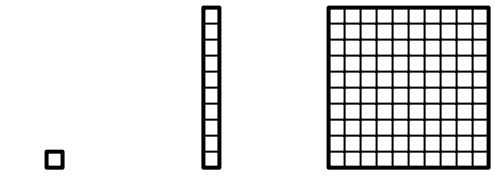
BY THE END YOU CAN

- Show a number up to 999 as hundreds, tens and ones
- Say what each digit in 538 is worth
- Use 0 to hold an empty place, as in 305

You have a pile of 538 beans. Counting them one by one takes ages.

A faster way is to make groups. 10 ones make 1 ten. 10 tens make 1 hundred.

A bundle of 10 sticks is a ten. Tie 10 bundles together and you have a **hundred**.

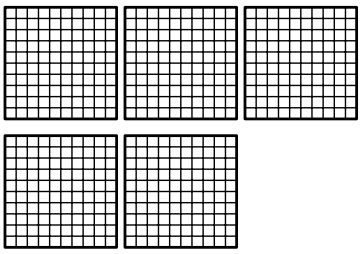


A flat is 10 rods side by side. 10 rows of 10 squares is 100.

Now build 538 with blocks. Watch.

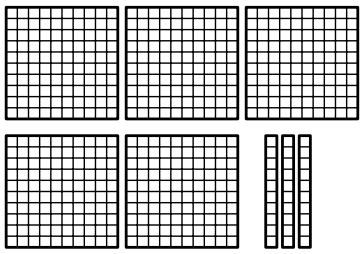
DRAW IT FIRST

Build 538 from hundreds, tens and ones



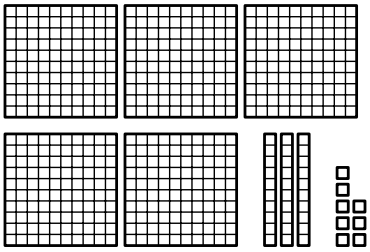
5 hundreds = 500

1 Show 5 hundreds. Each flat is 100, so this is 500.



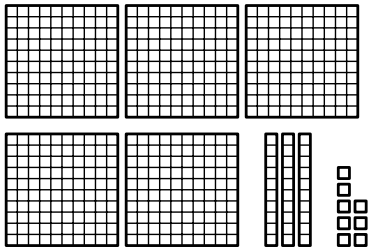
5 hundreds = 500
3 tens = 30

2 Add 3 tens. Each rod is 10, so this is 30.



5 hundreds = 500
3 tens = 30
8 ones = 8

3 Add 8 ones. Each small square is 1, so this is 8.



5 hundreds = 500
3 tens = 30
8 ones = 8
500 + 30 + 8 = 538

4 Add them up. 500 + 30 + 8 = 538.

The symbols 0 to 9 are **digits**. 538 has three digits.

Each digit has a place. The place tells you what the digit is worth. This is **place value**.

hundreds	tens	ones
5	3	8

The 5 is in the hundreds place. The 3 is in the tens place. The 8 is in the ones place.

So the 5 is worth 500. The 3 is worth 30. The 8 is worth 8.

WORKED EXAMPLE

What is the 3 worth in 538?

1. 538 is 5 hundreds, 3 tens and 8 ones.
2. The 3 is in the tens place.
3. 3 tens is 3 × 10 = 30.

Answer: 30

WORKED EXAMPLE

Write 3 hundreds and 4 ones as a number.

1. 3 hundreds is 300.
2. There are no tens, so put 0 in the tens place.
3. 4 ones is 4. Now 300 + 0 + 4 = 304.

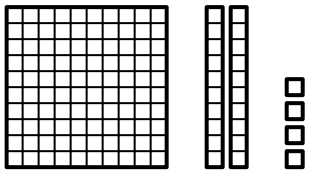
Answer: 304

SEE IT THREE WAYS

With things

A farmer packs beans. A big sack holds 100. A small bag holds 10. For 124 beans she uses 1 big sack. She adds 2 small bags and 4 loose beans.

As a picture



124 = 100 + 20 + 4

In symbols

124 = 100 + 20 + 4. That is 1 hundred, 2 tens and 4 ones.

TRY IT

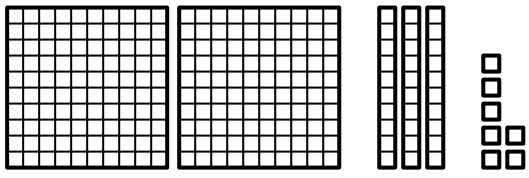
Draw a number in blocks

You need: a pencil, a sheet of paper, or an old page.

1. Draw a big square for 100. Draw a long line for 10. Draw a dot for 1.
2. Draw 237 like this. Make 2 big squares, 3 long lines and 7 dots.
3. Ask a friend to read your drawing and say the number.
4. Now your friend draws a number. You read it.

What you will see: The drawing shows how many hundreds, tens and ones there are. Add them up to find the number.

If you cannot try it, this is what happens.



237 = 200 + 30 + 7

hundreds	tens	ones
3	0	4

Three hundred and four. There are 3 hundreds, no tens and 4 ones.

What if you leave the 0 out of 305? Look at the two charts.

35

hundreds	tens	ones
	3	5

305

hundreds	tens	ones
3	0	5

Without the 0, the 3 slides to the tens place. It is worth 30, not 300.

A WRONG IDEA MANY PEOPLE HAVE

~~**You write a number the way you say it. "Three hundred and four" is 3004.**~~

Why it feels right: You say 300, then 4. So it seems you write 300 and then 4.

The test that breaks it: Build three hundred and four with blocks. You need 3 flats, no rods and 4 ones. Put them in the chart. The digits are 3, 0 and 4.

What is true: The number is 304. The 0 holds the tens place, where there are none.

KEY WORDS

digit
one of the symbols 0 to 9.

place value
what a digit is worth, because of the place it sits in.

hundred
10 tens, or 100 ones.

BACK TO YOUR GUESS

The answer is B: It is worth 5 hundreds, which is 500.

Where a digit sits tells you what it is worth. The 5 is in the hundreds place, so it is worth 500.

CHECK YOURSELF

Try each one before you look. A wrong answer tells you where to go next.

1. What is the 7 worth in 372?

   A 7

   B 70

   C 700

   Answer at the back of the book.

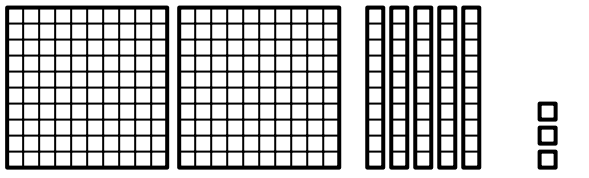
2. Write 6 hundreds, 2 tens and 9 ones as a number.

   Answer at the back of the book.

3. Write 407 as hundreds, tens and ones.

   Answer at the back of the book.

4. Which number do these blocks show?



   A 253

   B 235

   C 523

   D 10

   Answer at the back of the book.

5. Kofi writes three hundred and eight as 3008. What is the right number?

   Answer at the back of the book.

6. In which number is the 4 worth 40?

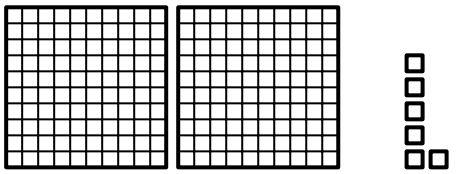
   A 248

   B 482

   C 824

   Answer at the back of the book.

7. Which number do these blocks show?



   A 26

   B 260

   C 206

   Answer at the back of the book.

8. Ana says six hundred and five. Which number is it?

   A 6 005

   B 65

   C 650

   D 605

   Answer at the back of the book.

9. How is 614 made of hundreds, tens and ones?

   A 6 hundreds, 4 tens and 1 one

   B 6 hundreds, 1 ten and 4 ones

   C 6 tens, 1 hundred and 4 ones

   Answer at the back of the book.

KEEP IT

Copy this into your exercise book.

10 ones make a ten. 10 tens make a hundred. In 538 the 5 is worth 500. The 3 is worth 30. The 8 is worth 8.

Draw: 5 big squares, 3 long lines and 8 dots. Write 500 + 30 + 8 = 538 beside them.

M2.1.2 CHAPTER 2

Thousands

How do I read and write a number like 4 205?

YOUR GUESS

Pick one before you read on. It is fine to be wrong.

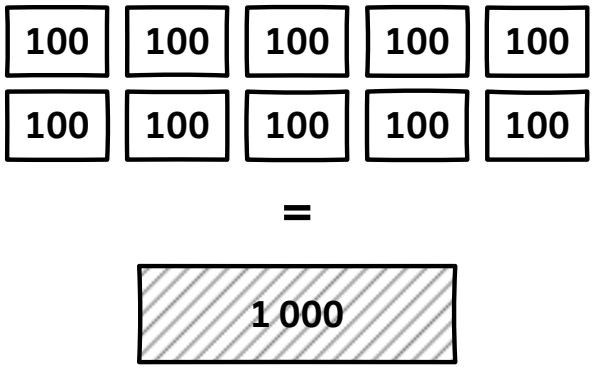
- ☐ **A** Four hundred and twenty-five.
- ☐ **B** Four thousand, two hundred and five.
- ☐ **C** Four thousand and twenty-five.

BY THE END YOU CAN

- Read and write numbers up to 9 999 in figures and words
- Show 4 205 as 4 thousands, 2 hundreds and 5 ones
- Explain what the 0 in 4 205 does

10 ones make a ten. 10 tens make a hundred. What do 10 hundreds make?

10 hundreds make 1 **thousand**. We write it 1 000.



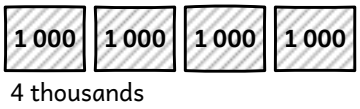
Ten boxes of 100 make one box of 1 000.

Our blocks have no thousand block. We draw a thousand as a box.

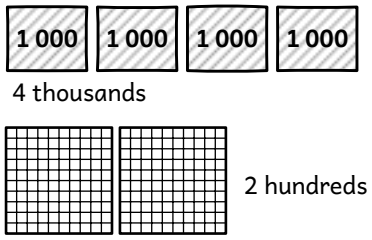
Now build 4 205. Watch.

DRAW IT FIRST

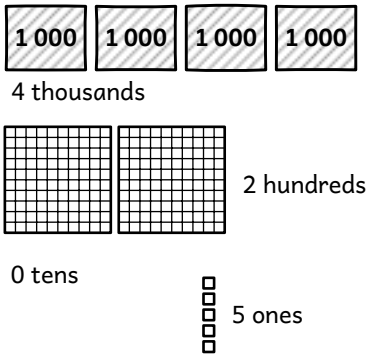
Build 4 205



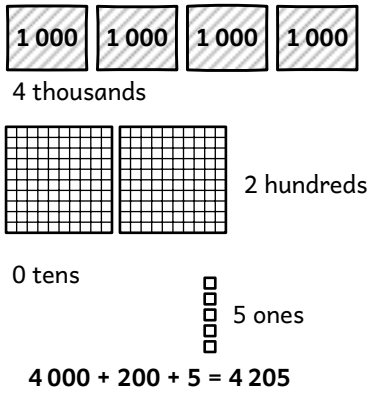
1 Make 4 thousands. Each box is 1 000.



2 Add 2 hundreds. Each flat is 100.



3 There are no tens, so write 0 tens. Add 5 ones.



4 Add them up. 4 000 + 200 + 5 makes 4 205.

thousands	hundreds	tens	ones
4	2	0	5

4 thousands, 2 hundreds, 0 tens and 5 ones.

Say it: four thousand, two hundred and five. Some people leave out the "and". Both are right.

The 0 is a **placeholder**. It holds the tens place when there are no tens.

WORKED EXAMPLE

Write six thousand, three hundred and forty in figures.

1. Six thousand is 6 000. The 6 is in the thousands place.
2. Three hundred is 300. The 3 is in the hundreds place.
3. Forty is 4 tens. The 4 is in the tens place.
4. There are no ones, so put 0 in the ones place.

Answer: 6 340

thousands	hundreds	tens	ones
7	3	6	2

seven thousand
three hundred
sixty-two

Say the thousands, then the hundreds, then the tens and ones together.

WORKED EXAMPLE

Write 7 362 in words.

1. 7 362 is 7 thousands, 3 hundreds, 6 tens and 2 ones.
2. Say the thousands: seven thousand.
3. Then the rest: three hundred and sixty-two.

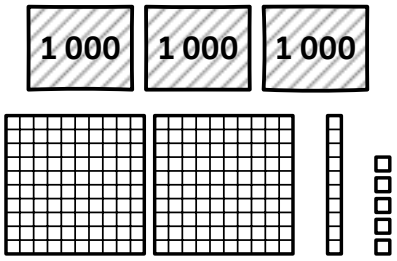
Answer: seven thousand, three hundred and sixty-two

SEE IT THREE WAYS

With things

A farmer has 3 crates of 1 000 beans. She adds 2 sacks of 100. Then she adds 1 bag of 10 and 5 loose beans.

As a picture



In symbols

3 215 = 3 000 + 200 + 10 + 5. That is 3 thousands, 2 hundreds, 1 ten and 5 ones.

TRY IT

Move the 0

You need: a sheet of paper, or an old page, a pencil.

1. Draw four boxes in a row. Write thousands, hundreds, tens and ones above them.
2. Tear four small slips of paper. Write 4, 2, 0 and 5, one on each slip.
3. Put the slips in the boxes, left to right. Read the number.
4. Take away the 0 slip. Slide the 4 and the 2 one box to the right. Read the number again.

What you will see: The first number is 4 205. The second is 425. The 4 now sits in the hundreds place.

If you cannot try it, this is what happens.

4 205

thousands	hundreds	tens	ones
4	2	0	5

425

hundreds	tens	ones
4	2	5

A WRONG IDEA MANY PEOPLE HAVE

~~A 0 is worth nothing, so you can leave it out. 4 205 is the same as 425.~~

Why it feels right: Zero means none. It seems that nothing is lost when you drop it.

The test that breaks it: Do the slip test. When the 0 goes, the 4 drops to the hundreds place. 4 205 is 3 780 more than 425.

What is true: The 0 adds nothing. But it keeps every other digit in its place. Never leave it out.

KEY WORDS

thousand
10 hundreds, or 1 000 ones.

placeholder
a 0 that holds a place when nothing is there.

BACK TO YOUR GUESS

The answer is B: Four thousand, two hundred and five.

The 4 is in the thousands place, so it is 4 000. The 2 is 200. The 0 holds the tens place. The 5 is 5.

CHECK YOURSELF

Try each one before you look. A wrong answer tells you where to go next.

1. How do you write six thousand, three hundred and nine in figures?

   A 6 039

   B 6 309

   C 639

   Answer at the back of the book.

2. Write 5 080 as thousands, hundreds, tens and ones.

   Answer at the back of the book.

3. What does the 0 do in 7 046?

   A It does nothing. You can leave it out.

   B It holds the hundreds place. There are no hundreds.

   C It shows there are no tens.

   Answer at the back of the book.

4. Write 9 400 in words.

   A nine thousand, forty

   B nine hundred and four

   C nine thousand, four hundred

   Answer at the back of the book.

5. **From an earlier chapter**

   What is the 8 worth in 683?

   Answer at the back of the book.

6. Which number is 3 thousands, 4 hundreds and 7 ones?

   A 3 470

   B 347

   C 3 407

   Answer at the back of the book.

7. How do you say the number in the chart?

thousands	hundreds	tens	ones
3	0	6	0

A three thousand and sixty

B three thousand, six hundred

C three hundred and sixty

Answer at the back of the book.

8. How many hundreds make 1 thousand?

A 100

B 1 000

C 10

Answer at the back of the book.

KEEP IT

Copy this into your exercise book.

10 hundreds make 1 thousand. 4 205 is 4 thousands, 2 hundreds, 0 tens and 5 ones. The 0 holds the tens place. Without it you get 425.

Draw: A chart with four boxes: thousands, hundreds, tens, ones. Write 4 205 in it.

M2.1.3 CHAPTER 3

Counting on in big steps

I count on in 100s from 3 950. What number comes next?

YOUR GUESS

Pick one before you read on. It is fine to be wrong.

- ☐ **A** 3 960
- ☐ **B** 4 050
- ☐ **C** 4 950

BY THE END YOU CAN

- Count on and back in 10s, 100s and 1 000s
- Mark 3 700 on a number line from 0 to 10 000

Counting in big steps is quick. You jump by 10, 100 or 1 000.

To **count on** is to add the same step again and again. To **count back** is to take the step away each time.

Count on in 10s from 40: 50, 60, 70. Only the tens digit changes.

Count on in 100s from 300: 400, 500, 600. Only the hundreds digit changes.

Count on in 1 000s from 3 000. Say 4 000, 5 000, 6 000. Only the thousands digit changes.

Take care when a place reaches 10. It moves up to the next place.

990

hundreds	tens	ones
9	9	0

add 10

1 000

thousands	hundreds	tens	ones
1	0	0	0

99 tens and 1 more ten make 100 tens. 100 tens is 1 000.

The same thing happens in bigger numbers. 3 950 + 100 = 4 050.

3 950

thousands	hundreds	tens	ones
3	9	5	0

add 100

4 050

thousands	hundreds	tens	ones
4	0	5	0

9 hundreds and 1 more hundred make 10 hundreds. That is 1 more thousand.

It happens going back too. 1 005 − 10 = 995.

1 005

thousands	hundreds	tens	ones
1	0	0	5

take away 10

995

thousands	hundreds	tens	ones
	9	9	5

1 005 is 100 tens and 5 ones. Take away 1 ten and 99 tens are left.

And at the top: 9 000 + 1 000 = 10 000.

WORKED EXAMPLE

Count on in 100s from 6 950. Write the next four numbers.

1. 6 950 + 100. The hundreds go from 9 to 10.
2. 10 hundreds make 1 thousand. 6 thousands become 7 thousands.
3. The hundreds place is now 0. So 6 950 + 100 = 7 050.
4. Keep adding 100: 7 150, 7 250, 7 350.

Answer: 7 050, 7 150, 7 250, 7 350

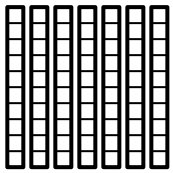
WORKED EXAMPLE

Count back in 10s from 1 005. Write the next three numbers.

1. 1 005 is 100 tens and 5 ones.
2. Take away 1 ten. That leaves 99 tens and 5 ones.
3. 99 tens and 5 ones is 995.
4. Keep taking away 10: 985, 975.

Answer: 995, 985, 975

SEE IT THREE WAYS

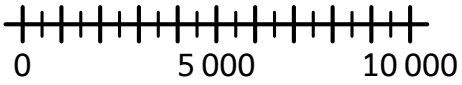
With things	As a picture	In symbols
Tie sticks in bundles of 10. Put 4 bundles in a row. Add one bundle at a time and say the total.	 40, 50, 60, 70	**40 + 10 = 50. 50 + 10 = 60. 60 + 10 = 70. The same works with 100s and 1 000s.**

A **number line** is a line with numbers in order along it. Big numbers fit on one.

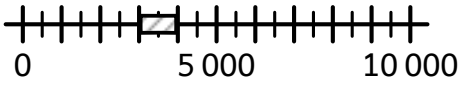
Now mark 3 700 on a line from 0 to 10 000. Watch.

DRAW IT FIRST

Mark 3 700 on a line from 0 to 10 000

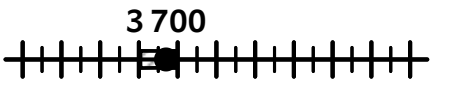


1 Draw a line. Put 0 at one end and 10 000 at the other. Mark every 1 000.



3 000 to 4 000

2 Find 3 000 and 4 000. The number 3 700 is in this stretch.



3 000 to 4 000

3 The middle of the stretch is 3 500. Put your point a little past it.

TRY IT

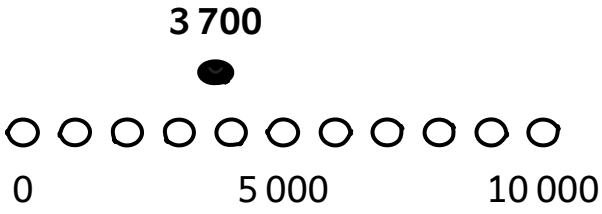
Lay out a number line

You need: 11 small stones or bottle tops, 1 bean, a pencil and some scraps of paper.

1. Put 11 stones in a straight row. Leave the same gap between each stone.
2. Write 0 on a scrap of paper. Put it under the first stone.
3. Write 5 000 under the sixth stone. Write 10 000 under the last.
4. Each stone is 1 000 more than the one before it. Put the bean where 3 700 goes.

What you will see: The bean sits between the fourth and fifth stones. It is a little past the middle.

If you cannot try it, this is what happens.



A WRONG IDEA MANY PEOPLE HAVE

~~Counting on in tens only changes the tens digit. So 990 + 10 is 9 100.~~

Why it feels right: It works for 340 + 10 = 350. The tens digit goes up by 1.

The test that breaks it: Show 990 as 9 flats and 9 rods. Add one rod. Now there are 10 rods. Tie them into a flat. Now there are 10 flats, which make 1 thousand.

What is true: 990 + 10 = 1 000. When a place gets to 10, it moves up. 9 100 is far too big.

KEY WORDS

count on
add the same step again and again.

count back
take the same step away again and again.

number line
a line with numbers in order along it.

BACK TO YOUR GUESS

The answer is B: 4 050

3 950 + 100 = 4 050. The hundreds place reaches 10. It moves up and makes one more thousand.

CHECK YOURSELF

Try each one before you look. A wrong answer tells you where to go next.

1. Count on in 100s from 8 950. What number comes next?

   A 8 960

   B 9 050

   C 9 950

   Answer at the back of the book.

2. Count on in 10s from 970. Write the next three numbers.

   Answer at the back of the book.

3. Count back in 10s from 2 000. Write the next three numbers.

   Answer at the back of the book.

4. Fill the gap: 7 000, 8 000, 9 000, __

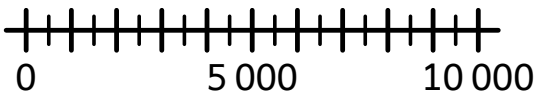
   A 10 000

   B 9 100

   C 1 000

   Answer at the back of the book.

5. Mei marks 2 400 on a line from 0 to 10 000. The line has a mark at every 1 000. Where does it go?



   A Between 2 000 and 3 000, before the middle.

   B Between 2 000 and 3 000, after the middle.

   C Between 4 000 and 5 000.

   Answer at the back of the book.

6. **From an earlier chapter**

   Write eight thousand, four hundred and six in figures.

   Answer at the back of the book.

7. Count on in 10s from 2 990. What number comes next?

   A 3 090

   B 2 000

   C 3 000

   Answer at the back of the book.

8. Count back in 10s from 3 005. What number comes next?

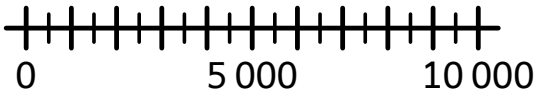
   A 2 905

   B 3 000

   C 2 995

   Answer at the back of the book.

9. Joseph marks 7 800 on the same line. Where does it go?



A Between 8 000 and 9 000.

B Between 7 000 and 8 000, before the middle.

C Between 7 000 and 8 000, after the middle.

Answer at the back of the book.

KEEP IT

Copy this into your exercise book.

Count on in 10s, 100s or 1 000s. A full place moves up: 990 + 10 = 1 000. 3 700 sits past the middle of 3 000 and 4 000.

Draw: A line from 0 to 10 000. Mark every 1 000. Put a point for 3 700 and label it.

M2.1.4 CHAPTER 4

Comparing and ordering

The nines look so big. Is 999 bigger than 1 000?

YOUR GUESS

Pick one before you read on. It is fine to be wrong.

- ☐ **A** 999 is bigger, because nines are big digits.
- ☐ **B** 1 000 is bigger, because it has more digits.
- ☐ **C** They are the same size.

BY THE END YOU CAN

- Compare two numbers up to 10 000 using < and >
- Put five numbers in order from smallest to largest

Amina has 999 seeds. Kofi has 1 000 seeds. Who has more?

To **compare** two numbers is to say which one is bigger.

First take two numbers with the same count of digits. Watch where they first differ.

DRAW IT FIRST

Compare 3 472 and 3 508

thousands	hundreds	tens	ones
3	4	7	2

thousands	hundreds	tens	ones
3	5	0	8

which is bigger?

1 Write the numbers one above the other. Line up the places.

thousands	hundreds	tens	ones
3	4	7	2

thousands	hundreds	tens	ones
3	5	0	8

thousands: 3 and 3, the same

2 Start at the left. The thousands are 3 and 3. They match, so move right.

thousands	hundreds	tens	ones
3	4	7	2

thousands	hundreds	tens	ones
3	5	0	8

hundreds: 4 is less than 5

3 The hundreds are 4 and 5. They differ. 4 is less than 5.

thousands	hundreds	tens	ones
3	4	7	2

thousands	hundreds	tens	ones
3	5	0	8

3 472 < 3 508

4 So 3 472 is less than 3 508. Write 3 472 < 3 508.

The first digit that differs decides. Stop there. The other digits do not matter.

Now think about numbers with different digit counts. Look at 999 and 1 000.

thousands	hundreds	tens	ones
	9	9	9

thousands	hundreds	tens	ones
1	0	0	0

1 000 has four digits. 999 has three. The number with more digits is bigger.

More digits means bigger, when no number starts with a zero.

987 starts with a 9, but 4 205 is bigger.

Two signs say which is bigger. The sign < means **less than**. The sign > means **greater than**.

3 < **5**

point — open side

5 > **3**

open side — point

The open side faces the bigger number. The point faces the smaller one.

3 < 5 reads: 3 is less than 5. And 5 > 3 reads: 5 is greater than 3.

SEE IT THREE WAYS

With things

Write 4 621 and 4 598 on paper, one digit per box. Line up the places. Check from the left.

As a picture

thousands	hundreds	tens	ones
4	6	2	1

thousands	hundreds	tens	ones
4	5	9	8

In symbols

4 621 > 4 598. The thousands match. The hundreds decide: 6 is more than 5.

---

4 598 has bigger digits at the end. They do not matter. The hundreds already decided.

WORKED EXAMPLE

Order these numbers, smallest first. 4 250, 987, 4 205, 5 031, 1 000.

1. Count the digits. 987 has three. The others have four. So 987 is smallest.
2. Look at the thousands digit. 1 000 has 1. 4 250 and 4 205 have 4. 5 031 has 5.
3. So 1 000 comes next, and 5 031 comes last.
4. 4 250 and 4 205 match in the thousands and hundreds. The tens are 5 and 0. So 4 205 comes first.

Answer: 987, 1 000, 4 205, 4 250, 5 031

TRY IT

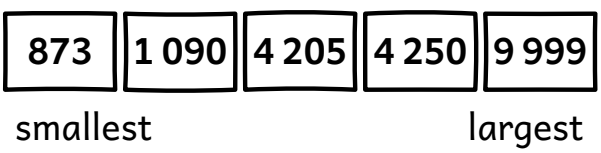
Put number cards in order

You need: five small bits of paper, a pencil.

1. Write one number on each bit of paper. Use 4 250, 873, 4 205, 1 090 and 9 999.
2. Mix the cards up on the table.
3. Find the card with the fewest digits. Put it on the left.
4. Compare the others from the left. Put the smaller card first each time.
5. Read the cards aloud, from smallest to largest.

What you will see: The card with the fewest digits comes first. When digit counts match, the first different digit decides.

If you cannot try it, this is what happens.



A WRONG IDEA MANY PEOPLE HAVE

~~999 is bigger than 1 000, because nines are big digits.~~

Why it feels right: A 9 is the biggest digit. A number of nines feels huge.

The test that breaks it: Count up from 997. You say 998, 999, then 1 000. Counting up always gives a bigger number. So 1 000 is more than 999.

What is true: Count the digits first. More digits means a bigger number. 1 000 has four digits and 999 has three.

KEY WORDS

compare
to say which of two numbers is bigger.

less than
smaller than. The sign < means less than.

greater than
bigger than. The sign > means greater than.

BACK TO YOUR GUESS

The answer is B: 1 000 is bigger, because it has more digits.

1 000 has four digits. 999 has three. A number with more digits is bigger. 1 000 is just one more than 999.

CHECK YOURSELF

Try each one before you look. A wrong answer tells you where to go next.

1. Which sign goes in the gap? 6 308 __ 6 380

thousands	hundreds	tens	ones
6	3	0	8

thousands	hundreds	tens	ones
6	3	8	0

A >

B =

C <

Answer at the back of the book.

2. Which is bigger, 9 999 or 10 000?

A 9 999

B They are the same size.

C 10 000

Answer at the back of the book.

3. Put these in order, smallest first. 5 120, 987, 5 102, 2 999, 7 010.

Answer at the back of the book.

4. Use the digits 4, 0, 7 and 2 once each. Make the biggest number you can.

Answer at the back of the book.

5. **From an earlier chapter**

In 6 319, what is the digit 3 worth?

Answer at the back of the book.

6. Which is the smallest? 7 305, 7 035 or 7 350.

thousands	hundreds	tens	ones
7	3	0	5

thousands	hundreds	tens	ones
7	0	3	5

thousands	hundreds	tens	ones
7	3	5	0

A 7 350

B 7 035

C 7 305

Answer at the back of the book.

7. Order 4 250, 879, 4 205 and 1 090, smallest first. Which list is right?

A 879, 1 090, 4 205, 4 250

B 1 090, 4 205, 4 250, 879

C 879, 1 090, 4 250, 4 205

Answer at the back of the book.

8. Which sentence is true?

A 4 621 < 4 598

B 4 598 > 4 621

C 4 621 > 4 598

Answer at the back of the book.

KEEP IT

Copy this into your exercise book.

More digits means a bigger number. With the same count of digits, look from the left. The first digit that differs decides. 3 < 5 and 5 > 3. The open side faces the bigger number.

Draw: Two numbers, one above the other, with a sign between them. Circle the first digit that differs.

M2.1.5 CHAPTER 5

Rounding and estimating

A sack has 3 472 seeds. Why do people say about 3 500?

YOUR GUESS

Pick one before you read on. It is fine to be wrong.

- ☐ **A** They made a mistake. 3 472 is not close to 3 500.
- ☐ **B** They changed it to a close number that is quicker to use.
- ☐ **C** They counted again and found 3 500.

BY THE END YOU CAN

- Round a number to the nearest 10, 100 or 1 000
- Estimate the seeds in a sack by counting one cupful

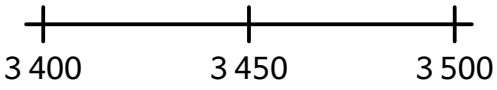
A sack holds 3 472 seeds. Mei says there are about 3 500. Is Mei wrong?

We **round** a number to make it quicker to use. The new number is close to the old one.

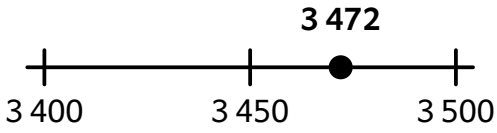
You round to the nearest 10, 100 or 1 000. Let us round 3 472 to the nearest 100.

DRAW IT FIRST

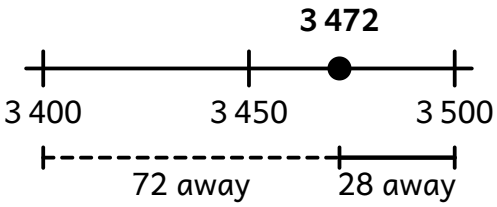
Round 3 472 to the nearest 100



1 Draw a line from 3 400 to 3 500. Mark the middle, 3 450.



2 Put a dot at 3 472. It is past the middle.



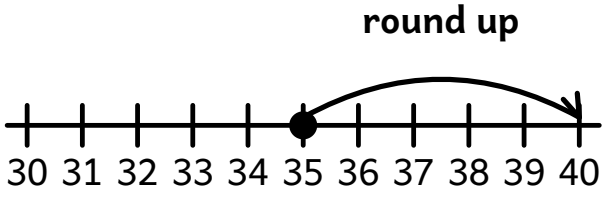
3 It is 72 from 3 400 and 28 from 3 500. It is nearer to 3 500.

Nearest 100 means the closest number that ends in 00. Here, 3 400 and 3 500 are the two choices.

There is a quick rule. Look at the digit one place to the right.

If it is 5 or more, round up. If it is 4 or less, round down.

A number **halfway** between two choices rounds up. 35 to the nearest 10 is 40. 250 to the nearest 100 is 300. 4 500 to the nearest 1 000 is 5 000.



35 is halfway between 30 and 40. Halfway rounds up.

WORKED EXAMPLE

Round 3 472 to the nearest 10, 100 and 1 000.

1. Nearest 10: look at the ones digit, 2. It is 4 or less, so round down. 3 470.
2. Nearest 100: look at the tens digit, 7. It is 5 or more, so round up. 3 500.
3. Nearest 1 000: look at the hundreds digit, 4. Round down. 3 000.

Answer: 3 470, 3 500, 3 000

thousands	hundreds	tens	ones
3	4	7	2

to the nearest 10: 3 470

to the nearest 100: 3 500

to the nearest 1 000: 3 000

One number, three roundings. The place you round to changes the answer.

Look at one digit only. Do not round in two steps.

Take 8 449 to the nearest 1 000. The hundreds digit is 4, so it is 8 000. Do not go 8 449, 8 450, 8 500, 9 000. That rounds three times.

Take care with 9s. Round 9 960 to the nearest 100.

WORKED EXAMPLE

Round 9 960 to the nearest 100.

1. The two choices are 9 900 and 10 000.
2. The tens digit is 6, so round up.
3. 9 960 is 40 from 10 000 and 60 from 9 900. It is nearer to 10 000.

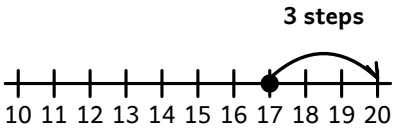
Answer: 10 000

SEE IT THREE WAYS

With things

Put 17 beans in a heap. Make a group of 10. Count what is left. Is it more than half a ten?

As a picture



In symbols

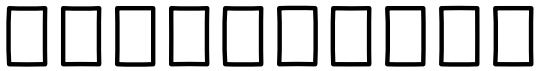
17 is 3 from 20 and 7 from 10. It is nearer to 20. So 17 rounds to 20.

Now think of a big sack of seeds. You cannot count every seed.

You can **estimate**. An estimate is a careful guess. It is close to the real number.

Count the seeds in one cupful. Then count how many cups fill the sack.

one cup: about 300 seeds



10 cups: 10 × 300 = 3 000

Ten cups of about 300 seeds each. The sack holds about 3 000 seeds.

WORKED EXAMPLE

A cup holds about 300 seeds. The sack fills 10 cups. About how many seeds?

1. There are 10 cups. Each holds about 300 seeds.
2. Multiply: 10 × 300.
3. Times 10 puts a zero on the end. 300 becomes 3 000.

Answer: about 3 000 seeds

The sack does not hold exactly 3 000 seeds. It holds about 3 000. Saying about is right.

TRY IT

Estimate the beans in a bowl

You need: a small cup or tin, a bowl of dry beans or small stones, paper and a pencil.

Be safe: Do not taste or eat the beans. Keep them away from small children.

1. Fill the small cup with beans. Level the top.
2. Tip the cup out. Count the beans in tens. Write the number.
3. Scoop the beans from the bowl, cup by cup. Count the cups.
4. Multiply: cups × beans in one cup. This is your estimate.
5. Now count all the beans in tens. How close were you?

What you will see: Your estimate is close, but not exact. Each cup holds a few more or fewer. Saying about is right.

If you cannot try it, this is what happens.

one cup: 40 beans



5 cups: 5 × 40 = 200

A WRONG IDEA MANY PEOPLE HAVE

~~To round 3 472 to the nearest 100, look at the 4. It is small, so go down to 3 400.~~

Why it feels right: The 4 is in the hundreds place. It seems to be the digit that decides.

The test that breaks it: Count from 3 472 up to 3 500. That is 28 steps. Count down to 3 400. That is 72 steps. 3 500 is much nearer.

What is true: Look at the digit one place to the right. Here it is the 7 in the tens place. It is 5 or more, so round up to 3 500.

KEY WORDS

round
to swap a number for a close one, quicker to use.

estimate
a careful guess, close to the real number.

halfway
in the middle of two numbers. Halfway rounds up.

BACK TO YOUR GUESS

The answer is B: They changed it to a close number that is quicker to use.

3 500 is close to 3 472 and quicker to use. Rounding gives a close number. Saying about is right, not wrong.

CHECK YOURSELF

Try each one before you look. A wrong answer tells you where to go next.

1. Round 4 638 to the nearest 10.

   Answer at the back of the book.

2. Round 5 740 to the nearest 100.

thousands	hundreds	tens	ones
5	7	4	0

   A 5 700

   B 5 800

   C 5 000

   Answer at the back of the book.

3. Round 250 to the nearest 100.

   A Either one is fine.

   B 200

   C 300

   Answer at the back of the book.

4. Round 9 960 to the nearest 100.

   Answer at the back of the book.

5. A cup holds about 20 beans. A tin takes 8 cups. About how many beans fill the tin?

   Answer at the back of the book.

6. **From an earlier chapter**

   Which sign goes in the gap? 5 031 ___ 987

   A >

   B <

   C =

   Answer at the back of the book.

7. Round 648 to the nearest 10.

hundreds	tens	ones
6	4	8

   A 640

   B 650

   C 600

   Answer at the back of the book.

8. Round 8 970 to the nearest 100.

   A 8 900

   B 9 000

   C 8 000

   Answer at the back of the book.

9. Round 6 499 to the nearest 1 000.

   A 6 000

   B 7 000

   C 6 500

   Answer at the back of the book.

10. A cup holds about 40 beans. A bowl takes 9 cups. About how many beans?

    one cup: about 40 beans

    9 cups

    A about 49 beans

    B about 360 beans

    C about 3 600 beans

    Answer at the back of the book.

11. Mei counts 52 seeds in one cup. The sack fills 10 cups. What can she say?

    A There are about 520 seeds.

    B There are exactly 520 seeds.

    C There are about 62 seeds.

    Answer at the back of the book.

KEEP IT

Copy this into your exercise book.

Look at the digit one place to the right. 5 or more rounds up. 4 or less rounds down. 3 472 is 3 500 to the nearest 100. An estimate is close, not exact.

Draw: A number line from 3 400 to 3 500. Mark 3 450 and a dot at 3 472.

M2.1.6 CHAPTER 6

Up to a million, and lakhs

What comes after 99 999? And what is a lakh?

YOUR GUESS

Pick one before you read on. It is fine to be wrong.

- ☐ **A** A lakh and a hundred thousand are two different numbers.
- ☐ **B** A lakh is a hundred thousand. Ten lakh is a million.
- ☐ **C** A million is the same as a hundred thousand.

BY THE END YOU CAN

- Read and write numbers up to 1 000 000
- Say 100 000 as a hundred thousand or as one lakh
- Say 1 000 000 as one million or as ten lakh

You can count to 9 999. After it comes 10 000. The numbers keep growing.

The biggest number with five digits is 99 999. Add 1 and watch.

thousands			ones		
100s	10s	1s	100s	10s	1s
	9	9	9	9	9

add 1

thousands			ones		
100s	10s	1s	100s	10s	1s
1	0	0	0	0	0

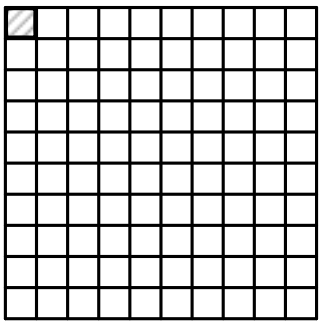
Every 9 becomes 0. A 1 appears in the next place on the left.

100 000 is *a* **hundred thousand**. In India and nearby, people also say one **lakh**.

Both words mean 100 000. Ten lakh is 1 000 000, which is one **million**.

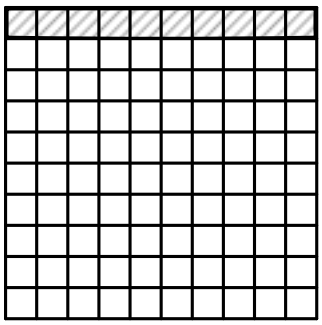
DRAW IT FIRST

Climb to *a* million



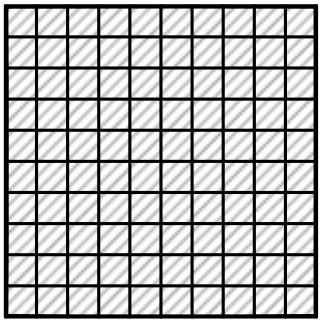
one square is 10 000

1 Each square is 10 000. Look at one square.



one row is 100 000
that is one lakh

2 Ten squares make a row. A row is 100 000, which is one lakh.



all 10 rows: 1 000 000
one million, or ten lakh

3 Ten rows make 100 squares. That is 1 000 000, one million or ten lakh.

A million is a thousand thousands. There are 1 000 thousands in 1 000 000.

To read a big number, split it in two. Say the left part, then thousand. Then say the right part.

thousands			ones		
100s	10s	1s	100s	10s	1s
4	0	8	0	6	0

Left part: 408 thousand. Right part: 060, which is sixty.

WORKED EXAMPLE

Write four hundred twelve thousand, six hundred nine in digits.

1. Four hundred twelve is 412. Then comes thousand, so write 412 first.
2. Six hundred nine has no tens. Write 609 with a 0 in the tens place.
3. Put them together: 412 609.

Answer: 412 609

Big numbers are hard to read with no breaks. So we leave a gap, or use commas.

This book uses a small space. A million is 1 000 000.

Many places write 1,000,000. Some places write 1.000.000.

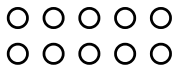
In India and nearby, the last three digits stand alone. The rest go in twos.

So one lakh is 1,00,000. Ten lakh is 10,00,000. These are the same numbers as 100 000 and 1 000 000.

1 000 000	this book
1,000,000	many places
10,00,000	India and nearby
1.000.000	some places

Four ways to write the same number. The gaps only help your eye.

SEE IT THREE WAYS

With things	As a picture	In symbols
Think of 10 sacks. Each sack holds 100 000 seeds, or one lakh. Pour them all together.	 each dot: 1 lakh = 100 000 10 dots: 10 lakh = 1 000 000	**10 × 100 000 = 1 000 000. So ten lakh is one million.**

How big is a million? Count one number each second, without stopping.

Counting to a million takes more than 11 days, day and night.

TRY IT

Write your way up to a million

You need: paper, a pencil.

1. Write 1 000. Say it: one thousand.
2. Add one zero: 10 000. Say it: ten thousand.
3. Add another zero: 100 000. Say it: a hundred thousand, or one lakh.
4. Add one more zero: 1 000 000. Say it: one million, or ten lakh.
5. Look at your last number. Count the zeros.

What you will see: Each new zero makes the number ten times bigger. A million is a 1 with six zeros.

If you cannot try it, this is what happens.

1 000	one thousand
10 000	ten thousand
100 000	hundred thousand or one lakh
1 000 000	one million or ten lakh

A WRONG IDEA MANY PEOPLE HAVE

~~1,00,000 is a different number from 100 000.~~

Why it feels right: The commas sit in different places, so the numbers look different.

The test that breaks it: Both are a 1 followed by five zeros. Take out every comma and space. The same six digits remain.

What is true: Commas and spaces only help your eye. They do not change the number.

KEY WORDS

hundred thousand
the number 100 000.

lakh
another word for a hundred thousand. 1 lakh is 100 000.

million
the number 1 000 000. It is ten lakh.

BACK TO YOUR GUESS

The answer is B: A lakh is a hundred thousand. Ten lakh is a million.

One lakh is 100 000, the same number as a hundred thousand. Ten lakh is 1 000 000, one million.

CHECK YOURSELF

Try each one before you look. A wrong answer tells you where to go next.

1. Write in digits: seven hundred five thousand, three hundred.

   Answer at the back of the book.

2. How many lakh is 600 000?

   A 60 lakh

   B 6 lakh

   C 600 lakh

   Answer at the back of the book.

3. Write ten lakh in digits.

   Answer at the back of the book.

4. Ravi writes 1,00,000. Amina writes 100 000. Are they different numbers?

   A Yes. The commas are in different places.

   B Yes. 1,00,000 is a million. It has two commas, like 1,000,000.

   C No. They are the same number.

   Answer at the back of the book.

5. How many thousands make a million?

   A 100

   B 1 000

   C 10 000

   Answer at the back of the book.

6. **From an earlier chapter**

   Round 8 650 to the nearest 100.

   Answer at the back of the book.

7. What comes after 99 999?

   A 100 000

   B 10 000

   C 1 000 000

   Answer at the back of the book.

8. How do you say the number in the chart?

thousands			ones		
100s	10s	1s	100s	10s	1s
2	6	0	0	0	7

A twenty-six thousand, seven

B two hundred sixty thousand, seventy

C two hundred sixty thousand, seven

Answer at the back of the book.

9. How many lakh make a million?

A 10 lakh

B 1 lakh

C 100 lakh

Answer at the back of the book.

KEEP IT

Copy this into your exercise book.

100 000 is a hundred thousand, or one lakh. 1 000 000 is one million, or ten lakh. Spaces and commas only help the eye. The number stays the same.

Draw: Draw a row of 10 squares for 100 000. Draw 10 rows for 1 000 000.

Key words, A to Z

Every key word in this book, what it means, and the chapter that teaches it.

compare
to say which of two numbers is bigger. M2.1.4

count back
take the same step away again and again. M2.1.3

count on
add the same step again and again. M2.1.3

digit
one of the symbols 0 to 9. M2.1.1

estimate
a careful guess, close to the real number. M2.1.5

greater than
bigger than. The sign > means greater than. M2.1.4

halfway
in the middle of two numbers. Halfway rounds up. M2.1.5

hundred
10 tens, or 100 ones. M2.1.1

hundred thousand
the number 100 000. M2.1.6

lakh
another word for a hundred thousand. 1 lakh is 100 000. M2.1.6

less than
smaller than. The sign < means less than. M2.1.4

million
the number 1 000 000. It is ten lakh. M2.1.6

number line
a line with numbers in order along it. M2.1.3

place value
what a digit is worth, because of the place it sits in. M2.1.1

placeholder
a 0 that holds a place when nothing is there. M2.1.2

round

to swap *a* number for *a* close one, quicker to use. M2.1.5

thousand

10 hundreds, or 1 000 ones. M2.1.2

Answers

M2.1.1. Hundreds, tens and ones

1. **70**

   372 is 3 hundreds, 7 tens and 2 ones. 7 tens is 70.

   - **If you chose A:** That is the digit, not what it is worth. The 7 is in the tens place.
   - **If you chose C:** 700 is 7 hundreds. In 372 the 3 is in the hundreds place.

2. **629**

   600 + 20 + 9 = 629.

3. **4 hundreds, 0 tens and 7 ones**

   The 4 is in the hundreds place. The 7 is in the ones place. The 0 means no tens.

4. **253**

   2 flats is 200. 5 rods is 50. 3 small squares is 3. 200 + 50 + 3 = 253.

   - **If you chose B:** You may have swapped the tens and the ones. Rods are tens. Squares are ones.
   - **If you chose C:** You may have started with the 5 rods. Flats come first, and there are 2 flats.
   - **If you chose D:** That adds up how many blocks there are. A flat, a rod and a square are worth different amounts.

5. **308**

   3 hundreds, 0 tens and 8 ones is 308. The 3 is in the hundreds place. The number has only three digits.

6. **248**

   248 is 2 hundreds, 4 tens and 8 ones. 4 tens is 40.

   - **If you chose B:** In 482 the 4 is in the hundreds place. It is worth 400.
   - **If you chose C:** In 824 the 4 is in the ones place. It is worth 4.

7. **206**

   There are 2 flats, no rods and 6 squares. That is 2 hundreds, 0 tens and 6 ones. 200 + 0 + 6 = 206.

   - **If you chose A:** There are no rods, so the tens place needs a 0. Without it the 2 is worth 20.
   - **If you chose B:** The squares are ones, not tens. Put the 6 in the ones place.

8. **605**

   6 hundreds, 0 tens and 5 ones. 600 + 0 + 5 = 605.

   - **If you chose A:** That is six thousand and five. Six hundred and five has only three digits.
   - **If you chose B:** You may have left out the 0. Then the 6 is worth 60, not 600.
   - **If you chose C:** The 5 is 5 ones, not 5 tens. The 0 holds the tens place.

9. **6 hundreds, 1 ten and 4 ones**

   The 6 is in the hundreds place. The 1 is in the tens place. The 4 is in the ones place.

   - **If you chose A:** That swaps the tens and the ones. In 614 the 1 is in the tens place.
   - **If you chose C:** That swaps the hundreds and the tens. The 6 is in the hundreds place.

M2.1.2. Thousands

1. **6 309**

   6 thousands, 3 hundreds, 0 tens and 9 ones. 6 000 + 300 + 9 = 6 309.

   - **If you chose A:** The 3 is hundreds, not tens. There are no tens, so the 0 goes in the tens place. Go to M2.1.1.
   - **If you chose C:** You may have left out the 0. Then the 6 slides to the hundreds place. There are no tens, so write a 0 there.

2. **5 thousands, 0 hundreds, 8 tens and 0 ones**

   The 5 is in the thousands place. The 8 is in the tens place. The two 0s hold the other places.

3. **It holds the hundreds place. There are no hundreds.**

   7 046 is 7 thousands, 0 hundreds, 4 tens and 6 ones. Without the 0 you would get 746.

   - **If you chose A:** Without it, 7 046 would be 746. The 7 would be worth 700, not 7 000.
   - **If you chose C:** The tens digit is the 4. The 0 sits one place to its left, in the hundreds.

4. **nine thousand, four hundred**

   9 400 is 9 thousands and 4 hundreds. There are no tens and no ones.

   - **If you chose A:** Forty is 4 tens. In 9 400 the 4 is in the hundreds place. Go to M2.1.1.
   - **If you chose B:** That is 904, which has three digits. The 9 in 9 400 is in the thousands place.

5. **80**

   683 is 6 hundreds, 8 tens and 3 ones. 8 tens is 80.

6. **3 407**

   3 000 + 400 + 0 + 7 = 3 407. There are no tens, so the 0 holds the tens place.

   - **If you chose A:** You put the 7 in the tens place. It is 7 ones, so it goes in the ones place.
   - **If you chose B:** That has no thousands place. 3 thousands is 3 000, so the number has four digits. Go to M2.1.1.

7. **three thousand and sixty**

   The 3 is in the thousands place. The 6 is in the tens place, so it is sixty. The 0s hold the hundreds and ones.

   - **If you chose B:** That puts the 6 in the hundreds place. In the chart the 6 is in the tens place. Go to M2.1.1.
   - **If you chose C:** That leaves out the first 0. The 3 is in the thousands place, not the hundreds.

8. **10**

   10 hundreds make 1 thousand. 10 × 100 = 1 000.

   - **If you chose A:** 100 ones make 1 hundred. A thousand is a bigger group. Go to M2.1.1.
   - **If you chose B:** 1 000 is how many ones make a thousand. Hundreds are bigger than ones.

M2.1.3. Counting on in big steps

1. **9 050**

   9 hundreds and 1 more hundred is 10 hundreds. That makes one more thousand. 8 950 + 100 = 9 050.

   - **If you chose A:** You added 10. A step of 100 changes the hundreds place.
   - **If you chose C:** You added 1 000. A step of 100 is smaller.

2. **980, 990, 1 000**

   970 + 10 = 980. 980 + 10 = 990. 990 + 10 fills the tens place to 10. That moves up and makes 1 000.

3. **1 990, 1 980, 1 970**

   2 000 is 200 tens. Take away 1 ten and you have 199 tens. That is 1 990. Then 1 980 and 1 970.

4. **10 000**

   9 thousands and 1 more thousand make 10 thousands. We write 10 000.

   - **If you chose B:** You added 100. This line goes up in 1 000s.
   - **If you chose C:** 9 000 and 1 000 more make 10 thousands. That is 10 000, with five digits.

5. **Between 2 000 and 3 000, before the middle.**

   2 400 is 2 thousands and 4 hundreds. It is past 2 000 but less than 2 500, the middle.

   - **If you chose B:** The middle of that stretch is 2 500. 2 400 is less than 2 500.
   - **If you chose C:** You may have looked at the 4 in 2 400. The 2 is in the thousands place. Go to M2.1.2.

6. **8 406**

   8 thousands, 4 hundreds, 0 tens and 6 ones. 8 000 + 400 + 6 = 8 406.

7. **3 000**

   2 990 is 299 tens. One more ten makes 300 tens. 300 tens is 3 000.

   - **If you chose A:** You added 100. A step of 10 only fills the tens place.
   - **If you chose B:** The two 9s became 0, but nothing moved up. That is less than 2 990.

8. **2 995**

   3 005 is 300 tens and 5 ones. Take away 1 ten and 299 tens and 5 ones are left. That is 2 995.

   - **If you chose A:** You took away 100. A step of 10 takes away 1 ten.
   - **If you chose B:** You took away the 5 ones. Take away 1 ten instead.

9. **Between 7 000 and 8 000, after the middle.**

   7 800 is 7 thousands and 8 hundreds. It is past the middle, 7 500, but less than 8 000.

   - **If you chose A:** You may have looked at the 8 in 7 800. The 7 is in the thousands place. Go to M2.1.2.
   - **If you chose B:** The middle of that stretch is 7 500. 7 800 is more than 7 500.

M2.1.4. Comparing and ordering

1. **<**

   The thousands and hundreds match. The tens are 0 and 8. 0 is less than 8, so 6 308 < 6 380.

   - **If you chose A:** Look for the first digit that differs. The tens are 0 and 8. 0 is less than 8, so 6 308 is the smaller number.
   - **If you chose B:** The digits are the same, but they sit in different places. The tens are 0 and 8. Go to M2.1.1.

2. **10 000**

   10 000 has five digits and 9 999 has four. More digits means a bigger number.

   - **If you chose A:** Four 9s look big, but 10 000 has five digits. More digits means a bigger number. Go to M2.1.3.
   - **If you chose B:** 9 999 + 1 = 10 000, so 10 000 is one more.

3. **987, 2 999, 5 102, 5 120, 7 010**

   987 has three digits, so it is first. Then compare the thousands: 2, 5, 5, 7. For 5 102 and 5 120, the tens decide. 0 is less than 2.

4. **7 420**

   Put the biggest digit in the biggest place. 7 goes in the thousands, then 4, 2 and 0.

5. **300**

   The 3 is in the hundreds place. 3 hundreds is 300.

6. **7 035**

   The thousands all match. The hundreds are 3, 0 and 3. 0 is the least, so 7 035 is the smallest.

   - **If you chose A:** You may have looked at the last digit, 0. Start at the left. The hundreds decide.
   - **If you chose C:** It has 3 hundreds. 7 035 has 0 hundreds, so it is smaller.

7. **879, 1 090, 4 205, 4 250**

   879 has three digits, so it is first. 1 090 has the least thousands. The tens decide for 4 205 and 4 250. 0 is less than 5.

   - **If you chose B:** You compared only the first digits. 879 has three digits, so it is the smallest.
   - **If you chose C:** Look at 4 250 and 4 205. The tens are 5 and 0. The smaller one comes first.

8. **4 621 > 4 598**

   The open side of the sign faces the bigger number. 4 621 is bigger, so it goes on the open side.

   - **If you chose A:** The open side of < faces 4 598. That says 4 598 is greater.
   - **If you chose B:** 4 598 has bigger last digits. They do not matter. The hundreds decide. 6 is more than 5, so 4 598 is smaller.

M2.1.5. Rounding and estimating

1. **4 640**

   Look at the ones digit, 8. It is 5 or more, so round up. 4 638 becomes 4 640.

2. **5 700**

   The tens digit is 4. It is 4 or less, so round down. 5 740 becomes 5 700.

   - **If you chose B:** You may have looked at the 7 in the hundreds place. Look one place to the right, at the tens digit, 4.
   - **If you chose C:** That sets every digit after the 5 to 0. Look at the tens digit instead.

3. **300**

   250 is halfway between 200 and 300. Halfway rounds up.

   - **If you chose A:** It is true that 250 is the same distance from both. We agree halfway rounds up, so everyone gets the same answer.
   - **If you chose B:** Halfway rounds up. 250 is as near 200 as it is 300.

4. **10 000**

   The tens digit is 6, so round up. 9 960 is 40 from 10 000 and 60 from 9 900.

5. ***about 160 beans***

   8 × 20 means eight 20s. 8 × 2 = 16, so 8 × 20 = 160.

6. **>**

   5 031 has four digits and 987 has three. More digits means a bigger number.

   - **If you chose B:** 5 031 has four digits and 987 has three. The number with more digits is bigger. Go to M2.1.4.
   - **If you chose C:** The numbers are not the same. 5 031 has four digits and 987 has three. Go to M2.1.4.

7. **650**

   The ones digit is 8. It is 5 or more, so round up. 648 becomes 650.

   - **If you chose A:** You looked at the 4 in the tens place. Look one place to the right, at the ones digit, 8.
   - **If you chose C:** That is rounding to the nearest 100. To the nearest 10, 648 is 640 or 650. Look at the ones digit.

8. **9 000**

   The tens digit is 7, so round up. 8 970 is 30 from 9 000 and 70 from 8 900.

   - **If you chose A:** You cut off the tens. The tens digit is 7, so round up.
   - **If you chose C:** 9 hundreds and 1 more make 10 hundreds. That is one more thousand, so 8 becomes 9.

9. **6 000**

   The hundreds digit is 4. It is 4 or less, so round down. 6 499 becomes 6 000.

   - **If you chose B:** You rounded 499 up to 500 first. Look at one digit only, the hundreds digit, 4.
   - **If you chose C:** That is rounding to the nearest 100. Nearest 1 000 ends in 000.

10. ***about 360 beans***

    9 × 40 means nine 40s. 9 × 4 = 36, so 9 × 40 = 360.

    - **If you chose A:** You added 40 and 9. The bowl holds 9 cups of 40 beans, so multiply.
    - **If you chose C:** 9 × 4 = 36, so 9 × 40 = 360. 3 600 has one zero too many.

11. **There are about 520 seeds.**

    10 × 52 = 520. Cups are not all the same, so 520 is an estimate. Say about.

    - **If you chose B:** Each cup holds a few more or fewer seeds. So 520 is a careful guess, not an exact count.
    - **If you chose C:** You added 10 and 52. The sack holds 10 cups of 52 seeds, so multiply.

M2.1.6. Up to *a* million, *and* lakhs

1. **705 300**

   Seven hundred five is 705. Then thousand. Three hundred is 300. Together: 705 300.

2. **6 lakh**

   One lakh is 100 000. 600 000 is 6 of them.

   - **If you chose A:** You may think *a* lakh is 10 000. One lakh is 100 000. 600 000 holds 6 of them, not 60.
   - **If you chose C:** You may have read 600 thousand and swapped thousand for lakh. A lakh is 100 thousand. 600 000 holds only 6 of them.

3. **1 000 000**

   One lakh is 100 000. Ten lakh is 10 × 100 000, which is 1 000 000.

4. **No. They are the same number.**

   Both are *a* 1 followed by five zeros. The commas and spaces only help your eye.

   - **If you chose A:** Commas and spaces only help the eye. Take them out and both are *a* 1 and five zeros.
   - **If you chose B:** Here the commas group the digits in twos. Count the zeros. There are five, so it is 100 000, one lakh.

5. **1 000**

   A million is *a* thousand thousands. 1 000 000 ÷ 1 000 = 1 000.

   - **If you chose A:** 100 thousands make only 100 000. That is one lakh.
   - **If you chose C:** 10 000 thousands would be ten million. That is ten times too many.

6. **8 700**

   The tens digit is 5. It is 5 or more, so round up. 8 650 becomes 8 700.

7. **100 000**

   99 999 + 1 = 100 000. Every 9 becomes 0, and *a* 1 appears in the next place.

   - **If you chose B:** That is only one more than 9 999. After 99 999 the next place on the left fills. Go to M2.1.3.
   - **If you chose C:** That is far too big. 99 999 + 1 only fills one more place.

8. **two hundred sixty thousand, seven**

   The left part is 260. Then comes thousand. The right part is 007, which is seven.

   - **If you chose A:** That is 26 007, which has five digits. The chart has six.
   - **If you chose B:** Seventy is 7 tens. The 7 in the chart is in the ones place. Go to M2.1.2.

9. **10 lakh**

   One lakh is 100 000. 1 000 000 ÷ 100 000 = 10, so a million is ten lakh.

   - **If you chose B:** One lakh is 100 000. That is only a tenth of a million.
   - **If you chose C:** 100 lakh is 10 000 000, which is ten million. A million is 10 lakh.

About this book

For learners who can count to 100 and show 64 as 6 tens and 4 ones. In many schools this fits children of about 8 to 10, and older learners who never felt sure of big numbers can start here too. Activities use sticks, beans, string and paper. A learner can work alone: every exercise has its answer and the reason for it.

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