

Maths

Number and Place Value

Need a coherently planned sequence of lessons to complement this resource?

Assessment Statements
By the end of this unit;

children working towards the expected level will be able to:

- read and write numbers up to 100 000;
- identify the value of each digit in a number up to 100 000 using place value grids and counters;
- recognise concrete and visual representations of numbers with one decimal place;
- order numbers up to 100 000;
- compare numbers up to 100 000 using the greater than and less than symbols;
- round numbers to the nearest 10, 100, 1 000, 10 000 or 100 000 using a number line; calculate intervals across zero using a number line;
- compare and order negative numbers using a number line;
- identify negative numbers in context;
- recognise some powers of 10 within sequences;
- read Roman numerals up to 500 (D) using a symbol chart;
- identify years written in Roman numerals using a symbol chart;

children working at the expected level will be able to:

- read and write most numbers up to 1 000 000;
- identify the value of most digits in a number up to 1 000 000;
- use concrete, visual and abstract representations to help identify numbers with two decimal places;
- order most numbers up to 1 000 000;
- compare most numbers up to 1 000 000 greater than and less than symbols;
- round numbers up to 1 000 000 to the nearest 1000, 10 000 or 100 000 using a number line;
- compare and order negative numbers;
- solve age appropriate problems involving negative numbers;
- count forwards and backwards in steps of 10;
- read Roman numerals up to 1000 (M);
- identify years written in Roman numerals;
- solve reasoning problems using all of the

Introduction

Teacher Note: The Y5 Place Value objectives read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit and round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 are closely linked to the Y5 Fractions objectives read, write, order and compare numbers with up to three decimal places and round decimals with two decimal places to the nearest whole number and to one decimal place. Please head over to the Fractions Topic Area to find some more support lessons to support decimal place value.

In this unit, children will read, write, construct and deconstruct numbers up to 1 000 000. They will use concrete, visual and abstract methods to help identify the value of individual digits in numbers with up to six digits. As well as larger numbers, children are introduced to the concept of decimal numbers in preparation for the designated book in Spring term. They revisit comparisons of numbers using the greater than and less than symbols and then develop their skills by reasoning about numbers. Children will focus on rounding any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 or 100 000. They will work with negative numbers, counting forwards and backwards across zero. They will use negative numbers in context to solve problems. Children will count forwards and backwards in different powers of 10. They will have the opportunity to use all of their number and place value skills to solve a range of problems. Finally, children will extend their knowledge of Roman numerals to represent numbers up to 1000 and read years written in Roman numerals.

Resources
In addition to your standard maths resources, you may need place value counters, scissors, glue or sticky tape, playing cards, D9 dice and 1-d die.

Number and Place Value
Maths | Year 5 | Steps to Progression Overview

The aim of this overview is to support teachers using PlanIt Maths to show the most coherent and progressive sequence to teach each area of maths. We also want to fully support teachers who use the White Rose Maths scheme of learning to make full use of the resources available within PlanIt Maths. Wherever possible, lesson packs have been matched to each of the small steps on the White Rose Maths scheme of learning.

Yearly Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction		Statistics		Number: Multiplication and Division		Perimeter and Area		Consolidation
Spring	Number: Multiplication and Division				Number: Fractions					Number: Decimals and Percentages		Consolidation
Summer	Number: Decimals			Geometry: Properties of Shapes			Geometry: Position and Direction	Measurement: Converting Units		Measurement: Volume		Consolidation

See our [Number and Place Value Steps to Progression](#) document.

Representing Whole Numbers



Aim

- To understand powers of ten up to 1 million.

Success Criteria

- I can recognise powers of ten.
- I can reason about powers of ten.
- I can count forwards in powers of ten.

Remember It



10 is very important in our number system. Can you match these groups of 10 with the number they make? Click on the calculations to reveal the answers.

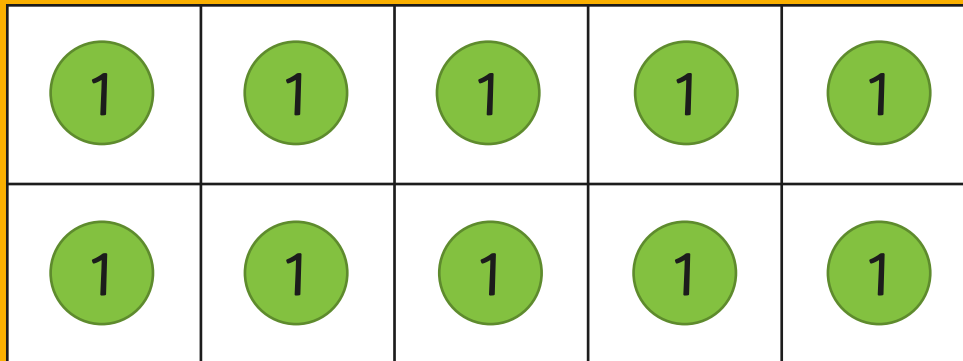
10×10	100×10	$100\ 000 \times 10$	1000×10	$10\ 000 \times 10$
100	1000	1\ 000\ 000	10\ 000	100\ 000

1\ 000\ 000	10\ 000	1000	100	100\ 000
--------------------	----------------	-------------	------------	-----------------

Representing Numbers



If each square in this ten-frame equals one, we can represent different numbers up to 10 in different ways using the ten-frame.



10 ones is the same as 1 ten.

Representing Numbers



If this ten-frame represents 100, what does each square represent?

10	10	10	10	10
10	10	10	10	10

100

10 tens is the same as 1 hundred.

Representing Numbers



This ten-frame is used to represent 1000. Therefore, each square will represent 1000.

10 hundreds is equivalent to 1 thousand.

Do you agree with Daniel? Explain how you know.

100	100	100	100	100
100	100	100	100	100

1000

Representing Numbers



The ten-frame below can be used to represent numbers up to 10 000.
True or false? Explain how you know.

1000	1000	1000	1000	1000
1000	1000	1000	1000	1000

1 ~~10000~~

10 thousands is equal to 1 ten thousand.

Representing Numbers



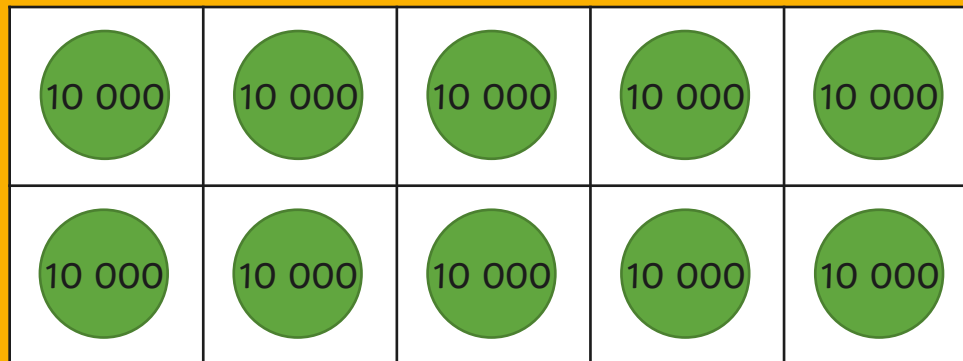
10 ten thousands is the same as 1 hundred thousand.

When a ten-frame represents numbers up to 100 000, the counters in each square will be worth 1000.

In a ten-frame that represents 100 000, numbers represented will be larger than 50 000.

Never true - the counters in each square represent 10 000.

Sometimes true - if there are six or more counters in the ten-frame then a number larger than 50 000 will be shown.



100 000

Representing Numbers



We are going to explore ways that we can represent and break down one million, or 1 000 000. If we use the 10-frame, what would each square represent?

Each square represents 100 000.

100 000	100 000	100 000	100 000	100 000
100 000	100 000	100 000	100 000	100 000

1 000 000

10 hundred thousands is the same as 1 million.

At the Fair



Jamil is at the Twinkl Summer Fair. He has already scored 87 points on the hoopla.
Add his points from the coconut shy to his score.

Jamil's final score is **331 207.**

Coconut shy targets and tokens:

- Target 1 (left): 100 000
- Target 2: 100
- Target 3 (center): 331 207
- Target 4: 10
- Target 5 (right): 1000

Available tokens:

- 100 000 (light blue)
- 100 000 (light blue)
- 1000 (dark blue)
- 10 (yellow)
- 10 000 (green)
- 10 000 (green)
- 100 000 (light blue)
- 100 (green)
- 10 000 (green)

Rolling Powers of Ten



Roll the dice and use the key to see which power of ten you will be adding to your starting number. Fill in your table with the right answer. Each time you roll, you should be adding the power of ten to the original number.

Rolling Powers of Ten

To understand powers of ten up to 1 million.

Work with your partner to play this game. The aim of the game is to complete your table first. Roll the dice and use the key below to see which power of ten you will be adding to your starting number. Fill in your table with the right answer. Each time you roll, you should be adding the power of ten to the original number.

If, for example, you roll a two on the dice (add 100) and you have already added 100 to all of your starting numbers, you will have to miss your go! Who will be the first to fill in their table?

Partner A

Starting Number
244 962
350 844
106 191

Partner B

Starting Number
485 045
723 891
451 100

Key

add 10	add 100	add 1000
add 10	add 100	add 1000

Partner A

Starting Number	Add 10	Add 100	Add 1000
2462			
35 844			
10 191			

Partner B

Starting Number	Add 10	Add 100	Add 1000
4861			
23 844			
17 653			

Key

add 10	add 100	add 1000
add 10	add 100	add 1000

Partner A

Starting Number	Add 10	Add 100	Add 1000
462			
3844			
1191			

Partner B

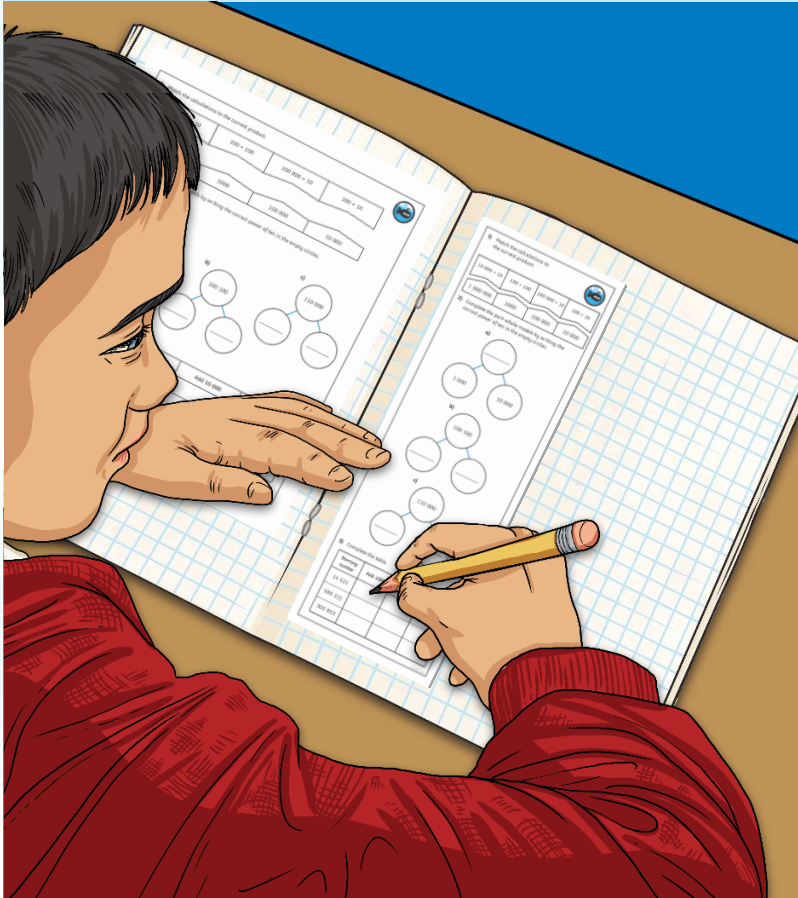
Starting Number	Add 10	Add 100	Add 1000
341			
4920			
5228			

Key

add 10	add 100	add 1000
add 10	add 100	add 1000

Diving into Mastery

Dive in by completing your own activity!



1) For each power of ten, write the correct power of ten in the empty circles.

a) $10\ 000 \times 10$ 100×100 $100\ 000 \times 10$ 100×10

b) $1\ 000\ 000$ 1000 $100\ 000$ $10\ 000$

2) Complete the part-whole models by writing the correct power of ten in the empty circles.

a) $1\ 000$ $10\ 000$

b) $100\ 100$

c) $110\ 000$

3) Complete the table.

Starting Number	Add 1000	Add 10 000	Add 100 000
14 521			
588 321			
302 853			

Power of Ten Pathways



Sonia adds 3 powers of ten to the number on the left to get to the number on the right.
How many possible pathways can you find?

14 092

14 102

14 202

24 202

124 202

204 910

205 010

305 010

306 010

306 020

Because addition is commutative, the powers of ten added to get from the number on the left to the number on the right can be done in any order. This is why you might have a different answer to your partner.

Aim



- To understand powers of ten up to 1 million.

Success Criteria

- I can recognise powers of ten.
- I can reason about powers of ten.
- I can count forwards in powers of ten.

