

# 1:01 Skip Counting

**Content strand:** Number and Algebra

**Substrand:** Patterns and Algebra 1

**Content statements:**

- Describe, continue and create number patterns resulting from performing addition or subtraction.

**Substrand:** Multiplication and Division 1

**Content statements:**

- Recall multiplication facts of two, three, five and ten and related division facts.

**Outcomes:** MA2-1WM, MA2-2WM, MA2-6NA, MA2-8NA

## Teaching Suggestions

- Play class counting games using skip and rhythmic counting.
- Play games such as 'Guess My Rule' where a student says a number pattern and another student has to explain how the number pattern was made and how it can be continued.
- When using fingers, emphasise the pattern as each group of three is made, e.g. 1 2 3, 4 5 6, 7 8 9. Treat each example similarly.
- Some students may benefit from using concrete materials, such as place value blocks or Multilink cubes, to assist completing the patterns in Question 1.
- Read along the row when all the boxes have been completed.

- Discuss patterns found in each row, e.g. odd/even, repeating digits or patterns, numbers more/less in the ones place, addition of digits (e.g. counting by nines).
- Use the example questions on the IWB DVD.

## Extension Work

- Show the patterns on the page on number lines (BLM 21, p. 212). Colour a number chart (BLM 11, p. 202) for each row using a different colour. Note any links.

## Language

skip counting, rhythmic counting, counting on, patterns, rule, multiply, multiplication facts, equals, operations

## Resources

- number chart (BLM 11, p. 202)
- number lines (BLM 21, p. 212)
- IWB DVD 3

## Cross-reference

See also: pp. 2, 5, 6, 15, 25, 26, 28, 29, 30, 37

Year 2 p. 129

Year 4 p. 30

## Evaluation

Is the student able to do the following?

- describe, continue and create number patterns
- use mental and written strategies to complete number patterns
- display mental facility for number facts up to  $10 \times 10$

**1:01 Skip Counting**

Until we know the pattern of numbers, we can count on from the last answer.

When we count on, we count on by fingers.

**1** Skip count and write the numbers as you go.

a Each time, count on three more.

b Each time, count on four more.

c Each time, count on six more.

d Each time, count on seven more.

e Each time, count on eight more.

f Each time, count on nine more.

g Each time, count on ten more.

h Each time, count on 100 more.

Patterns and Algebra 1: Describe, continue and create number patterns resulting from performing addition or subtraction. Multiplication and Division 1: Recall multiplication facts of two, three, five and ten and related division facts. Outcomes: MA2-1WM, MA2-2WM, MA2-6NA, MA2-8NA.

## Answers

- 1**
- a 9, 12, 15, 18, 21, 24, 27, 30
- b 12, 16, 20, 24, 28, 32, 36, 40
- c 18, 24, 30, 36, 42, 48, 54, 60
- d 21, 28, 35, 42, 49, 56, 63, 70
- e 24, 32, 40, 48, 56, 64, 72, 80
- f 27, 36, 45, 54, 63, 72, 81, 90
- g 30, 40, 50, 60, 70, 80, 90, 100
- h 300, 400, 500, 600, 700, 800, 900, 1 000

# 1:02 Odd and Even Numbers

**Content strand:** Number and Algebra

**Substrand:** Patterns and Algebra 1

**Content statements:**

- Investigate the conditions required for a number to be even or odd and identify even and odd numbers.
- Describe, continue and create number patterns resulting from performing addition or subtraction.

**Outcomes:** MA2-1WM, MA2-2WM, MA2-3WM, MA2-8NA

## Teaching Suggestions

- Ask questions relating to even and odd numbers for Questions 1–16 on ID Card 1 (p. 186).
- Ask students to show if a number is even or odd. Students could use counters to demonstrate that even numbers can be modelled in 'pairs' while odd numbers have one 'left over'.
- Provide frequent opportunities for students to count by even and odd numbers, e.g. twos and tens, threes and fives.
- Use the number chart on the IWB DVD (or BLM 11, p. 202) when counting forwards or backwards from any starting point.
- Provide opportunities for students to model and describe their own number patterns using concrete materials.
- Have students show number patterns on number lines (BLM 21, p. 212).
- Use the example questions on the IWB DVD.

## Extension Work

- Have students work in pairs. One student uses number lines (BLM 11, p. 202) to show a number pattern. The other student describes the pattern and writes the first four elements.

## Language

odd, even, number pattern, between, below, left over, largest even number, largest odd number, count forwards, count backwards, count by twos, fives, tens, etc.

## Resources

- concrete materials, e.g. counters
- ID Card 1, p. 186
- number chart for colouring (BLM 11, p. 202)
- number lines (BLM 21, p. 212)
- IWB DVD 3

## Cross-reference

See also: pp. 1, 5, 6, 15, 25, 26, 28, 29, 30, 37

Year 2 p. 94

Year 4 p. 82

## Evaluation

Is the student able to do the following?

- recognise even and odd numbers
- create, represent and continue a variety of number patterns and supply missing elements

## Answers

**1 a**

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

**b** odd numbers    **c** 78    **d** 66    **e** 69

**2** Numbers ending in 0, 2, 4, 6 and 8 can be drawn in pairs without one left over.

**3 a** 4    **b** 4    **c** 49    **d** 20    **e** 26    **f** 0

**4 a** 5    **b** 3    **c** 49    **d** 13    **e** 26    **f** 27

**5** 38 53 75 14 87 92 66 36 29 41 50 35 74 100

**6 a** even    **b** even    **c** odd    **d** even    **e** even    **f** odd

**1:02 Odd and Even Numbers**

Examples: 2, 4, 6, 8, 10, 12, ...  
An even number of items can be drawn in pairs.

Examples: 1, 3, 5, 7, 9, 11, 13, ...  
An odd number of items can be drawn in pairs. There is always one left over.

**1** Use the number chart to answer the questions.

a Count by 2s. Colour these numbers on the chart. These are all the even numbers up to 100.

b What is the name given to the numbers that are not coloured?

c What is the largest even number less than 80?

d What is the largest even number less than 67?

e What is the largest odd number less than 71?

**2** Why are numbers ending in 2, 4, 6, 8 or 0 even numbers?

**3** How many even numbers are between these numbers?

a 6 and 16    b 47 and 55    c 1 and 100  
d 31 and 72    e 28 and 81    f 68 and 70

**4** How many odd numbers are between these numbers?

a 6 and 16    b 47 and 55    c 1 and 100  
d 27 and 54    e 42 and 95    f 13 and 69

**5** Circle the even numbers. Underline the odd numbers.

38 75 87 66 29 50 35 74 100  
53 14 92 36 41

Even numbers end in 2, 4, 6, 8 or 0. Odd numbers end in 1, 3, 5, 7 or 9.

**6** For each number write **even** or **odd**.

a 98    b 120    c 103    d 914    e 216    f 847

Even numbers are multiples of 2.

# 1:03 Numbers to 1000

**Content strand:** Number and Algebra

**Substrand:** Whole Numbers 1

**Content statements:**

- Recognise, model, represent and order numbers to at least 10 000.
- Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems.

**Outcomes:** MA2-1WM, MA2-2WM, MA2-4NA

## Teaching Suggestions

- Compare the abacus and the numeral expander using the tools on the IWB DVD and/or **BLM 3**, p. 194.
- Explain that 'H' stands for hundreds, 'T' stands for tens and 'U' stands for units. Note that if 'O' is used for ones it may be confused with zero.
- Discuss place value and the use of zero as a place holder.
- Demonstrate with place-value materials that 200 is bigger than 100. Emphasise that to order 3-digit numbers we look at the hundreds digit first.
- Larger numbers can be counted by making groups of ten and then counting by tens.
- Introduce the term 'ascending order' (increasing in size) and relate it to the appropriate rule.
- Play the drag-and-drop game on the IWB DVD.

## Extension Work

- Have students write the numbers shown in Question 1 in ascending order.
- Have students model the largest possible number from any three given digits.

## Language

units, ones, tens, hundreds, zero, abacus, digit, column, larger, smaller, largest, smallest, place value, ascending order, place holder, groups of ten

## Resources

- abacus
- place-value materials
- numeral expanders (**BLM 3**, p. 194)
- IWB DVD 3

## Cross-reference

See also: pp. 4, 7, 8, 11, 12, 16, 23, 24, 32, 33, 34

Year 2 p. 74

Year 4 p. 4

## Evaluation

Is the student able to do the following?

- use place value to read, model, represent and order numbers up to three digits
- apply place value to partition, rearrange and regroup numbers

**1:03 Numbers to 1000**

U stands for Units (ones)

This abacus shows 238.

These blocks show 123.

CONCEPT

1 Write the number shown by the place-value blocks or abacus.

a b c d

e f g h

i j k l

2 Which number is larger?

a 169 or 346  b 723 or 481  c 962 or 503

d 375 or 634  e 257 or 572  f 491 or 914

3 Write these in order from smallest to largest.

a 137, 653, 446    b 974, 237, 491

c 819, 106, 567    d 683, 749, 250

The abacus was invented thousands of years ago.

Whole Numbers 1: Recognise, model, represent and order numbers to at least 10 000. 1 Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems. Outcomes: MA2-1WM, MA2-2WM, MA2-4NA

3

## Answers

- 1 a 316 b 512 c 145 d 224  
e 232 f 129 g 221 h 324  
i 268 j 519 k 674 l 953
- 2 a 346 b 723 c 962  
d 634 e 572 f 914
- 3 a 137, 446, 653 b 237, 491, 974  
c 106, 567, 819 d 250, 683, 749

# 1:04 Numbers to 1000

**Content strand:** Number and Algebra

**Substrand:** Whole Numbers 1

**Content statements:**

- Recognise, model, represent and order numbers to at least 10 000.
- Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems.

**Outcomes:** MA2-1WM, MA2-4NA

## Teaching Suggestions

- Record numbers on numeral expanders (BLM 3, p. 194) to demonstrate place value. Fold the expanders to show the number of hundreds, tens and ones in a 3-digit number.
- Give plenty of practice in reading and writing numerals in words. Emphasise that when saying and writing numbers, the word 'and' is used between the hundreds and the tens but not between other places, e.g. 3 568 is read as 'three thousand five hundred and sixty-eight'.
- Use the number chart on the IWB DVD for counting adding 100 or 700, etc. in front of the number on the chart.
- Revise the use of the term 'digit' and count the number of digits used to make various numbers.
- Use the example questions on the IWB DVD.

## Activity

- Ask students to work in pairs and use place-value blocks to model 3-digit numbers.

## Extension Work

- Ask Questions 1–16 on ID Card 1 (p. 186).
- In small groups, students deal four numeral cards (BLM 1, p. 192) to each player. Each player arranges the cards to make the smallest possible 3-digit number.
- Ask students to order the numbers made by the group from smallest to largest. The person with the smallest number wins the game.

## Language

numeral expander, units, ones, tens, hundreds, zero, place value, digit, column, larger, smaller, largest, smallest, before, after, greater than

## Resources

- place-value blocks
- ID Card 1, p. 186
- numeral cards (BLM 1, p. 192)
- numeral expanders (BLM 3, p. 194)
- IWB DVD 3

## Cross-reference

See also pp. 3, 7, 8, 11, 12, 16, 23, 24, 32, 33, 34

Year 2 p. 74

Year 4 p. 4

## Evaluation

Is the student able to do the following?

- use place value to read, model, represent and order numbers up to four digits
- apply place value to partition, rearrange and regroup numbers

**1:04 Numbers to 1000**

This stands for 500.

327 has 3 hundreds, 2 tens and 7 ones.

three hundred and twenty-seven

**1** Write the numeral, fill in the numeral expander and write the number in words.

a

b

**2** How many digits are in each numeral?

a 39  b 256  c 970  d 56  e 498   
f 13  g 7  h 520  i 1000  j 777

**3** Write these numbers as numerals.

a two hundred and sixty  b one hundred and fifty-two   
c nine hundred and forty  d seven hundred and eighteen   
e six hundred and seventy-nine  f five hundred and thirty-four   
g eight hundred and sixty-eight  h three hundred and six

**4** Write the numbers before (one less than) and after (one more than).

a  999,  b  863,  c  659,   
d  306,  e  499,  f  709,

Use place-value blocks to model these numbers.

• 216 • 525 • 848 • 634 • 967 • 388  
• 793 • 364 • 190 • 572 • 451 • 1000

## Answers

**1** a 413

four hundred and thirteen

b 324

three hundred and twenty-four

**2** a 2    b 3    c 3    d 2    e 3  
f 2    g 1    h 3    i 4    j 3

**3** a 260    b 152  
c 940    d 718  
e 679    f 534  
g 868    h 306

**4** a 998, 1000    b 862, 864    c 658, 660  
d 305, 307    e 498, 500    f 708, 710

## Activity

The numbers will be modelled.

# 1:05 Counting

**Content strand:** Number and Algebra

**Substrand:** Patterns and Algebra 1

**Content statements:**

- Investigate the conditions required for a number to be even or odd and identify even and odd numbers.
- Describe, continue and create number patterns resulting from performing addition or subtraction.

**Outcomes:** MA2-1WM, MA2-2WM, MA2-3WM, MA2-8NA

## Teaching Suggestions

- 1:05 Counting (p. 5) and 1:06 Counting (p. 6) could be treated in the same lesson as they both deal with counting numbers.
- Play games such as 'Guess My Rule' where a student says a number pattern and another student has to explain how the number pattern was made and how it can be continued.
- Provide students with frequent opportunities to count forwards and backwards on a number chart on the IWB DVD (or **BLM 11**, p. 202) by ones, fives and tens at any starting point.
- Discuss even and odd numbers, noting that even numbers make pairs and end in 2, 4, 6, 8 or 0.
- Revise the number line and ask students to show where a given number would be located.
- Remind students that number patterns can often be expressed as a rule, e.g. add 2.
- Allow time for students to practise reading and writing numerals in words.

- Discuss the terms 'ascending order' (increasing in size) and 'descending order' (decreasing in size) and relate them to the appropriate questions.

## Extension Work

- Working in pairs, instruct one student to say a rule and ask the other student to demonstrate the rule on the number line (**BLM 21**, p. 212), e.g. start at 108 and add 10. Stop at 158.

## Language

ones, fives, tens, forwards, backwards, starting point, odd, even, number line, rule, plus, subtract, comes after, comes before, located, pairs, demonstrate, show, next term

## Resources

- number chart (**BLM 11**, p. 202)
- number lines (**BLM 21**, p. 212)
- IWB DVD 3

## Cross-reference

See also: pp. 1, 2, 6, 15, 25, 26, 28, 29, 30, 37

Year 2 p. 75

Year 4 p. 30

## Evaluation

Is the student able to do the following?

- count forwards and backwards from any given point by twos, fives and tens
- recognise even and odd numbers
- describe, continue and create number patterns

**1:05 Counting**

Number Chart

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

1 Use the number chart to answer the questions.

a Count by 5s. Colour the numbers yellow.

b Starting at 10, count backwards by 10s. Draw a cross on these numbers.

c Circle every second counting number up to 80. What do you notice?

d Count by 8s and tick the first 10 numbers you count. Write them below.

2 What do even numbers end in?

3 When we count by 5s from zero, the numbers end in

4 When we count by 10s from zero, the numbers end in

5 Continue each pattern. Check your answers with a calculator.

a 223, 233, 243,

b 815, 810, 805,

c 126, 124, 122,

d 1000, 900, 800,

6 Show your answers to Questions 5a and 5b on the number lines.

a

223 233 243

The rule is

b

805 810 815

The rule is

Patterns and Algebra 1 Investigate the conditions required for a number to be even or odd and identify even and odd numbers. 1 Describe, continue and create number patterns resulting from performing addition or subtraction. Outcomes: MA2-1WM, MA2-2WM, MA2-3WM, MA2-8NA

## Answers

1 a-d

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

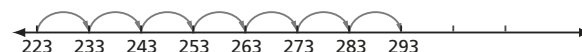
- c (Answers will vary): Every second even number is the pattern for counting by 4s.
- d 8, 16, 24, 32, 40, 48, 56, 64, 72, 80

2 2, 4, 6, 8 or 0 3 5 or 0 4 0

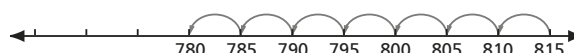
5 a 253, 263, 273, 283, 293 b 800, 795, 790, 785, 780

c 120, 118, 116, 114, 112 d 700, 600, 500, 400, 300

6 a The rule is start at 223 and add 10 each time.



b The rule is start at 815 and subtract 5 each time.





# 1:06 Counting

**Content strand:** Number and Algebra

**Substrand:** Patterns and Algebra 1

**Content statements:**

- Investigate the conditions required for a number to be even or odd and identify even and odd numbers.
- Describe, continue and create number patterns resulting from performing addition or subtraction.

**Outcomes:** MA2-1WM, MA2-2WM, MA2-3WM, MA2-4NA

## Language

ones, fives, tens, forwards, backwards, starting point, odd, even, numeral cards, rule, plus, subtract, comes after, comes before, counting pattern, increasing, ascending, decreasing, descending, model, describe, strategy

## Resources

- numeral cards (BLM 1, p. 192) or a pack of cards
- number chart (BLM 11, p. 202)
- IWB DVD 3

## Cross-reference

See also: pp. 1, 2, 5, 25, 26, 28, 29, 30, 37

Year 2 p. 75

Year 4 p. 30

## Evaluation

Is the student able to do the following?

- count forwards and backwards from any given point by twos, fives and tens
- model and describe increasing and decreasing number patterns

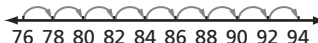
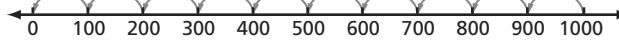
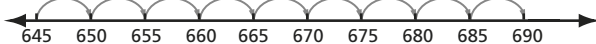
## Teaching Suggestions

- Ask students to count forwards and backwards by tens or hundreds on and off the decade.
- Discuss the terms 'ascending' (increasing in size) and 'descending' (decreasing in size) and relate the correct term to the appropriate part of Question 6.
- Identify patterns when counting by ones, twos, fives and tens on a number chart on the IWB DVD (or BLM 11, p. 202)
- Discuss the next number in an increasing or decreasing pattern and ask students to describe the pattern.
- Provide opportunities for students to model and describe their own counting patterns.
- Provide opportunities to complete and describe patterns made by others.

## Extension Work

- Working in pairs, have one student use numeral cards (BLM 1, p. 192) to model a number pattern. Ask the other student to describe the pattern and add the next element.

## Answers

- 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100
  - 1000, 900, 800, 700, 600, 500, 400, 300, 200, 100, 0
  - 645, 650, 655, 660, 665, 670, 675, 680, 685, 690
  - 500, 490, 480, 470, 460, 450, 440, 430, 420, 410, 400
- 855, 835, 825, 805, 795
  - 615, 610, 600, 595, 590
  - 408, 406, 402, 400, 398
- 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40. The pattern is counting by 4, or add 4.
- 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100. The pattern is counting by 10, or add 10.
- Group the coins into stacks of ten. Group stacks into ten lots of ten to make one hundred. Make sure that you have three groups of ten stacks of ten.
- The rule is start at 76 and add 2 each time.  

  - The rule is start at 1000 and subtract 100 each time.  

  - The rule is start at 645 and add 5 each time.  


**1:06 Counting**



**1** a Count on from 76 to 100 by 2s.  
 b Count backwards from 1000 by 100s.  
 c Count on from 645 to 690 by 5s.  
 d Count backwards from 500 to 400 by 10s.

**2** Write the missing numbers.  
 a 865, , 845, , , 815, , , 785  
 b 625, 620, , , 605, , , 585  
 c 412, 410, , , 404, , , 396

**3** Write the first 20 even numbers. Circle every second even number and discuss the pattern you see.

**4** Count by 5s and write the first 20 numbers you count. Circle every second number and discuss the pattern.

**5** If you have to count 300 ten-ten coins, what is the best counting strategy to make sure you count them correctly?

**6** Show your answers to Questions 1a and 1b on the number line.  
 a   
 The rule is   
 b   
 The rule is   
 c Try to do Question 1c on your own number line.

6 Patterns and Algebra 1 Investigate the conditions required for a number to be even or odd and identify even and odd numbers. 1 Describe, continue and create number patterns resulting from performing addition or subtraction. Outcomes: MA2-1WM, MA2-2WM, MA2-3WM, MA2-4NA.

## 1:07

## Numbers to 1000

**Content strand:** Number and Algebra

**Substrand:** Whole Numbers 1

**Content statements:**

- Recognise, model, represent and order numbers to at least 10 000.
- Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems.

**Outcomes:** MA2-1WM, MA2-4NA

## Teaching Suggestions

- 1:07 Numbers to 1000 (p. 7) and 1:08 Numbers to 1000 (p. 8) could be treated in the same lesson as they both deal with numbers to 1000.
- Use three different-coloured dice representing hundreds, tens and ones. Groups of students roll the dice and use place value materials to model the 3-digit numbers. Record on place-value cards (BLM 4, p. 195).
- Practise writing the numeral for spoken and written numbers. (Use BLM 1, p. 192.)
- Use numeral expanders on the IWB DVD (or BLM 3, p. 194) to show that 300 has 30 tens and 300 units (ones).
- Play the drag-and-drop game and/or use the interactive examples on the IWB DVD.

## Activity

- Use any concrete material to show the numbers in Question 3. Encourage students to work in pairs and explain their answers.

**1:07 Numbers to 1000**

720 is the same as 7 hundreds and 2 tens or 72 tens or 720 ones.

General numbers help us understand the value of the numbers.

**1 Complete the numeral expanders.**

a 479

b 568

c 231

d 307

**2 Write each number as a numeral.**

a six hundred and thirty-two  b eight hundred and seventeen

c four hundred and twenty-nine  d seven hundred and sixty-three

e two hundred and thirty-eight  f five hundred and sixty-two

g nine hundred and forty  h three hundred and fifty-one

**3 Write each number in words.**

a 156  b 607

c 319  d 841

● Use concrete materials to show the numbers in Question 3. Explain your answer to a partner.

**1000s 100s 10s 1s**

## Extension Work

- **Buzz:** Students count by tens on and off the decade. They 'buzz' on the hundreds.
- **Wipe Out:** One digit in a 3-digit number on a calculator is changed to zero with a single subtraction. (See 1:30, p. 30, for an example.)

## Language

units, ones, tens, hundreds, thousands, place value, digit, round off

## Resources

- place-value blocks
- different-coloured dice
- numeral cards (BLM 1, p. 192)
- numeral expanders (BLM 3, p. 194)
- place-value cards (BLM 4, p. 195)
- IWB DVD 3

## Cross-reference

See also: pp. 4, 8, 11, 12, 16, 23, 24, 32, 33, 34

Year 2 p. 74

Year 4 p. 4

## Evaluation

Is the student able to do the following?

- use place value to read, represent and order numbers to three digits
- apply place value to partition, rearrange and regroup numbers

## Answers

**1 a**

**b**

**c**

**d**

**2 a** 632 **b** 817 **c** 429 **d** 763  
**e** 238 **f** 562 **g** 940 **h** 351

**3 a** one hundred and fifty-six **b** six hundred and seven  
**c** three hundred and nineteen **d** eight hundred and forty-one

## Activity

The numbers from Question 3 will be shown. Explanations will vary.

# 1:08 Numbers to 1000

**Content strand:** Number and Algebra

**Substrand:** Whole Numbers 1

**Content statements:**

- Recognise, model, represent and order numbers to at least 10 000.
- Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems.

**Outcomes:** MA2-1WM, MA2-2WM, MA2-3WM, MA2-4NA

## Teaching Suggestions

- Use the numeral expander tool on the IWB DVD and/or BLM 3, p. 194 to demonstrate that 600 has 60 tens and 600 units (ones).
- Revise the use of the symbols for less than (<) and greater than (>).
- In pairs, students each write a 3-digit number. They then compare the numbers and use < or > to order them.
- Discuss the fact that when we round to the nearest hundred we look at the tens column. If the number is 50 or higher, the number is rounded up to the next hundred. If the number is 49 or lower, the number is rounded down to the hundred below.

## Fun Spot

- Students may play this game in pairs or in groups.

## Extension Work

- Select a 4-digit number and write it on the board. Have students read the number in words, write the number in expanded notation and round the number to the nearest thousand.

## Language

units, ones, tens, hundreds, place value, digit, column, round to, greater than, less than

## Resources

- numeral expanders (BLM 3, p. 194)
- IWB DVD 3

## Cross-reference

See also: pp. 3, 4, 7, 11, 12, 16, 23, 24, 32, 33, 34

Year 2 p. 74

Year 4 p. 4





## Evaluation

Is the student able to do the following?

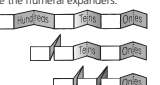
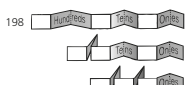
- use place value to read, represent and order numbers to four digits
- apply place value to partition, rearrange and regroup numbers

**1:08 Numbers to 1000**

**1** Write the number shown by each abacus.

a  b  c  d 

**2** Complete the numeral expanders.

a 375  b 198 

**3** Round each number to the nearest hundred.

a 378  b 842  c 296   
 d 419  e 675  f 324   
 g 906  h 547  i 752

**4** Use < or > to show the larger number in each pair.

a 249  497  b 963  575  c 237  999  d 672  907   
 e 364  259  f 743  816  g 562  564  h 419  418

● Use blocks, bundles or other materials to model these numbers.

● 291 ● 823 ● 457 ● 614 ● 536 ● 749  
 ● 620 ● 365 ● 918 ● 289 ● 172 ● 1000

**Higher or Lower**


● One player records a secret 3-digit number and says the boundaries for the number, such as "between 200 and 300".

● Other players mark the boundaries on number lines.

● Players take turns to guess the number. After each guess, the holder of the number says whether the secret number is **higher** or **lower** than the guess.

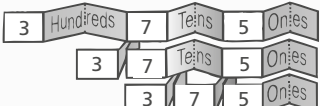
● Players mark this clue for the guess (**higher** or **lower**) on their number lines.

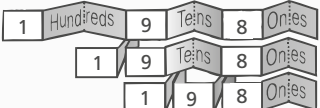
● The game continues until someone guesses the secret number exactly.



## Answers

1 a 746 b 183 c 575 d 397

2 a 

b 

3 a 400 b 800 c 300

d 400 e 700 f 300

g 900 h 500 i 800

4 a 249 < 497 b 963 > 575 c 237 < 999

d 672 < 907 e 364 > 259 f 743 < 816

g 562 < 564 h 419 > 418

## Activity

The numbers will be modelled.

## Fun Spot

Answers will vary. Students will use number lines to guess the secret numbers.



# 1:09 Fractions of a Whole

**Content strand:** Number and Algebra

**Substrand:** Fractions and Decimals 1

**Content statements:**

- Model and represent unit fractions including  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{3}$  and  $\frac{1}{5}$  and their multiples, to a complete whole.

**Outcomes:** MA2-1WM, MA2-7NA

## Teaching Suggestions

- Introduce the terms 'numerator' (the number on the top of the fraction) and 'denominator' (the number down on the bottom of the fraction). Discuss the fact that **denominator** and **down** both begin with 'd' and so can help us remember which terms relate to the top and bottom of the fraction.
- Note that the denominator is the number of equal parts into which the whole has been divided.
- Ask students to count fractions (i.e. halves, quarters and eighths) up to a whole.
- Discuss how to order fractions with the same denominator and plot them on a number line (BLM 21, p. 212).
- Fold rectangles and squares of paper into halves, quarters and eighths. Discuss ways in which the shapes can be folded to show these fractions.
- Provide students with frequent opportunities to model and record various fractions. Students should gain insight into the relationship between size of the denominator and the size of the fraction, i.e. the bigger the denominator, the smaller the fraction.

- Revise fractions of a whole in everyday situations, e.g. if a student has a birthday cake to share. Ask, 'How many equal pieces (parts) do we need?' Discuss the use of the word 'equal'. Does any student want a small piece? Is this equal? Does any student not want a piece? Does this affect how many parts are needed?

- Use the example questions on the IWB DVD.

## Extension Work

- Have students experiment to find ways to divide a circular piece of paper into eighths.
- Ask students to explain how they divided the circle.

## Language

numerator, denominator, whole, group, fraction, half, quarter, eighth, 1 out of 2, 1 out of 4, 1 out of 8, part, equal parts

## Resources

- buttons
- counters
- paper squares
- paper rectangles
- paper circles
- fraction labels (BLM 6, p. 197)
- number lines (BLM 21, p. 212)
- IWB DVD 3

## Cross-reference

See also: pp. 10, 13, 14, 19, 22, 31

Year 2 p. 96

Year 4 p. 1

## Evaluation

Is the student able to do the following?

- model, compare and represent fractions with denominators 2, 4 and 8

**1:09 Fractions of a Whole**

$\frac{3}{4}$  ← Numerator  
 ← Denominator  
 The denominator is written down on the bottom.

This shows three of four equal parts.

three quarters

**1** How much of each shape has been coloured?

a This shows  of  equal parts are coloured.

b This shows  of  equal parts are coloured.

c This shows  of  equal parts are coloured.

denominator: the total number of parts

numerator: the number of parts coloured

**2** How much of each shape has been coloured?

a

b

c

d

e

f

g

h

**3** Colour part of each shape to match the fraction.

a  $\frac{1}{4}$

b  $\frac{1}{4}$

c  $\frac{1}{4}$

d  $\frac{1}{4}$

e  $\frac{1}{4}$

f  $\frac{1}{4}$

g  $\frac{1}{4}$

h  $\frac{1}{4}$

i  $\frac{1}{4}$

Fractions are not whole numbers.

## Answers

- 1** a 3 of 4    b 4 of 8    c 5 of 6
- 2** a  $\frac{1}{2}$     b  $\frac{3}{4}$     c  $\frac{7}{8}$     d  $\frac{5}{6}$
- e  $\frac{3}{8}$     f  $\frac{7}{10}$     g  $\frac{2}{4}$     h  $\frac{2}{3}$
- 3** a    b    c
- d    e    f
- g    h    i

# 1:10 Fractions of a Collection

**Content strand:** Number and Algebra

**Substrand:** Fractions and Decimals 1

**Content statements:**

- Model and represent unit fractions, including  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{3}$  and  $\frac{1}{5}$  and their multiples, to a complete whole.

**Outcomes:** MA2-1WM, MA2-7NA

## Teaching Suggestions

- Use fraction cards to demonstrate simple fractions in halves, quarters, eighths, fifths, tenths, thirds, sixths, twelfths and sixteenths.
- Ask students to count fractions (i.e. halves, quarters, eighths, fifths, tenths, thirds, sixths, twelfths and sixteenths) up to a whole.
- Discuss how to order fractions with the same denominator and plot them on a number line (BLM 21, p. 212).
- Revise the terms 'denominator' (the bottom number of a fraction that represents the number of equal parts into which the whole has been divided) and 'numerator' (the top number of a fraction that represents the number of equal fraction parts).
- Make groups of buttons or counters of different colours. Use labels (BLM 6, p. 197) to name each part.
- Provide frequent opportunities for students to find fractions of wholes and groups in everyday contexts, e.g.  $\frac{1}{8}$  of the cake has been eaten.
- Use the example questions on the IWB DVD.

## Activity

- Encourage students to collect various magazines and newspapers before this lesson in order to complete this activity.

## Extension Work

- Have students use clothes pegs to order fraction cards along a string line from zero to one.

## Language

fraction, numerator, denominator, whole, group, half, quarter, eighth, fifth, tenth, third, one-third, sixth, twelfth, equal parts, part, fractional part

## Resources

- clothes pegs
- prepared fraction cards
- string
- counters or buttons
- fraction labels (BLM 6, p. 197)
- number lines (BLM 21, p. 212)
- IWB DVD 3

## Cross-reference

See also pp. 9, 13, 14, 19, 22, 31

Year 2 p. 96

Year 4 p. 1

## Evaluation

Is the student able to do the following?

- model, compare and represent commonly used fractions

**1:10 Fractions of a Collection**

Group	Number Coloured	Total in Group	Fraction Coloured
	4	5	$\frac{4}{5}$

1 Complete the table above.

2 What fraction of each group has been coloured?

a b c d

e f g h

3 Colour part of each group to match the fraction.

a b c

d e f

Look through newspapers or magazines and cut out advertisements that show fractions. Paste them onto a sheet of paper to make a fractions collage.

## Answers

- 1
- | Group | Number Coloured | Total in Group | Fraction Coloured |
|-------|-----------------|----------------|-------------------|
|       | 4               | 5              | $\frac{4}{5}$     |
|       | 3               | 4              | $\frac{3}{4}$     |
|       | 5               | 8              | $\frac{5}{8}$     |
|       | 2               | 4              | $\frac{2}{4}$     |
- 2 a  $\frac{5}{8}$  b  $\frac{3}{4}$  c  $\frac{5}{6}$  d  $\frac{2}{3}$   
e  $\frac{3}{7}$  f  $\frac{5}{9}$  g  $\frac{10}{12}$  h  $\frac{1}{2}$
- 3 a 4 fish are coloured b 7 beetles are coloured  
c 11 apples are coloured d 3 bats are coloured  
e 5 mushrooms are coloured f 3 pencils are coloured

## Activity

Answers will vary. A fractions collage will be made.