1:01) Fractions

Content strand: Number and Algebra **Sub-strand:** Fractions and decimals

Content description:

Investigate equivalent fractions used in contexts.

Teaching Suggestions

- Have students answer Questions 9 to 12 on ID Card 1, p. 187.
- Make fraction cards to demonstrate simple fractions in halves, quarters, eighths, thirds, sixths and twelfths.
- Revise these terms:
 - denominator, the bottom number of a fraction that represents the number of equal parts into which the whole has been divided
 - *numerator*, the top number of a fraction that represents the number of equal fraction parts.
- Provide frequent opportunities for students to find fractions of wholes and groups in everyday contexts, e.g. '¹/₈ of the cake has been eaten'.

Extension Work

- Have students use clothes pegs to order fraction cards along a string line from zero to one.
- Have students complete BLW 7 Comparing Fractions, p. 231.

Language

fraction, numerator, denominator, whole, group, half, quarter, eighth, third, sixth, twelfth

Resources

- fraction cards
- clothes pegs
- prepared fraction cards
- string
- ID Card 1, p. 187
- hundred chart (BLM 11, p. 203)
- BLW 7 Comparing Fractions, p. 231
- IWB DVD 4

Cross-reference

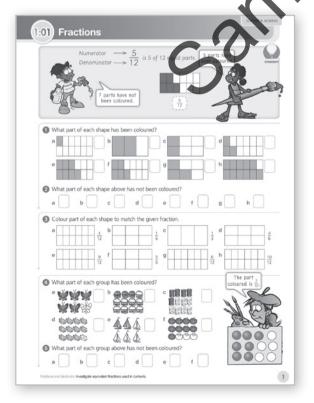
See also: pp. 2, 3, 10, 12, 18 Year 3 p. 21

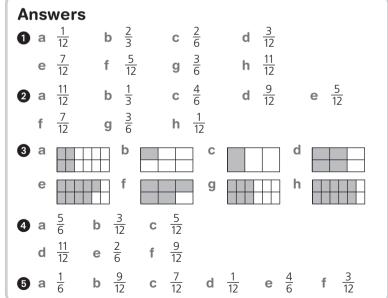
Year 5 p. 7

Evaluation

Is the student able to do the following?

model, compare and represent commonly used fractions





1:02) Hundredths

Content strand: Number and Algebra

Sub-strand: Fractions and decimals

Content description:

 Recognise that the place value system can be extended to tenths and hundredths. Make connections between fractions and decimal notation.

Teaching Suggestions

- Discuss the Concept box. Use place-value materials and 1 cm grid paper (BLM 24, p. 216) to demonstrate 5 out of 100 ($\frac{5}{100}$), 35 out of 100 ($\frac{35}{100}$), etc.
- Emphasise the fraction $\frac{35}{100}$ means '35 out of 100 equal parts'.
- Emphasise the point in the Concept box, i.e. 100 hundredths equals 1 whole or $\frac{100}{100} = 1$ whole.
- Use labels to name the fractions in as many different ways as possible (**BLM 6**, p. 198).
- Relate the use of hundredths to the use of fifths and tenths.
- Use the example questions on the IWB DVD.

Activity

 Encourage students to estimate before counting the squares. Remind students that at this stage it doesn't really matter if their estimates are wrong. The more practice they have, the better their estimation skills will become.

Extension Work

- Ask what part of each hundred square in Question 1 has not been coloured.
- Remind students that in Question 1, the total of the coloured part and the part not coloured has to equal 100. This is because the shape is made up of 100 equal square parts.

Language

whole, fraction, hundredth, 35 out of 100, $\frac{35}{100}$, numerator, denominator, one hundredth, two hundredths... one hundred hundredths

Resources

- place-value materials
- fraction labels (BLM 6, p. 198)
- 1 cm grid paper (BLM 24, p. 216)
- IWB DVD 4

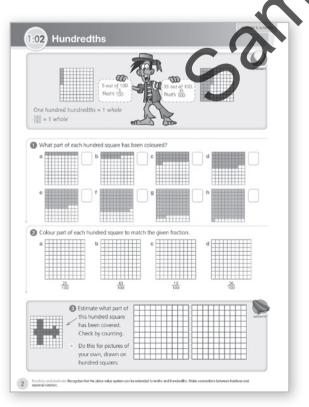
Cross-reference

See also: pp. 3, 20, 21 Year 5 p. 4

Evaluation

Is the student able to do the following?

model, compare and represent fractions with a denominator of 100



Answers () a $\frac{10}{100}$	b	<u>16</u> 100	С	<u>32</u> 100	d	<u>48</u> 100
e $\frac{57}{100}$	f	<u>69</u> 100	g	<u>83</u> 100	h	<u>91</u> 100
2 a			b			
C			d			
Activity Estimates will vary. $\frac{30}{100}$ has been cover Pictures will vary.	red.					

1:03) Decimals

Content strand: Number and Algebra

Sub-strand: Fractions and decimals

Content description:

 Recognise that the place value system can be extended to tenths and hundredths. Make connections between fractions and decimal notation.

Teaching Suggestions

- Discuss the Concept box, i.e. the equivalence of 37 out of 100 to 0.37 and $\frac{37}{100}$. They can be used freely as alternatives when naming a fraction.
- Discuss the use of the decimal point and its position above the line (although there is a tendency in printing to place it on the line).
- Discuss the use of the zero as a place holder before the decimal point. (It indicates that there are no whole numbers being used.)
- Use fraction labels (**BLM 6**, p. 198) to name the fractions in as many ways as possible. Display on a chart.

Extension Work

- Have students use place-value materials to model each fraction shown in Question 4.
- Ask students to name each fraction using different labels shown in Question 4.

Language

whole, fraction, tenth, hundredth, 37 out of 100, $\frac{37}{100}$, 0.37, decimal, numerator, denominator, one hundredth, two hundredths... one hundred hundredths, place-value blocks

Resources

- place-value materials
- fraction labels (BLM 6, p. 198)
- IWB DVD 4

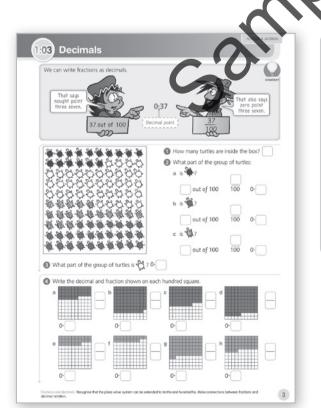
Cross-reference

See also: pp. 2, 20,2 Year 5 p. 4

Evaluation

Is the student able to do the following?

- model, compare and represent fractions with a denominator of 100
- model, compare and represent decimals to two decimal places



Answers			
100			
2 a 16 out of 100	<u>16</u> 100	0.16	
b 27 out of 100	<u>27</u> 100	0.27	
c 18 out of 100	<u>18</u> 100	0.18	
3 0·39			
4 a 0.36, $\frac{36}{100}$ b	0·79, 79 100	5 c 0.57, 57 d 0.85, 85 100	
e 0.27, $\frac{27}{100}$ f	0.18, <u>18</u> 100	$\overline{0}$ g 0.62, $\frac{62}{100}$ h 0.44, $\frac{44}{100}$	

1:04) Numbers to 9999

Content strand: Number and Algebra

Sub-strand: Number and place value

Content description:

 Recognise, represent and order numbers to at least tens of thousands.

Teaching Suggestions

- 1:04 (p. 4) and 1:05 (p. 5) could be treated in the same lesson as they both deal with the concept of numbers to 10000.
- Use place-value blocks to model 4-digit numbers.
- Record numbers on numeral expanders (BLM 3, p. 195) to demonstrate place value. Fold the expanders to show the number of hundreds, tens and ones in a four-digit number.
- Give plenty of practice in reading and writing numerals in words. Note the use of the hyphen when writing numbers.
- Remind students that place value is built on the multiplication and division of tens.
- Revise the use of the term *digit* and count the number of digits used to make various numbers.
- Play the game on the IWB DVD.

Extension Work

- Ask Questions 1 to 12 on ID Card 1, p. 187.
- In small groups, students deal four numeral cards (BLM 1, p. 193) to each player. Each player arranges the cards to make the smallest possible 4-digit number.
- Ask students to order the numbers from smallest to largest. The person with the smallest number wins the game.

Language

units, ones, tens, hundreds, thousands, zero, place value, digit, column, larger, smaller, largest, smallest

Resources

- place-value blocks
- ID Card 1, p. 187
- numeral cards (BLM 1, p. 193
- numeral expanders (BLM 3, p. 195)
- IWB DVD 4

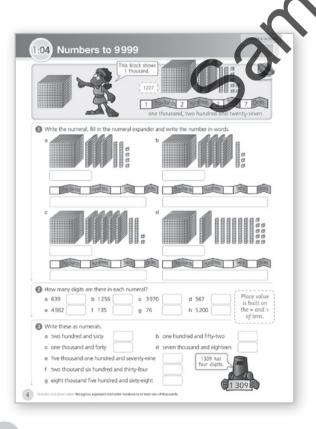
Cross-referen

See also: pp. 5, 6, 7, 8

Year 3 p. 34 Year 5 p. 1

Evaluation

the student able to do the following? use place value to read, represent and order numbers up to four digits



1 a 1324

nswers



one thousand three hundred and twenty-four

b 1413

1	Thou sands	4	Hundreds	1	Teins	3	Onies
	thousand						

one thousand four hundred and thirteen

c 1522

2

3



one thousand five hundred and twenty-two

d 1179

	1 Thou Sand	ls 1	Hund reds 7	Te	ns 9 On es		
	one thousar	nd o	ne hundred a	ind	seventy-nine		
а	3	b	4	С	4	d	3
е	4	f	3	g	2	h	4
а	260	b	152	С	1040	d	7018
е	5179	f	2634	g	8568		

1:05) Numbers to 9999

Content strand: Number and Algebra

Sub-strand: Number and place value

Content description:

 Recognise, represent and order numbers to at least tens of thousands.

Teaching Suggestions

- Give plenty of practice in counting forwards or backwards from any 4-digit number. Count by ones, twos, tens, etc., on and off the decade, e.g. 1347, 1357, 1367,...
- *Buzz*: Each student in turn counts on from a given number. Players are 'buzzed' on the hundreds and for any errors.
- Give plenty of practice in reading and writing numerals in words using numeral cards (**BLM 1**, p. 193).
- Revise the use of the term 'digit' and count the number of digits used to make various numbers.

Extension Work

• Order the numbers in Question 5 into ascending and then descending order.

Language

units, ones, tens, hundreds, thousands, zero, place value, digit, column, more than, less than, larger, smaller, number pattern

Resources

• numeral cards (BLM 1, p. 193)

• IWB DVD 4

Cross-reference

See also: pp. 4, 6, 7, 8, 9 Year 3 p. 34 Year 5 p. 1

Evaluation

Is the student able to do the following?

 use place value to read, represent and order numbers up to four digits

count forwards and backwards by tens or hundreds, on and off the decade

	Answers
	1 a 1002 b 1005
05 Numbers to 9999	c 1027 d 999
What number is: a 2 more than 1000? b 5 more than 1002	e 1020 f 1017
c 7 more than 10207 d 1 less than 10207 e 10 less than 10207 f 3 less than 10207	2 a 1008, 1009 b 3008, 3010 c 5025, 5030
Complete these number patterns.	d 1020, 1030 e 1017, 1016 f 7000, 6990
a 1005, 1006, 1007,, b 3002, 3004, 3006,,	3 a 1016 b 1020 c 1027 d 5010
e 5010, 5015, 5020,, d 990, 1000, 1010,, e 1020, 1019, 1018,, f 7030, 7020, 7010,,	
Write these numbers.	e 8018 f 2012 g 7024 h 6001
a one thousand and sixteen b one thousand and twenty	i 9436 j 4965 k 3689
c one thousand and twenty-seven d five thousand and ten e eight thousand and eighteen f two thousand and twelve	4 a four thousand and twenty-three
g seven thousand and twenty-four h six thousand and one	 b nine thousand and thirty
i nine thousand four hundred and thirty-six 10000 j four thousand nine hundred and sixty-five = ten thousands	
k three thousand six hundred and eighty-nine = ten thousands = 10 x 1000	c seven thousand and five hundred
Write in words:	d two thousand nine hundred and one
a 4023	5 a 1007 \searrow one thousand and four
b 9030	
d 2901	1017 one thousand and seventeen
Draw a line to join each numeral and its name.	1004 – one thousand and seven
a 1007 one thousand and four b 1003 one thousand and thirteen	b 1003 one thousand and thirteen
1017 one thousand and seventeen 1013 one thousand and five	1013 one thousand and five
1004 one thousand and seven 1005 one thousand and three	

1:06 Solving Problems with Place Value

Content strand: Number and Algebra

Sub-strand: Number and place value

Content description:

 Recognise, represent and order numbers to at least tens of thousands.

Teaching Suggestions

- Use numeral expanders (**BLM 3**, p. 195) to demonstrate the number of thousands, hundreds, tens and ones in a number.
- Make a connection between numeral expanders and place-value blocks. Ask students to model specific numbers.
- Note that each place-value column is ten times bigger than the column to the right of it. Discuss why this must be so. Discuss this relationship e.g. 10 ones equals 1 ten, 10 tens equals 100, etc. Ask: 'Would this pattern continue?'
- Allow time for students to practise reading and writing numerals in words.
- We have a number system based on ten because we have two hands with five fingers on each. What if we had only one hand? Place-value columns would then be: 1, 5, 25 (5 × 5), 125 (5 × 5 × 5). Discuss this with students and encourage students to ask other 'What if?' questions.
- Use the example questions on the IWB DVD.

ICT

• This activity assists in the teaching and learning of place value. By 'wiping out' a digit on a calculator, the student demonstrates a clear understanding of place value.

Extension Work

 Have students work in pairs. Instruct one student to say a 5-digit number and then ask the other student to write down the number with the digits reversed. Students have to see who will be the first to work out the difference between the two numbers.

Language

place-value blocks, numeral expander, thousands, hundreds, tens, ones, place value, compared to, larger

Resources

- place-value blocks
- numeral expanders (BLM 3, p. 195)
- IWB DVD 4 _____

Cross-referen

See also: pp. 4, 7, 8, 9, 16, 17 Year 3 p. 26 Year 5 p.

Evaluation

is the student able to do the following?

use place value to read, represent and order numbers up to five digits

	A	в	c II	The play	value block	
1	thousand	1 hundred	1 ten	D 1 one		
0	How many time	is as big is the nu	mber shown i	nc	1000 is	
	a A, compared	to the one show	m in B?		times bio than 10	
	b B, compared	to the one show	n in C?			o frage
	c C, compared	to the one show	n in D?			er han
	d A, compared	to the one show	n in C?			1: - 3
	e B, compared	to the one show	n in D?			Y-G
	f A, compared	to the one show	m in D?			M
0	Which number	is larger:				
			+ 1 or B: 60	000 + 900 + 90 -	9?	
	b C: 80000 + 1	000 + 200 + 40	+ 9 or D: 80	000 + 2000 + 10	0 + 60 + 2?	
	c E: 20000 + 5	000 + 700 + 10	+ 8 or F: 200	000 + 5000 + 80	0 + 80 + 1?	
	d G: 50000 + 3	3000 + 900 + 90	+ 2 or H: 50	000 + 9000 + 70	00 + 90 + 2?	
0	A 74186	B 79146 C	60715	40207 E	97364	F 98170
	a Which numh	er has a 7 that st	ands for 7000	2		
		ers contain 6s th			\square	
		ers contain 9s th				
		ers contain 7s th				
				ed to the 7 in E?	\square	
AF	pe Out a Digit					
• • •		r s any 5-digit nun	ber into a cak	culator.		IET
0				e. changed to zer	0.	
0	Only one operat	tion can be enter	ed into the cal	culator to wipe o	ut a digit.	

Ar	۱S۱	wers						
0	а	10	b	10	С	10		
	d	100	е	100	f	1000		
2	а	А	b	D	С	F	d	Н
3	а	E	b	A and B	С	E and F	d	A and B
	е	10 times as	big					
IC	Т							

Answers will vary.

1:07) Place Value to 10 000

Content strand: Number and Algebra

Sub-strand: Number and place value

Content description:

- Recognise, represent and order numbers to at least tens of thousands.
- Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems.

Teaching Suggestions

- Use numeral expanders (BLM 3, p. 195) to demonstrate the number of thousands, hundreds, tens and ones in a number.
- Give students constant practice in reading and writing numbers with up to four digits.
- Revise the use of the zero as a place holder.
- Provide students with frequent opportunities to count forwards and backwards from any 4-digit number by tens or hundreds.
- Use the example questions on the IWB DVD.

Extension Work

- Have students record a given 5-digit number in as many different ways as possible.
- Have students work in small groups of 3 or 4. Students take turns to say a 5-digit number. The other students have to write down the number without showing the group. Later, students reveal the number and discuss the results.

Language

units, ones, tens, hundreds, thousands, zero, place value, digit, column, numeral, numeral expander

Resources

- calculators
- numeral expanders (BLM 3, p. 195)
- IWB DVD 4

Cross-reference

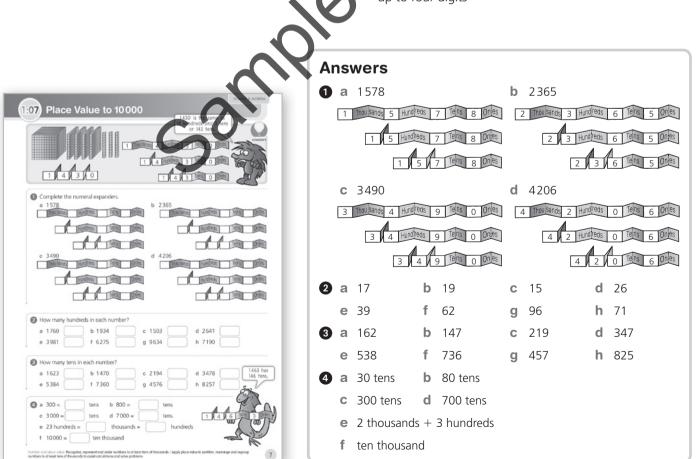
See also: pp. 4, 5, 4

Year 3 p. 34 Year 5 p. 1

Evaluation

the student able to do the following?

use place value to read, represent and order numbers up to four digits



1:08 Rounding Off

Content strand: Number and Algebra

Sub-strand: Number and place value

Content description:

- Recognise, represent and order numbers to at least tens of thousands.
- Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems.

Teaching Suggestions

- Revise the method of rounding off:
 - Digits 5 and up are rounded off upwards while digits below 5 are rounded off downwards.
 - To round off to hundreds, first look at the tens digit.
 - To round off to thousands, look at the hundreds digit.
- Provide frequent opportunities for students to estimate answers by rounding off. Calculators provide a quick and easy method of rounding off and checking estimates.
- Play the game on the IWB DVD.

Extension Work

• Have students complete **BLW 5** Problem Solving 1, p. 229.

Language

round off, place value, numeral, digits, thousands, hundreds, tens, units, nearest ten, nearest hundred, nearest thousand, Hindu-Arabic numeral

Resources

- calculators
- numeral expanders (BLM 3, p. 195)
- place-value cards (BLM 4, p. 196)
- BLW 5 Problem Solving 1, p. 229
- IWB DVD 4

Cross-reference

See also: pp. 31, 60,

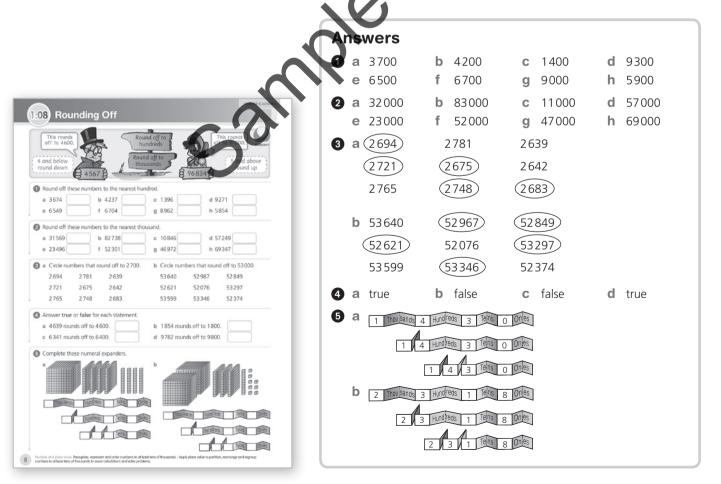
Year 3 p. 83 Year 5 p. 31

Evaluation

Is the student able to do the following?

read, write and order numbers using place value

 identify differences between Hindu-Arabic numerals and Roman numerals



1:09 Expanded Notation

Content strand: Number and Algebra

Sub-strand: Number and place value

Content description:

 Recognise, represent and order numbers to at least tens of thousands.

Teaching Suggestions

- Use an abacus to revise expanded notation, e.g. 9468 in expanded notation is 9000 + 400 + 60 + 8.
- Use numeral expanders (BLM 3, p. 195) to revise place value, e.g. the value of the nine in 9468 is 9 thousands (9000).
- Provide frequent opportunities for students to read and write numbers of any size.
- Provide students with frequent opportunities to start at a nominated point and practise counting larger numbers.
- Ask students to state the number before and after a given 4-digit number.
- Ask students to write the largest possible number and the smallest possible number using specified four or five digits.

Activity

 In this activity students use place-value blocks to consolidate their knowledge about the composition of numbers. If there are not enough place-value blocks make multiple copies of the place-value stence (BLN 4, p. 196) to supplement the resources available.

Extension Work

- Students could play a game in which they make the largest (or smallest) possible numeral from four digits drawn at random (using numbered cards or playing cards).
- Use the example questions on the IWB DVD.

Language

expanded notation, place value, numeral, numeral expander, digits, thousands, hundreds, tens, units

Resources

- abacuses
- numbered cards
- playing cards
- numeral expanders (BLM 3, p. 195)
- place-value cards **BLM**, p. 196)
- IWB DVD 4
- Cross-reference

See also: pp. 4, 5, 6, 7, 8, 16, 17, 24, 25

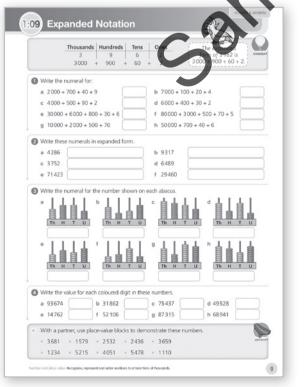
Evaluation

Year

- Is the student able to do the following?
- read, write and order numbers using place value
- record numbers in expanded notation

Answers

1 a	2749	b	7124	С	4592	d	6432
e	36836	f	83575	g	12570	h	50746
2 a	4000 + 20) +	80 + 6	b	9000 + 300) +	10 + 7
с	3000 + 70	+ C	50 + 2	d	6000 + 400) +	80 + 9
e	70000 + 1	000	+ 400 + 20	+ 3	3		
f	20000 + 9	000	+ 400 + 60				
3 a	5774	b	6347	С	9875	d	8483
e	4657	f	3473	g	7498	h	8758
4 a	7 tens (70)			b	2 units (2)		
с	5 thousand	s (5	000)	d	5 hundreds	(50	0)
e	4 thousand	s (4	000)	f	1 hundred (100)
g	3 hundreds	(30	0)	h	4 tens (40)		
Acti Answe	vity ers will vary.						



1:31) Rounding Off

Content strand: Number and Algebra

Sub-strand: Number and place value

Content description:

 Recognise, represent and order numbers to at least tens of thousands.

Teaching Suggestions

- Provide frequent opportunities for students to read, write and record large numbers.
- Use place-value cards (BLM 4, p. 196) and numeral expanders (BLM 3, p. 195) to revise place value and expanded notation.
- Revise rounding off to the nearest thousand, hundred, ten and unit.
- Revise the use of the zero as a place holder, e.g. 70459 in expanded notation is written as 70000 + 400 + 50 + 9. Here, there are zero thousands in the numeral.

Extension Work

 Ask students to look through various newspapers, magazines, catalogues or advertising pamphlets. Write down some of the numbers used. Round these numbers off to the nearest 100, 1000, 10000 or 100000.

Language

numeral, digit, zero, place value, expanded notation, rounding off, hundred thousands, ten thousands, thousands, hundreds, units

Resources

- place-value chart
- numeral expanders (BLM 3, p. 195)
- place-value cards (BLM 4, p. 196)
- IWB DVD 4

Cross-reference

See also: pp. 8, 60, 61, 85 Year 3 p. 83 Year 5 p. 31

Evaluation

Is the student able to do the following?

- read, write and order numbers using place value
- record numbers in expanded notation

	Answers
	1 a 135000 b 458000 c 680000
	d 263000 e 917000 f 543000
3] Rounding Off	g 795000 h 382000 i 828000
Round off each number to the nearest thousand.	2 a 250 000 b 980 000 c 530 000
a 134691 b 458216 c 67985	d 790000 e 140000 f 370000
d 263124 e 916527	3 a 64527 b 39278
Round off each number to the nearest ten thousand.	c 48981 d 98356
a 252190 b 976824 c 534630 d 787531 e 143739 f 365498	e 71064 f 50761
Write the numeral for: a 60000 + 4000 + 500 + 20 + 7 b 30000 + 9000 + 200 + 70 + 8 c 40000 + 8000 + 900 + 80 + 1 d 90000 + 8000 + 900 + 80 + 1 d 90000 + 8000 + 900 + 80 + 1 f 50000 + 1000 + 60 + 4 f 50000 + 700 + 60 + 1	 a 80000 + 3000 + 100 + 60 + 2 b 30000 + 5000 + 200 + 70 + 5 c 40000 + 6000 + 900 + 10 + 3
OUse expanded notation to write: a 83 162 b 35275 c 46913 d 78548 e 92301 f 60825	d 70000 + 8000 + 500 + 40 + 8 e 90000 + 2000 + 300 + 1 f 60000 + 800 + 20 + 5
Write the numeral for: a	5 a 758497 b 438327 c 143927
	6 a 2 hundreds (200) b 6 tens (60)
	c 4 hundred thousands (400 000)
Write the value for each coloured digit. a 645231 b 723469 c 472975 d 157906	d 5 ten thousands (50000) e 3 hundred thousands (300000
e 379406 f 391973 g 248619 h 706421	f 9 ten thousands (90 000) g 8 thousands (8 000)
i 532721 j 289578 k 932671 I 812679	h 7 hundred thousands (700 000)
	i 3 ten thousands (30 000) j 9 thousands (9 000)
number and place also Recogney, represent and addre numbers to at least time of these ands.	k 6 hundreds (600) I 8 hundred thousands (800 000

1:32) Fractions

Content strand: Number and Algebra

Sub-strand: Fractions and decimals

Content description:

 Count by quarters, halves and thirds, including with mixed numerals. Locate and represent these fractions on a number line.

Teaching Suggestions

- 1:32 (p. 32) and 1:33 (p. 33) could be covered in the same lesson, as they both deal with the concept of fractions.
- Revise the following terms:
 - *mixed number:* consists of a whole number and a fractional part.
 - *improper fraction:* the numerator is bigger than the denominator.
- Use concrete materials and number lines to demonstrate mixed numbers and improper fractions,

e.g. $1\frac{2}{3}$ is the same as $\frac{5}{3}$.

- Provide frequent opportunities for students to rename mixed numbers as improper fractions.
- Have students count by halves, quarters and thirds up to 3.

Extension Work

- Have students use clothes pegs to order fraction cards for quarters (including improper fractions) from zero to three along a string line.
- Ask students to peg equivalent mixed numeral cards along the same line.

Language

fraction, numerator, denominator, add, addition, subtract, minus, subtraction, improper fraction, mixed numeral

Resources

- concrete materials, e.g. Lego, Unifix cubes
- prepared fraction cards, mixed numeral cards
- pegs
- string
- number lines (BLM 19, p. 21)
- IWB DVD 4

Cross-reference

See also: pp. 12 Year 3 p. 21

Year 5 p. 4

Evaluation

Is the student able to do the following?

model, compare and represent commonly used fractions express an improper fraction as a mixed numeral and vice versa

15, 18, 19, 21, 33

count by halves, quarters and thirds up to 3

1:32 Fract	ions			_ (
	The improper fraction is $\frac{5}{4}$	The mi for			<u>O</u>
Write an equiv					
					3
a 2/2	b 3/2	c 4/2		d \$	
Ø Write the impr	oper fraction and mixe	d number for each	h part.		
* •	ь		c 📄		
or		or		or —	
d H	e 🗄		1 🗄		
or		or		or	
9 888				or	
Write the mixe	d number.				
a 75	b 🔒	c 13	d 11 5	The	ese have
e 😤	f 12/5	9 14	h 17/5		e same value.
Write the impr	oper fraction.				h
a 1 <u>1</u>	b 2 ¹ / ₅	c 3ỷ	d 1 4	6	500
e 2 ³ / ₄	f 2 ⁵ / ₆	g 4 ² / ₃	h 25	÷ 5	15
				10	Y
				and	28
Fractions and docimate Cov	If by quarters halves and thirds, in	Juding with mixed numerols.	Locote and represent th	ose fractions on a number	ine.

Ar	IS\	wers						
0	а	$\frac{2}{2} = 1$	b	$\frac{3}{2} = 1\frac{1}{2}$	С	$\frac{4}{2} = 2$	d	$\frac{5}{2} = 2\frac{1}{2}$
2	а	$\frac{3}{2}$ or $1\frac{1}{2}$	b	$\frac{7}{2}$ or $3\frac{1}{2}$	С	$\frac{19}{2}$ or $9\frac{1}{2}$		
	d	$\frac{11}{4}$ or $2\frac{3}{4}$	е	$\frac{17}{4}$ or $4\frac{1}{4}$	f	$\frac{31}{4}$ or $7\frac{3}{4}$		
	g	$\frac{33}{2}$ or $16\frac{1}{2}$						
3	а	$1\frac{2}{5}$	b	$1\frac{4}{5}$	С	$2\frac{3}{5}$	d	$2\frac{1}{5}$
	е	$1\frac{3}{5}$	f	$2\frac{2}{5}$	g	$2\frac{4}{5}$	h	$3\frac{2}{5}$
4	а	<u>6</u> 5	b	<u>11</u> 5	С	<u>17</u> 5	d	<u>9</u> 5
	е	$\frac{11}{4}$	f	<u>17</u> 6	g	<u>14</u> 3	h	<u>21</u> 8

1:33) Fraction Patterns

Content strand: Number and Algebra

Sub-strand: Fractions and decimals

Content description:

 Count by quarters, halves and thirds, including with mixed numerals. Locate and represent these fractions on a number line.

Teaching Suggestions

33 Fraction Patterns

- Discuss various fraction patterns and have students verbalise the pattern. A fraction wall could be useful for students.
- Ask students to practise counting fractions forwards and backwards from various starting points.
- Revise appropriate vocabulary, e.g. halves, thirds, quarters, fifths, sixths, eighths, mixed number and improper fraction.
- Ask students to draw a shape and then divide it into suggested fractions (e.g. thirds). Invite them to explain their answers.
- Discuss the fact that $\frac{4}{4}$, $\frac{6}{6}$, $\frac{8}{8}$ etc. each equal one whole (1).

Rule: Add

 When attempting Question 1, have students trace the dotted arrows. Ensure they start at the correct place on the number line by looking carefully at the arrowhead and determining the direction. This may assist students in finding the rule.

Extension Work

 Ask students to make up a fraction wall of their own, using grid paper (BLM 24, p. 216) and labelling each fraction part appropriately.

Language

fractions, pattern, halves, quarters, thirds, fifths, sixths, eighths, mixed numeral, improper fraction, forwards, backwards, one (1) whole

Resources

- fraction wall
- 1 cm grid paper (**BLM 24**, p. 216)
- BLW 8 Equivalent Fractions, p. 232
- IWB DVD 4

Cross-reference

See also: pp. 13, 14, 15, 18, 19, 21, 32

Year 3 p. 21

Year 5 p. 4

Evaluation

Is the student able to do the following?

count by halves, thirds, quarters, fifths, sixths and eighths

locate, read and write fractions on a number line

Answers

- **1 a** $\frac{2}{2}$ or 1, $\frac{3}{2}$ or $1\frac{1}{2}$. Rule: Add $\frac{1}{2}$ **b** $\frac{3}{4}$, $\frac{4}{4}$ or 1. Rule: Add $\frac{1}{4}$
 - **c** $\frac{2}{3}$, $1\frac{2}{3}$, 2, $2\frac{1}{3}$, $2\frac{2}{3}$, $3\frac{1}{3}$. Rule: Add $\frac{1}{3}$
 - **d** $\frac{1}{8}, \frac{2}{8}$ or $\frac{1}{4}, \frac{3}{8}, \frac{4}{8}$ or $\frac{2}{4}$ or $\frac{1}{2}, \frac{5}{8}, \frac{6}{8}$ or $\frac{3}{4}, \frac{7}{8}$. Rule: Subtract $\frac{1}{8}$
 - e $\frac{2}{5}$, $\frac{5}{5}$ or 1, $\frac{7}{5}$ or $1\frac{2}{5}$, $\frac{8}{5}$ or $1\frac{3}{5}$, $\frac{9}{5}$ or $1\frac{4}{5}$, $\frac{10}{5}$ or $1\frac{5}{5}$ or 2. Rule: Add $\frac{1}{5}$
 - **f** $\frac{1}{6}$, $\frac{2}{6}$ or $\frac{1}{3}$, $\frac{3}{6}$ or $\frac{1}{2}$, $\frac{4}{6}$ or $\frac{2}{3}$, $\frac{5}{6}$, $\frac{6}{6}$ or 1, $1\frac{1}{6}$. Rule: Subtract $\frac{1}{6}$

1:34) One Million

Content strand: Number and Algebra

Sub-strand: Number and place value

Content description:

 Recognise, represent and order numbers to at least tens of thousands.

Teaching Suggestions

- Provide frequent opportunities for students to read, write and record large numbers to 1 000 000.
- Use arrow cards, place-value cards (BLM 4, p. 196) and numeral expanders (BLM 3, p. 195) to revise place value and expanded notation, e.g. 694265 is written as 600000 + 90000 + 4000 + 200 + 60 + 5.
- Remind students of the importance of using zero as a place holder.
- To assist in reading large numbers, leave a space between the 'millions' and 'hundreds of thousands' as well as the 'thousands' and 'hundreds' digits. Note that printer conventions often omit these spaces. Sometimes commas may be used instead of spaces.
- Use the example questions on the IWB DVD.

Language

numeral, digit, zero, place value, expanded notation, hundred thousands, ten thousands, thousands, hundreds, units

Resources

- any classroom object that can be counted, e.g. counters, place-value ones
- arrow cards
- place-value chart
- numeral expanders (BLM 3, p. 195)
- place-value cards (BLM 4, p. 196)
- IWB DVD 4

Cross-reference

See also: pp. 24, 25, 28, 29, 30, 31 Year 3 p. 34 Year 5 p. 1

Evaluation

Is the student able to do the following?

- read, write and order numbers using place value
- record numbers in expanded notation

1000000 10000000 100000000 100000000000 10000000000000000 1000000000000000000000000000000000000	a b c	Millions00	6	T Thous 2	Thous 8	Hunds 4	Tens 7	Ones
2 9 9 9 2 eros. 0 0 0 0 0 0	b			2	8	4	7	2
9 9 9 2005. 0 0 0 0 0 0 ssands.	C	0				'	/	2
usands.	C		9	6	5	7	2	3
usands.		0	4	8	0	9	3	5
		0		4	9	6	7	0
nd write them on the place-value chart below.	d		8		-			-
t thousand four hundred and seventy-two Practise	e	0	3	1	6	9	0	2
ousand seven hundred and twenty-three reading these.	f	1	0	0	0	0	0	0
ousand nine hundred and thirty-five ne thousand six hundred and seventy thousand nine hundred and two	2 9	Hund Thous	3 Ten Thou	is 5 Thou	Sands 2	Hundreds	Teins	6 Onles
d Thous Ten Thous Thous Hund Tens Ones								-
		9	3 Ten Thou	IS 5 Thou	sands 2	Hundreds	1 Teins	6 Onles
		_				lire l		
		0	9 1 3 1	5 []hou	Sands 2	Hundreds	Teins	6 Onies