

Year 6 Learning from Home – Decimals and place value

Big Idea Concept: Students describe rules used in sequences involving whole numbers, fractions and decimals.

I can compare, order and represent decimals

I can round decimals to 2 decimal places

I can multiply and divide decimals by 10, 100 and 1 000.

Note: All worksheets are taken from free websites.

Australian Curriculum Connection: MN-A 6.10 Make connections between equivalent fractions, decimals and percentages

IMPORTANT: If you get stuck and there isn't an adult available to help you, **STOP**. In your journal, write the date and write that you found it hard.

Monday	Tuesday	Wednesday	Thursday	Friday
Launch and Tune In	Launch and Tune In	Launch and Tune In	Launch and Tune In	Launch and Tune In
<p>Warm up: Take a pack of cards. Remove all picture cards Put the cards face down in a pile Set a timer for 1 minute Turn each card over and multiply the value on the card by 10. Count the number of cards you turned over in 1 minute.</p> <p>Remember what we have done before</p> <div style="background-color: #92D050; padding: 5px;"> <p>$1/10 = 0.1$ $1/100 = 0.01$ $1/1000 = 0.001$</p> <p>$10/100 = 1/10 = 0.1$ $10/1000 = 1/100 = 0.01$ $100/1000 = 1/10 = 0.1$</p> </div>	<p>Page 11: Roll up! Place value</p> <p style="text-align: center;">If you don't have die, use playing cards or just write 1 - 10 on squares of paper.</p>	<p>Complete the ordering decimals pages 15 of this document</p>	<p>There are 10 Lego blocks in a tower.</p> <p>4 blocks are red 1 block is green 2 blocks are yellow</p> <p>How many blocks are green?</p> <p>Express the number of each colour as a decimal fraction</p>	<p>Roll 2,3,4 or 5 dice</p> <p>Calculate the total number of dots</p> <p>Throws 1-5 Multiply the total by 10</p> <p>Throws 6-10 Divide the total by 10</p> <p>Throws 11-15 Multiply the total by 100</p> <p>Throws 16-20 Divide the totals by 100</p>

<p>Understanding decimals is essential for working with measurement: Length/distance: mm, cm, m, km Mass: mg, g, kg, t Volume: ml, l</p>				
<p>Vocabulary: decimal fraction, millions, tenths, hundredths, thousandths, round to the nearest 10th/hundredth/thousandth; round these decimals to 1/2/3 digits; round these to 1/2/3 decimal places.</p>				
<p>multiply by 10: the digits move one place to the left: $2 \times 10 = 20$ multiply by 100: the digits move two places to the left $3 \times 100 = 300$ multiply by 1000: the digits move three places to the left $4 \times 1\,000 = 4\,000$ multiply by 10 00: the digits move four places to the left $5 \times 10\,000 = 50\,000$</p>		<p>Divide by 10: the digits move one place to the right $6/10 = 0.6$ Divide by 100: the digits move two places to the right $7/100 = 0.07$ Divide by 1000: the digits move three places to the right $8/1000 = 0.007$</p>		
<p>Conceptual Development</p> <p>Consolidate:</p> <ul style="list-style-type: none"> • Multiplication by 10,100,1000 • Decimal places • Tenths, hundredths and thousandths expressed as decimals • Place value to 3 decimal places <ol style="list-style-type: none"> 1. Read pages 4 -8 and talk to an adult about it. 2. Read the numbers shown 3. Talk about the value of different digits in the numbers. 	<p>Conceptual Development</p> <p>Apply understanding of decimals To sequence decimal fractions in order of size.</p> <p>Multiply and divide decimal fractions by to, 100 and 1000.</p> <p>Use the information from pages 4-8 to complete pages 12, 13, 14</p>	<p>Conceptual Development</p> <p>Round decimal fractions to 2 decimal places.</p> <p>Look at the <i>3rd decimal digit</i> (the digit after the hundredths digit).</p> <ul style="list-style-type: none"> • <i>if it is less than 5 then round the number down</i> by removing the decimal part of the number after the 2nd decimal place. • <i>if it is 5 or more then round the number up</i> by adding one on to the hundredths digit and removing the rest of the decimal part of the number after this. 	<p>Conceptual Development</p> <p>Expand whole numbers and decimal fractions to show the value of each digit</p> <p>Read the explanation on p.17, with an adult</p> <p>Complete the exercises on p 17 and 18</p>	<p>Conceptual Development</p> <p>Revision</p> <p>Cut out and match the Decimal pairs on pages 20-22.</p>

<p>Complete the exercises on pages 9 and 10.</p>		<p style="text-align: center;">Examples</p> <ul style="list-style-type: none"> • 3.729 rounds up to 3.73 because the 3rd decimal digit is a 9. • 18.1827 rounds down to 18.18 because the 3rd decimal digit is a 2. • 27.625 rounds up to 27.63 because the 3rd decimal digit is a 5. <p>Complete rounding up to 2 decimal places sheet 1 on p. 16 of this document</p>		
<p>Journal Write the date Write the heading Decimals and Place value Copy the information in the green box above.</p>	<p>Journal Write the date Copy the information from the blue box</p>	<p>Journal Write the date Write three 'I can' statements about decimals For example: I can multiply decimals by 10, 100 and 1 000.</p>	<p>Journal Write the date Look at the quilt on p.19</p>	<p>Journal Write the date Record the matching pairs</p>

Multiplying and dividing decimals by multiples of 10 Example Sheet

Millions	Hundreds of thousands	Tens of thousands	thousands	hundreds	tens	ones	tenths	hundredths	thousandths
1 000 000	100 000	10 000	1 000	100	10	1	1/10	1/100	1/1000
						0	0.1	0.01	0.001

Show these numbers:

15
274
1 590
35 758
324 963

Hundreds of thousands	Tens of thousands	thousands	hundreds	tens	ones
				1	5
			2	7	4
		1	5	9	0
	3	5	7	5	8
3	2	4	9	6	3

Millions	Hundreds of thousands	Tens of thousands	thousands	hundreds	tens	ones
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Multiply the numbers by

15

274

1 590

35 758

324 963

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

10

Multiply the numbers by 100

15

274

1 590

35 758

Millions	Hundreds of thousands	Tens of thousands	thousands	hundreds	tens	ones
			1	5	0	0
		2	7	4	0	0
	1	5	9	0	0	0
3	5	7	5	8	0	0

Multiply the numbers by 1 000

15
274
1 590

Millions	Hundreds of thousands	Tens of thousands	thousands	hundreds	tens	ones
		1	5	0	0	0
	2	7	4	0	0	0
1	5	9	0	0	0	0

Divide the numbers by 10

15
274
1 590
35 758
324 963

Hundreds of thousands	Tens of thousands	thousands	hundreds	tens	ones	tenths
					1	5
				2	7	4
			1	5	9	0
		3	5	7	5	8
	3	2	4	9	6	3

Divide the numbers by 100

15
274
1 590
35 758
324 963

Hundreds of thousands	Tens of thousands	thousands	hundreds	tens	ones	tenths	hundredths
					0	1	5
					2	7	4
				1	5	9	0
			3	5	7	5	8
		3	2	4	9	6	3

Divide the numbers by 1 000

15
274
1 590
35 758
324 963

Hundreds of thousands	Tens of thousands	thousands	hundreds	tens	ones	tenths	hundredths	thousandths
					0	0	1	5
					0	2	7	4
					1	5	9	0
				3	5	7	5	8
		3	2	4	9	6	3	

Name: _____

Digit Values

What is the value of the underlined digit?

854.327 - The value of the digit 8 is **8 hundreds**, or **800**.

854.327 - The value of the digit 5 is **5 tens**, or **50**.

854.327 - The value of the digit 4 is **4 ones**, or **4**.

854.327 - The value of the digit 3 is **3 tenths**, or **0.3**.

854.327 - The value of the digit 2 is **2 hundredths**, or **0.02**.

854.327 - The value of the digit 7 is **7 thousandths**, or **0.007**.



Write the value of the underlined digit.

a. 104.543 - _____

b. 61.239 - _____

c. 223.9 - _____

d. 873.03 - _____

e. 5.768 - _____

f. 100.502 - _____

g. 450.207 - _____

h. 57.362 - _____

4 0 5 . 8 7 1

i. In the number above, which digit has the greatest value? _____

j. In the number above, which digit has the least value? _____

k. What is the value of the digit in the hundredths place of the number above? _____

l. What is the value of the digit in the hundreds place of the number above? _____

Ordering Numbers With Up To 3 Decimal Places (1)

I can order decimals with 1 decimal place.

Order the following decimal numbers from smallest to largest.

1.	0.5	0.4	0.2	0.7				
2.	0.1	0.6	0.5	0.2				
3.	0.3	0.1	0.6	0.4				
4.	0.3	0.2	0.8	0.5				
5.	0.4	0.9	0.6	0.8				
6.	0.1	0.2	0.4	0.8				
7.	0.9	0.4	0.6	0.2				
8.	0.1	0.9	0.8	0.3				
9.	0.5	0.4	0.9	0.6				
10.	0.7	0.6	0.1	0.3				

Warm Up – Roll up! Place Value: Take 2, 3, 4



or 5

Find the total number of dots and multiply by 10, 100, 1000, 10,000. Record your answers in the tables below.

X 10

30		

x100

300		

x 1 000

3 000		

x 10 000

30 000		

Ordering Numbers With Up To 3 Decimal Places (1)

I can order decimals with up to 2 decimal places.

Order the following decimal numbers from smallest to largest.

1.	0.61	0.58	0.42	0.2	0.81					
2.	0.57	0.29	0.14	0.48	0.26					
3.	0.67	0.09	0.7	0.28	0.81					
4.	0.03	0.86	0.49	0.71	0.94					
5.	0.37	0.59	0.53	0.15	0.05					
6.	0.82	0.53	0.06	0.44	0.16					
7.	0.14	0.27	0.4	0.9	0.35					
8.	0.06	0.51	0.05	0.77	0.54					
9.	0.75	0.03	0.45	0.56	0.77					
10.	0.96	0.05	0.36	0.1	0.93					



Multiplying decimals by 10 or 100

Grade 5 Decimals Worksheet

Find the product.

1. $2.24 \times 100 =$ _____

2. $40.3 \times 10 =$ _____

3. $81.8 \times 100 =$ _____

4. $6.30 \times 10 =$ _____

5. $0.21 \times 10 =$ _____

6. $61.7 \times 100 =$ _____

7. $11.1 \times 10 =$ _____

8. $9.05 \times 10 =$ _____

9. $56.7 \times 10 =$ _____

10. $8.1 \times 10 =$ _____

11. $8.30 \times 100 =$ _____

12. $29.8 \times 10 =$ _____

13. $48.8 \times 100 =$ _____

14. $56.5 \times 10 =$ _____

15. $86.5 \times 10 =$ _____

16. $92.8 \times 100 =$ _____

17. $98.7 \times 10 =$ _____

18. $0.66 \times 10 =$ _____



Dividing decimals by 10 & 100

Grade 5 Decimals Worksheet

Find the quotient:

1) $9.9 \div 100 =$ _____

2) $3.3 \div 100 =$ _____

3) $6.9 \div 10 =$ _____

4) $3.9 \div 10 =$ _____

5) $3.8 \div 10 =$ _____

6) $4.7 \div 100 =$ _____

7) $2.2 \div 10 =$ _____

8) $3.0 \div 10 =$ _____

9) $0.5 \div 100 =$ _____

10) $4.2 \div 10 =$ _____

11) $5.6 \div 10 =$ _____

12) $6.1 \div 100 =$ _____

13) $2.6 \div 10 =$ _____

14) $3.4 \div 10 =$ _____

15) $6.4 \div 10 =$ _____

16) $9.3 \div 10 =$ _____

Ordering Numbers With Up To 3 Decimal Places (2)

I can order decimals with up to 3 decimal places.

Order the following decimal numbers from smallest to largest.

1.	0.869	0.722	0.96	0.627	0.716	0.312						
2.	0.131	0.354	0.531	0.392	0.733	0.149						
3.	0.36	0.937	0.377	0.894	0.012	0.244						
4.	0.245	0.174	0.825	0.746	0.352	0.609						
5.	0.507	0.298	0.847	0.2	0.913	0.799						
6.	0.377	0.343	0.842	0.838	0.768	0.887						
7.	0.839	0.018	0.204	0.876	0.582	0.198						
8.	0.175	0.869	0.605	0.591	0.994	0.997						
9.	0.702	0.248	0.249	0.255	0.165	0.169						
10.	0.1	0.564	0.654	0.014	0.481	0.316						

Name _____

Date _____



ROUNDING TO 2 DECIMAL PLACES SHEET 1

Follow these simple steps to round a number to 2 decimal places (2dp):

- if the number has 2 or fewer decimal places, don't change it!
- if 3rd decimal place digit is less than 5 then the number is rounded down. Keep the 2nd decimal place digit unchanged and remove the digits after.
- if the 3rd decimal place digit is 5 or more, the number is rounded up. Simply add one to the 2nd decimal place digit and remove the decimal digits after.

Examples

3.827 is rounded **up** to 3.83 because the 3rd decimal place digit is 7.

7.384 is rounded **down** to 7.38 because the 3rd decimal place digit is 4.

5.86 is unchanged because it only has 2 decimal places.

5.3152 is rounded **up** to 5.32 because the 3rd decimal place digit is 5.

Round these numbers to 2 decimal places

1) 2.437 → _____ 2) 1.892 → _____ 3) 0.378 → _____

4) 0.649 → _____ 5) 2.807 → _____ 6) 2.95 → _____

7) 7.029 → _____ 8) 5.216 → _____ 9) 3.925 → _____

10) 0.526 → _____ 11) 0.803 → _____ 12) 4.038 → _____

13) 7.796 → _____ 14) 6.273 → _____ 15) 0.306 → _____

16) 8.335 → _____ 17) 1.193 → _____ 18) 5.211 → _____

19) 7.39 → _____ 20) 0.485 → _____ 21) 2.377 → _____

22) 5.012 → _____ 23) 2.819 → _____ 24) 14.293 → _____



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Expanded Notation with Decimals

4 509 = 4 thousands, 5 hundreds, 0 tens and 9 ones

It can also be written like this:

$$4\,509 = 4\,000 + 500 + 0 + 9$$

5.78 = 5 ones + 7 tenths + 8 hundredths, which can also be written

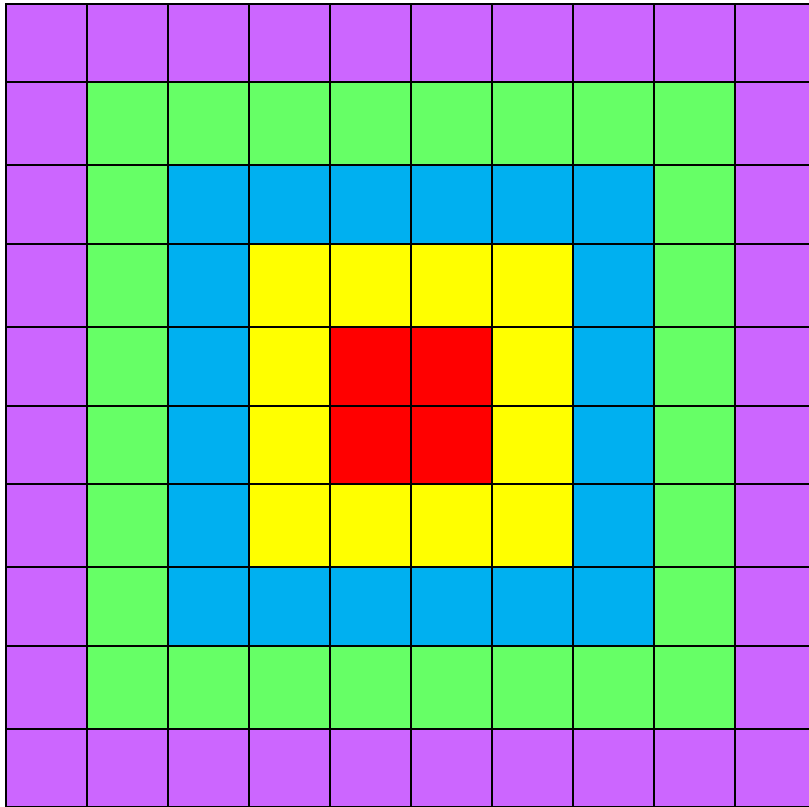
$$5 + \frac{7}{10} + \frac{8}{100} \text{ or } 5 + 0.7 + 0.05$$

Try these:

$7 + 0.5 + 0.02$	
$5000 + 100 + 90 + 6 + \frac{2}{10} + \frac{4}{100}$	
$800 + 40 + 3 + \frac{0}{10} + \frac{1}{100}$	
$9\,000 + 700 + 50 + 3 + 0.9 + 0.09$	
7 tens + 4 ones + 2 tenths	
1 ten + 6 ones + 0 tenths + 3 hundredths	
9 hundreds + 8 tens + 7 ones + 6 tenths + 5 hundredths	
4 thousands + 0 hundreds + 8 tens + 2 ones + 5 tenths	

And now these

37.98	
82.41	
6.93	
124.75	
362.48	
7.34	
2 874.8	
5 061.87	



There are 100 squares in this quilt.

In your journal

Record number of blocks of each colour as a decimal fraction – don't be tricked!

Decimal Pairs

Cut out the cards and match the pairs

0.5

0.1

25.2

3 000 + 200 + 60 + 8
+0.7 + 0.05

16.4

1 hundred + 2 tens + 3 ones + 6
tenths + 8 hundredths

$300 + 40 + 1 + 0.9$	$5/10$
$10/100$	372.99
$3\ 268.75$	29.9

123.68

16.42

rounded to 1 decimal place

3 hundreds + 7 tens + 2 ones +
9 tenths + 9 hundredths

20 + 5 + 0.2

29.88

rounded to 2 decimal places

341.9