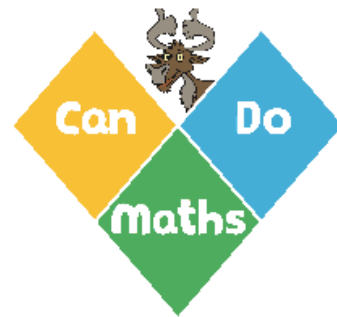


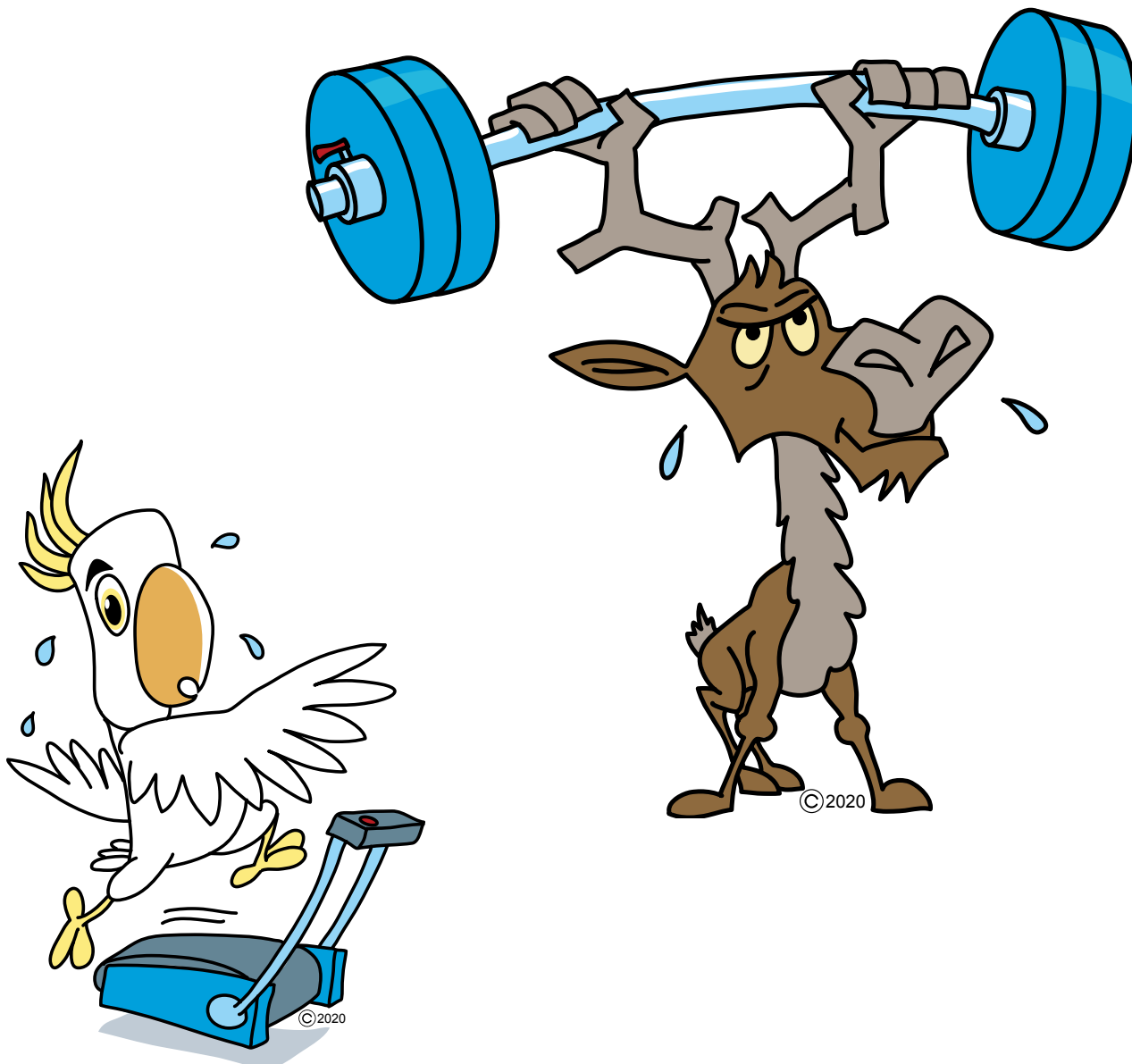


# Colin and Coco's Deliberate Practice

Year 5 Unit 2

Decimals

Answers





# Contents

This pack of deliberate practice is designed to be used flexibly to secure the manageable steps of this unit.

The table below indicates which activities are linked to which manageable steps.

|                                                                                                                                  | Do It | Challenge It | Play It |
|----------------------------------------------------------------------------------------------------------------------------------|-------|--------------|---------|
| Recognise that thousandths arise from dividing a number (or object) into one thousand equal parts and dividing hundredths by ten | 1     |              | 1       |
| Read a number with three decimal places                                                                                          |       | 1            | 1       |
| Represent decimal numbers with up to 3 decimal places                                                                            | 2     | 2            |         |
| Write decimal equivalents of any number of thousandths                                                                           |       |              |         |
| Identify decimal numbers, with up to 3 decimal places, on a number line                                                          |       | 3            |         |
| Position decimal numbers, with up to 3 decimal places, on a number line                                                          |       |              | 3       |
| Compare a set of numbers written to three decimal places                                                                         | 3     |              |         |
| Order decimal numbers with 3 decimal places                                                                                      |       |              | 4       |
| Compare numbers with a mixed number of decimal places                                                                            | 4     |              |         |
| Order numbers with a mixed number of decimal places                                                                              |       | 4            |         |
| Round numbers with two decimal places to one decimal place                                                                       | 5     | 5            | 5       |
| Round numbers with two decimal places to the nearest whole number                                                                | 5     | 5            | 5       |



Do It 1

Write the following as fractions and as decimals.

$$6 \div 1000 = \boxed{\frac{6}{1000}} = \boxed{0.006}$$

$$0.06 \div 10 = \boxed{\frac{6}{1000}} = \boxed{0.006}$$

$$9 \div 1000 = \boxed{\frac{9}{1000}} = \boxed{0.009}$$

$$0.09 \div 10 = \boxed{\frac{9}{1000}} = \boxed{0.009}$$

$$14 \div 1000 = \boxed{\frac{14}{1000}} = \boxed{0.014}$$

$$0.16 \div 10 = \boxed{\frac{16}{1000}} = \boxed{0.016}$$

$$12 \div 1000 = \boxed{\frac{12}{1000}} = \boxed{0.012}$$

$$0.19 \div 10 = \boxed{\frac{19}{1000}} = \boxed{0.019}$$

$$250 \div 1000 = \boxed{\frac{250}{1000}} = \boxed{0.25}$$

$$0.02 \div 10 = \boxed{\frac{2}{1000}} = \boxed{0.002}$$

$$125 \div 1000 = \boxed{\frac{125}{1000}} = \boxed{0.125}$$

$$0.01 \div 10 = \boxed{\frac{1}{1000}} = \boxed{0.001}$$

Challenge It 1

Use the digits 1, 2, 3 and 4 in the empty boxes to make a number and describe it in terms of tenths and thousandths only.

|  |   |  |  |  |
|--|---|--|--|--|
|  | . |  |  |  |
|--|---|--|--|--|

Complete it in several ways.

For example: 1.234 is 12 tenths and 34 thousandths.

Now describe your numbers in hundredths and thousandths only.



# Hundredths Game

Play It 1

You need:

0 - 9 dice

To play:

Players take it in turns to throw the dice twice to get two digits to make a 2-digit number.

Divide the number by a thousand to make a decimal number.

Say it aloud and score the number of hundredths.

For example:

Player 1: I have thrown 5 and 8 so I will make the number eighty-five.

$$85 \div 1000 = 0.085$$

'Zero point zero eight five' and I score 8 because there is an eight in the hundredths column.

To win:

The winner is the first player to score a total of 50 points.



## Do It 2

Represent the numbers.

| 1s           | $\frac{1}{10}$ s           | $\frac{1}{100}$ s                | $\frac{1}{1000}$ s                     |
|--------------|----------------------------|----------------------------------|----------------------------------------|
|              |                            |                                  | 0.001 0.001 0.001<br>0.001 0.001 0.001 |
|              |                            | 0.01 0.01 0.01<br>0.01 0.01 0.01 | 0.001<br>0.001                         |
|              | 0.1 0.1 0.1<br>0.1 0.1 0.1 | 0.01<br>0.01                     | 0.001 0.001 0.001<br>0.001 0.001       |
| 1            | 0.1 0.1<br>0.1             | 0.01<br>0.01                     | 0.001 0.001 0.001<br>0.001 0.001       |
|              | 0.1 0.1<br>0.1             | 0.01 0.01 0.01<br>0.01 0.01      | 0.001<br>0.001                         |
| 1 1 1<br>1 1 |                            | 0.01 0.01<br>0.01                | 0.001<br>0.001                         |

0.006

0.062

0.625

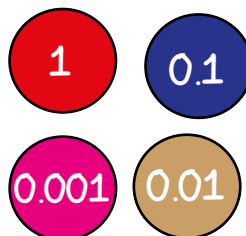
1.325

352 thousandths

5,032 thousandths

## Challenge It 2

Use 6 Place Value Counters to create different numbers with three decimal places. You are only allowed to use a maximum of two counters with the same value in each number.



Write each number using words and numerals.

for example: 2.202  
two point two zero two,

Investigate possible numbers you can make.



# Thousandths Game

Play It 2

You need:  
0 - 9 dice

To play:

Players take it in turns to roll the dice to get 4 digits.  
Choose whether to use 4, 3, 2 or one of the digits to make a number of thousandths.

Write that number of thousandths as a decimal.

Players are aiming to write four decimal numbers:

- a single digit number of thousandths
- a 2-digit number of thousandths
- a 3-digit number of thousandths and
- a 4-digit number of thousandths

To win:

The winner is the first player to use all the digits 0 - 9 in their decimal numbers.

0.00

0.0

0.

.



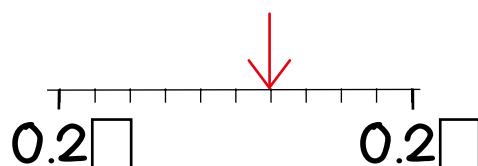
Do It 3

Insert < or >

|       |   |       |       |   |       |
|-------|---|-------|-------|---|-------|
| 3.254 | > | 2.543 | 0.106 | < | 0.601 |
| 4.325 | < | 5.432 | 0.191 | > | 0.091 |
| 5.342 | < | 5.432 | 0.445 | < | 0.454 |
| 4.523 | < | 4.532 | 0.199 | < | 0.911 |
| 3.542 | > | 3.524 | 0.011 | > | 0.009 |

Challenge It 3

Put consecutive digits in the empty boxes.  
What is the arrow pointing to?  
Investigate possible numbers.



for example: 0.23 and 0.24 so arrow points to 0.236

Investigate possible numbers if the empty boxes do not have consecutive digits.



# Plot Thousandths Game

Play It 3

You need:

0 - 9 dice

0 - 0.1 Landmarked number line

To play:

Take it in turns to throw the dice to get a 2-digit number of thousandths.

0 . 0

Plot your number on the number line convincing your opponent you are plotting it in the correct place.

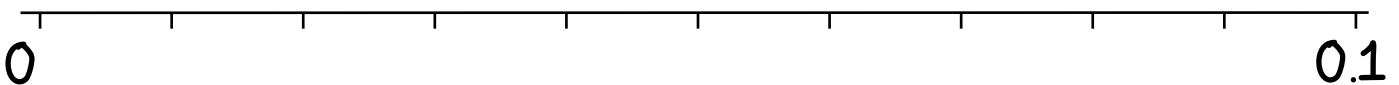
Player 1: Digits thrown 3 and 7

Number created 0.073

Plot 0.073 on the number line. It goes between 0.07 and 0.08 before the centre, because it is less than 0.075

To win:

The winner is the first player to get 4 of their points plotted without any of their opponent's points in between.







Do It 4

Insert < or >

|       |   |       |       |   |       |
|-------|---|-------|-------|---|-------|
| 3.254 | > | 2.5   | 0.106 | < | 0.11  |
| 4.32  | < | 4.323 | 0.19  | > | 0.091 |
| 5.34  | < | 5.342 | 0.045 | < | 0.45  |
| 4.5   | < | 4.53  | 0.199 | < | 0.2   |
| 3.5   | > | 3.432 | 0.01  | > | 0.009 |

Challenge It 4

Create eight different decimal numbers less than 1 choosing from the digits 1, 9 and 0 in any combinations. They can have 1, 2 or 3 decimal places. Put them in order from smallest to largest.

Create eight different decimal numbers between 3 and 4 choosing from the digits 3, 4, 9 and 0 in any combinations. They can have 1, 2 or 3 decimal places. Put them in order from smallest to largest.



# In Between Decimals Game

Play It 4

You need:

0 - 9 dice (or cards)

To play:

Player 1 throws the dice to get 3 digits and makes a decimal number with three decimal places. This number cannot be changed.

Player 1 throws the dice again to get 3 digits and makes another decimal number with three decimal places.

Player 2 throws the dice to get 3 digits and tries to make a number that will go between player 1's numbers.

For example:

Player 1: Digits thrown 3, 4, 2  
Number created 0.243  
Digits thrown 8, 0, 1  
Number created 0.185

Player 2: Digits thrown 6, 3, 2  
Number created 0.236

Player 2 scores a point. If they cannot make a number that is between player 1's numbers they do not score a point.

Players swap roles.

To win:

The winner is the first player to score 5 points.



Round each number to the nearest tenth.

13.23      13.2

43.24      43.2

4.25      4.3

6.87      6.9

62.95      63.0

9.96      10.0

Round each number to the nearest whole number.

3.21      3

42.75      43

0.54      1

3.49      3

62.95      63

9.96      10

## Challenge It 5

Match the numbers with the correct rounding.  
Fill in the missing buddies.

|                                         |      |
|-----------------------------------------|------|
| Round 3.65 to 1 decimal place           | 20   |
| Round 3.61 to 1 decimal place           | 9    |
| Round 8.95 to 1 decimal place           | 36   |
| Round 8.95 to the nearest whole number  | 10.0 |
| Round 9.97 to the nearest whole number  | 9.0  |
| Round 9.95 to 1 decimal place           | 3.7  |
| Round 20.19 to the nearest whole number | 10   |
| Round 20.91 to the nearest whole number | 20.1 |
| Round 20.09 to 1 decimal place          | 21   |



# Rounding Game

Play It 5

You need:

0 - 9 dice (or cards)

To play:

Players take it in turns to throw the dice to get 3 digits and make a ones, tenths and hundredths number.

Round your number to the nearest tenth, and the nearest whole number.  
You score the smaller of the two rounded numbers.

For example:

Player 1: Digits thrown 1, 5, 2  
Number created 1.52  
Rounded to the nearest tenth: 1.6  
Rounded to the nearest whole number: 2  
Score 1.6

(If they had made 1.25 then they could have scored just 1)

To win:

The winner is the player with the lowest total score after three goes each.