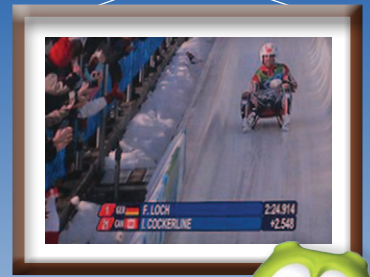


4 Decimals

We are learning to...

- Demonstrate our knowledge of decimal place value through solving problems
- Order decimals on a number line
- Add and subtract decimals



Vocabulary

decimal	point
fraction	rounding and compensating
place value	
partitioning	



Getting started



- How and why are decimals used in sport?
How many different examples can you think of?
- Why are decimals used when buying things?
- Where else might you see decimals in everyday life?
Give at least three different examples.



Check up on level 3

If you can answer all of these questions, you are ready for this chapter.



1

TRAVELLERS' REST
Only 5.65 km and only \$5.65 for coffee and cake.

Look it's only five point sixty five km till we get a drink and something to eat.



Coffee and cake is only five point six five dollars.

Kim and Kate have made mistakes in reading the decimal numbers.

Explain how reading decimal numbers is different for measurement and money.

2

Write these decimals using digits.

a five point seven two

b five dollars and five cents

c seventy point eight zero three

d fifteen thousand and six point zero four two

e forty point eight nine five zero

f thirty five thousand point zero zero five



3

Put these world record times on a copy of a place value chart.

DELTA

WORLD RECORDS

<p>a WOMEN'S 100m Sprint 10.62 sec</p>	<p>b MENS' 100m Sprint 9.58 sec</p>
<p>c MEN'S DOUBLE LUGE 42.953 sec</p>	<p>d MENS' SINGLE LUGE 46.808 sec</p>

4

What is the place value of the pink digits in each of the numbers in question 3?

5

What is the place value of the blue digits in each of the numbers in question 3?

6

How many tenths are there *altogether* in each of the numbers in question 3?

7



13.56 = $10 + 3 + \frac{5}{10} + \frac{6}{100} = 1 \text{ ten} + 3 \text{ ones} + 5 \text{ tenths} + 6 \text{ hundredths}$
 = 13 ones + 5 tenths + 6 hundredths
 = 135 tenths and 6 hundredths
 = 1356 hundredths.

Write these in all the different ways Jess did.

a 45.6

b 16.89



1 **Decimal darts**



- Research the rules of darts and the different ways of scoring.
- Make your own dartboard with decimals instead of whole numbers.
- Make a poster, or similar, to explain the rules of your darts game. Make sure you have to add and subtract decimals as you play.
- Play with some classmates.

2 **It's a record!**

Events at the Olympics and Commonwealth Games are timed and measured very accurately.

- Choose three events that interest you.

Research the results from your chosen events in the last five Olympic (or Commonwealth) games.

- Make a poster/presentation/booklet that:
 - explains how each of your events was measured and the level of accuracy
 - shows tables of the differences between each of the place getters for each of your events
 - has a time-series graph showing how the Olympic (Commonwealth) records in your events have changed
 - has some conclusions about how results have changed and why this might be.



3 **Famous for what?**

- Choose a famous mathematician who had something to do with decimals.

Examples Archimedes, Stevin, Napier, Dewey

- Draw a timeline of their life in years and months indicating all the significant events and discoveries.
- Share and display your research.



Decimal place value

Reading and writing decimals

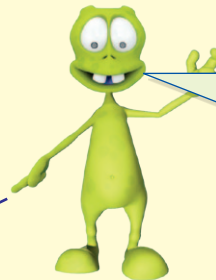
13.64 is read as “thirteen point six four”. We write “forty point six eight three” as 40.683.

Decimal place value

Tens	Ones	tenths	hundredths	thousandths
7	8	5	0	4

In 78.504 there are
 7 tens
 78 ones
 785 tenths
 7850 hundredths
 78504 thousandths

78.504 can be written as
 78 and 5 tenths and 4 thousandths
 or 78 and $\frac{5}{10}$ and $\frac{4}{1000}$ or $78\frac{504}{1000}$



This is how many thousandths there are **ALTOGETHER** if you split up the 7 tens, 8 ones and 5 tenths into thousandths and add them to the 4 thousandths.



Discussion

- What is the purpose of the 0 in 78.504?

Example

Write these as decimals.

a $7\frac{82}{100}$

b 4589 thousandths

c $5\frac{40}{100}$

a $7\frac{82}{100} = 7.82$ because 0.82 is 8 tenths (80 hundredths) and 2 hundredths.

b 4589 thousandths = 4.589 because 4000 thousandths is 4 wholes and 500 thousandths is 5 tenths and 80 thousandths is 8 hundredths.

c $5\frac{40}{100} = 5.40$ or 5.4 because $\frac{40}{100}$ is the same as $\frac{4}{10}$.

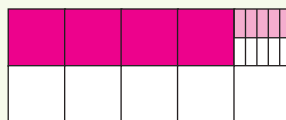


Practical



- deci pipes, decimats or decimal place value materials such as wrapped blocks or place value blocks

1 Jess made 0.45 in two different ways.



$\frac{4}{10}$ and $\frac{5}{100}$



$\frac{4}{10}$ and $\frac{5}{100}$

Make these decimals using decimats or decipipes or using some other place value equipment.

- a 0.36 b 0.07 c 1.48 d 2.07 e 0.478
 f 0.509 g 0.076 h 1.053

Write each decimal using fractions like Jess did.

