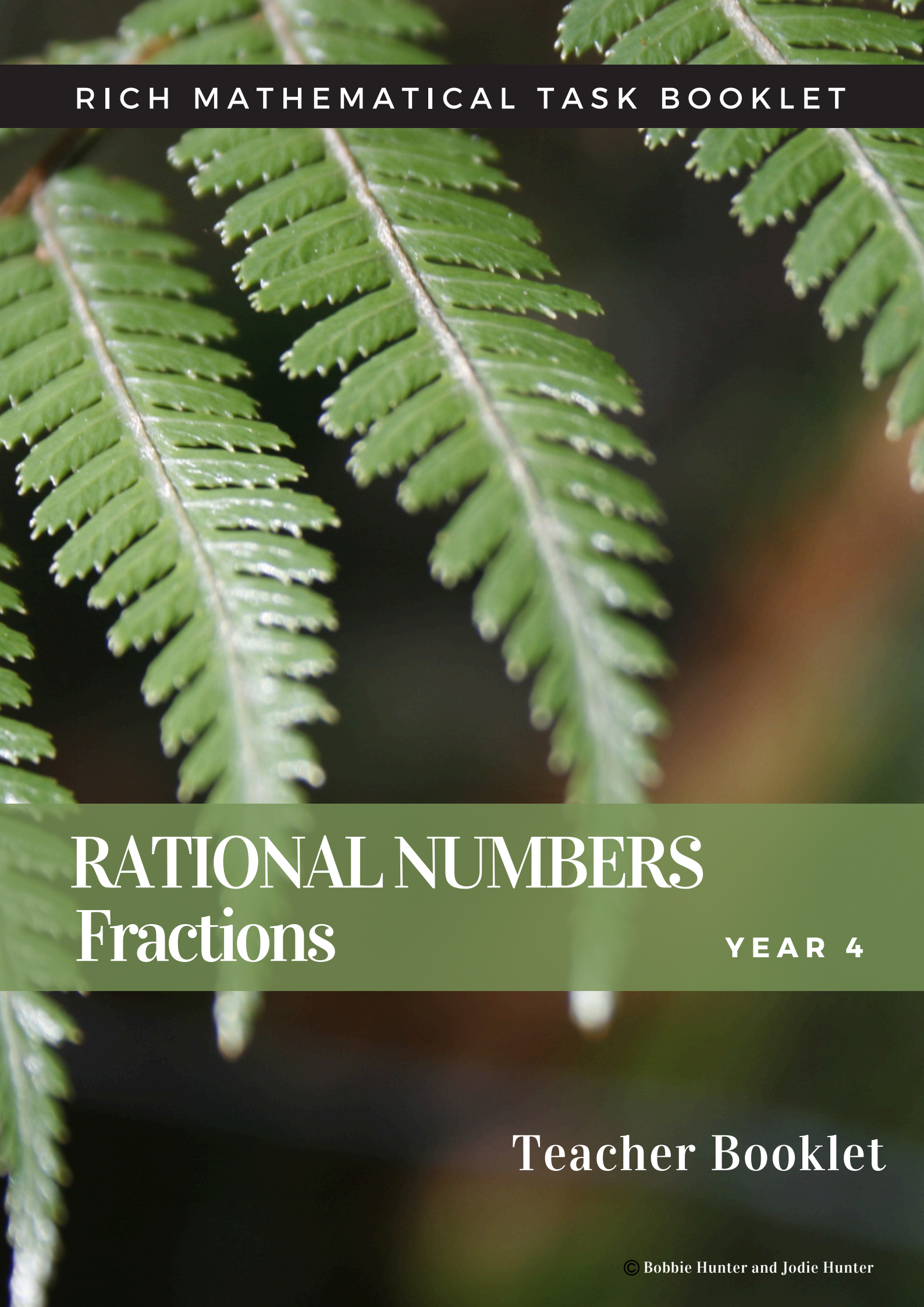


RICH MATHEMATICAL TASK BOOKLET

RATIONAL NUMBERS
Fractions

YEAR 4

Teacher Booklet

Task 1

What are all the different ways you can use the fraction tiles to equal one whole?

As you make these record them and be ready to explain and justify how they make one whole.

What are all the different ways you can use the fraction tiles to equal a fraction that is less than one whole?

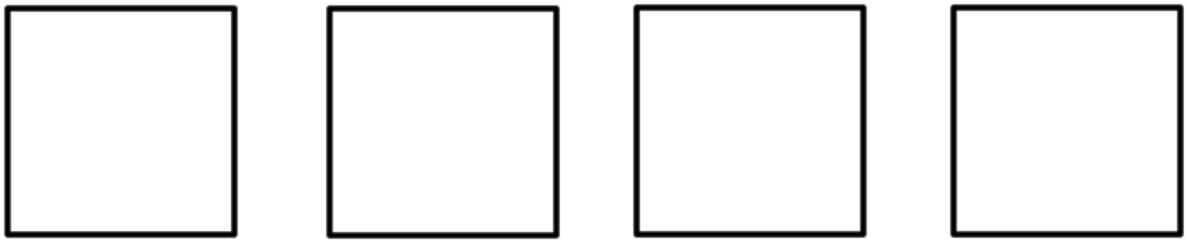
As you make these record them and be ready to explain and justify why they are less than one whole.

What are all the different ways you can use the fraction tiles to equal a fraction that is more than one whole?

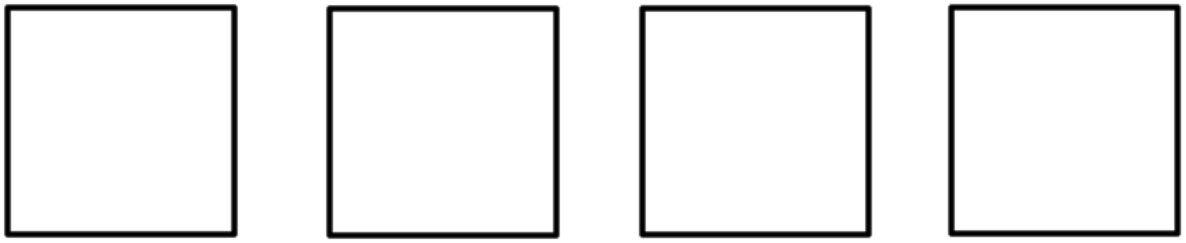
As you make these record them and be ready to explain and justify why they are more than one whole.

Task 1 (independent)

How many different ways can you split these squares into halves?



How many different ways can you split these squares into quarters?



Task 2

What are all the different ways you can use the fraction tiles to equal a fraction that is less than one half?

As you make these record them and be ready to explain and justify why they are less than one half.

What are all the different ways you can use the fraction tiles to equal a fraction that is more than one half but less than one whole?

As you make these record them and be ready to explain and justify why they are more than one half and less than one whole.

What are all the different ways you can use the fraction tiles to equal a fraction that is more than one whole but less than two?

As you make these record them and be ready to explain and justify why they are more than one whole and less than two.

Task 2 (independent)

Use the fraction tiles to make different combinations that will equal less than one whole. Record these using fraction equations and drawings.

Use the fraction tiles to make different combinations that will equal less than one half. Record these using at least three different representations (drawings, equations).

Use the fraction tiles to make different combinations that are between one quarter and three quarters. Record these using fraction equations and drawings.

Use the fraction tiles to make different combinations that are between one whole and one and three quarters. Record these using fraction equations and drawings.

Use the fraction tiles to make different combinations that are smaller than three quarters. Record these using fraction equations and drawings.

Task 3

What numbers are there between 0 and 1? Be ready to put a marker on the number-line and explain what fractional number is shown.

Draw your own number-line and record on it the number you are showing with the marker.

Can you show on your number-line four numbers between 1 and 2? Record alongside the mark what number they represent.

Task 3 (independent)

Mark on the number line where you think the following mixed numbers would be.

$1\frac{1}{2}$	$1\frac{3}{4}$	$9\frac{1}{8}$
$5\frac{2}{4}$	$4\frac{1}{2}$	$4\frac{3}{4}$
$7\frac{2}{4}$	$8\frac{1}{2}$	$\frac{6}{8}$
$3\frac{4}{8}$	$9\frac{1}{2}$	$\frac{1}{4}$

Can you mark any other numbers on the number-line?

Task 4

At the local night market, you can buy rectangular plastic boxes of banana poke. All the trays of poke are the same size.

Nooroa's family has 3 children to share one tray.

John's family has 8 children to share one tray.

Tereapii's family has 6 children to share one tray.

Teokotai's family has 4 children to share one tray.

William's family has 5 children to share one tray.

Jillian's family has 10 children to share one tray.

Which children would have more poke? Prove your answer using at least three different representations (numbers, drawings, and a number-line)

Task 4 (independent)

Put these fractions in order of size from largest to smallest.

1. $\frac{1}{3}, \frac{1}{2}, \frac{1}{6}$
2. $\frac{1}{10}, \frac{1}{5}, \frac{1}{2}, \frac{1}{20}$
3. $\frac{1}{4}, \frac{1}{2}, \frac{1}{8}, \frac{1}{16}$
4. $\frac{1}{4}, \frac{1}{10}, \frac{1}{3}, \frac{1}{2}, \frac{1}{8}, \frac{1}{20}$

Use the fraction pieces and draw a representation and a numberline to prove your ordering of the fractional numbers are correct.

Task 5

Atamai's Tinamatua has made pani popo and Atamai is wondering who would get more.

Eight tama sharing 10 pani popo equally.

Two tama sharing 3 pani popo equally.

Four tama sharing 9 pani popo equally.

Five tama sharing 4 pani popo equally.

Make sure that you represent and justify your answer in different ways.

Task 5 (independent)

At the Super Striker Soccer competition, these were the results of the goal shooting activity.

Ruby scored 5 out of the six goals that she kicked.

Daniel scored 2 out of three goals that he kicked.

Tasa scored 3 out of the four goals that he kicked.

Sesimani scored 7 out of the eight goals that she kicked.

Can you put them in order from who was the most accurate to least accurate in shooting the goals?

Task 6

Mahini wants to share her red licorice twists with her five friends.
The six of them all have one fourth of a red licorice twist.
How many red licorice twists does Mahini have to share?

Mahini wants to share her red licorice twists with her eight friends.
The nine of them all have one third of a red licorice twist.
How many red licorice twists does Mahini have to share?

Mahini wants to share her red licorice twists with her 9 friends.
The nine of them all have two fifth of a red licorice twist.
How many red licorice twists does Mahini have to share?

Task 6 (independent)

Which number is the smallest? Which number is the biggest?

$\frac{1}{2}$ or $\frac{1}{4}$ $\frac{1}{8}$ or $\frac{1}{4}$

$\frac{1}{3}$ or $\frac{1}{2}$ $\frac{1}{2}$ or $\frac{3}{4}$

$\frac{3}{4}$ or $\frac{2}{2}$ $\frac{4}{4}$ or $\frac{4}{3}$

$\frac{2}{4}$ or $\frac{3}{3}$ $\frac{3}{2}$ or $\frac{3}{4}$

$1\frac{1}{2}$ or $1\frac{1}{4}$ $2\frac{3}{4}$ or $2\frac{7}{8}$

Record representations of your reasoning to justify your ideas.

Task 7

I have 2 slices of ham. It takes one quarter of a slice of ham to make a sandwich.

How many sandwiches can I make?

I have 3 slices of ham. It takes one third of a slice of ham to make a sandwich.

How many sandwiches can I make?

I have 5 slices of ham. It takes two thirds of a slice of ham to make a sandwich.

How many sandwiches can I make?

Task 7 (independent)

Miri wants to share her chocolate bars with her ten friends.
The eleven of them all have one half of a chocolate bar.
How many chocolate bars does Miri have to share?

Miri wants to share her chocolate bars with her five friends.
The six of them all have one quarter of a chocolate bar.
How many chocolate bars does Miri have to share?

Miri wants to share her chocolate bars with her 8 friends.
The nine of them all have one sixth of a chocolate bar.
How many chocolate bars does Miri have to share?

Task 8

Ayla and Jack were helping their Mum paint their garage wall. They each had a tin of orange paint that was the same size.

Tony used half a tin of his paint.

Jenny used three quarter of her tin of paint.

Mum wants to know how much of the tins of orange paint Ayla and Jack used altogether.

Ayla and Jack were helping their Mum paint their garage wall. They each had a tin of orange paint that was the same size.

Ayla used three eighths of a tin of paint.

Jack used three fourths of a tin of paint.

Mum wants to know how much of the tins of orange paint Ayla and Jack used altogether.

Ayla and Jack were helping their Mum paint their garage wall. They each had a tin of orange paint that was the same size.

Ayla used one half of a tin of paint.

Jack used three fifths of a tin of paint.

Mum wants to know how much of the tins of orange paint Ayla and Jack used altogether.

Task 8 (independent)

Ayla and Jack were helping their Mum paint their garage wall. They each had a tin of orange paint that was the same size.

Ayla used one half of a tin of paint.

Jack used one fourth of a tin of paint.

Mum wants to know how much of the tins of orange paint Ayla and Jack used altogether.

Ayla and Jack were helping their Mum paint their garage wall. They each had a tin of orange paint that was the same size.

Ayla used one quarter of a tin of paint.

Jack used one eighth of a tin of paint.

Mum wants to know how much of the tins of orange paint Ayla and Jack used altogether.

Task 9

Leilani is decorating a cake she has made as a surprise for her mother's birthday. She has 20 lollies. She decides to divide the cake into quarters and put the same number of lollies on each section.

How many lollies does she put on each section?

Leilani is decorating a cake she has made as a surprise for her mother's birthday. She has 18 lollies. She decides to divide the cake into thirds and put the same number of lollies on each section.

How many lollies does she put on each section?

Leilani is decorating a cake she has made as a surprise for her mother's birthday. She has 40 lollies. She decides to divide the cake into fifths and put the same number of lollies on each section.

How many lollies does she put on each section?

Task 9 (independent)

You have a bag of 12 lollies, and you share them equally with your friend.

What fraction do you each get?

How many lollies will you each get?

You have a bag of 24 lollies, and you share them equally with three friends.

What fraction do you each get?

How many lollies will you each get?

What is a quarter of 8?

What is a quarter of 80?

What are three quarters of 8?

What are three quarters of 80?

What is a half of 10?

What is a half of 100?

What is a third of 6?

What is a third of 60?

What are two thirds of 6?

What are two thirds of 60?

What are two thirds of 600?

Task 10

Lyla scored $\frac{1}{10}$ of all the goals for her football team for the season. She scored 4 goals.

Sesimani scored $\frac{3}{10}$ of the goals for the team. How many goals did she score?

How many goals did the team score during the season?

Sima has a marble collection. He gives his sister Rosi 8 marbles which is $\frac{1}{6}$ of his collection.

He loses $\frac{3}{6}$ of the collection in a competition at school. How many marbles did he lose?

How many marbles did Sima have to start with in his collection?

Task 10 (independent)

$\frac{1}{2}$ of a number is 12. What is the number?

$\frac{1}{3}$ of a sheet of stickers is 12.

How many stickers on $\frac{2}{3}$ of a sheet?

How many stickers on the whole sheet?

$\frac{1}{6}$ of a bag of marbles is 4.

How many marbles in $\frac{4}{6}$ of a bag?

How many marbles in the whole bag?

$\frac{1}{8}$ of a packet of jellybeans is 5.

How many jellybeans in $\frac{5}{8}$ of a packet?

How many jellybeans in a whole packet?

Task 11

Gabriella is making a pattern using different coloured beads. She has 16 red beads, 40 blue beads and 24 gold beads.

She divides the pattern into 4 sections and uses the same number of each colour in each section.

How many of each coloured bead will she put on each section?

What about if she divides it into 8 sections?

How many of each coloured bead will she put on each section?

Task 11 (independent)

What is $\frac{1}{4}$ of 12?

What is $\frac{3}{4}$ of 12?

What is $\frac{1}{8}$ of 24?

What is $\frac{2}{8}$ of 24?

What is $\frac{1}{3}$ of 33?

What is $\frac{2}{3}$ of 33?

What is $\frac{1}{2}$ of 34?

What is $\frac{1}{5}$ of 45?

What is $\frac{4}{5}$ of 45?

Task 12

Hone and his two brothers Wiremu and Jo have 2 bottles of soft drink. Hone drinks three quarters of one bottle.

Wiremu drinks five eighths of one bottle.

Jo drinks the rest.

How much does Jo drink?

Hone and his two brothers Wiremu and Jo have 2 bottles of soft drink. Hone drinks three sixths of one bottle.

Wiremu drinks 2 thirds of one bottle.

Jo drinks the rest.

How much does Jo drink?

Hone and his two brothers Wiremu and Jo have 2 bottles of soft drink. Hone drinks one fifth of one bottle.

Wiremu drinks four fifths of one bottle.

Jo drinks the rest.

How much does Jo drink?