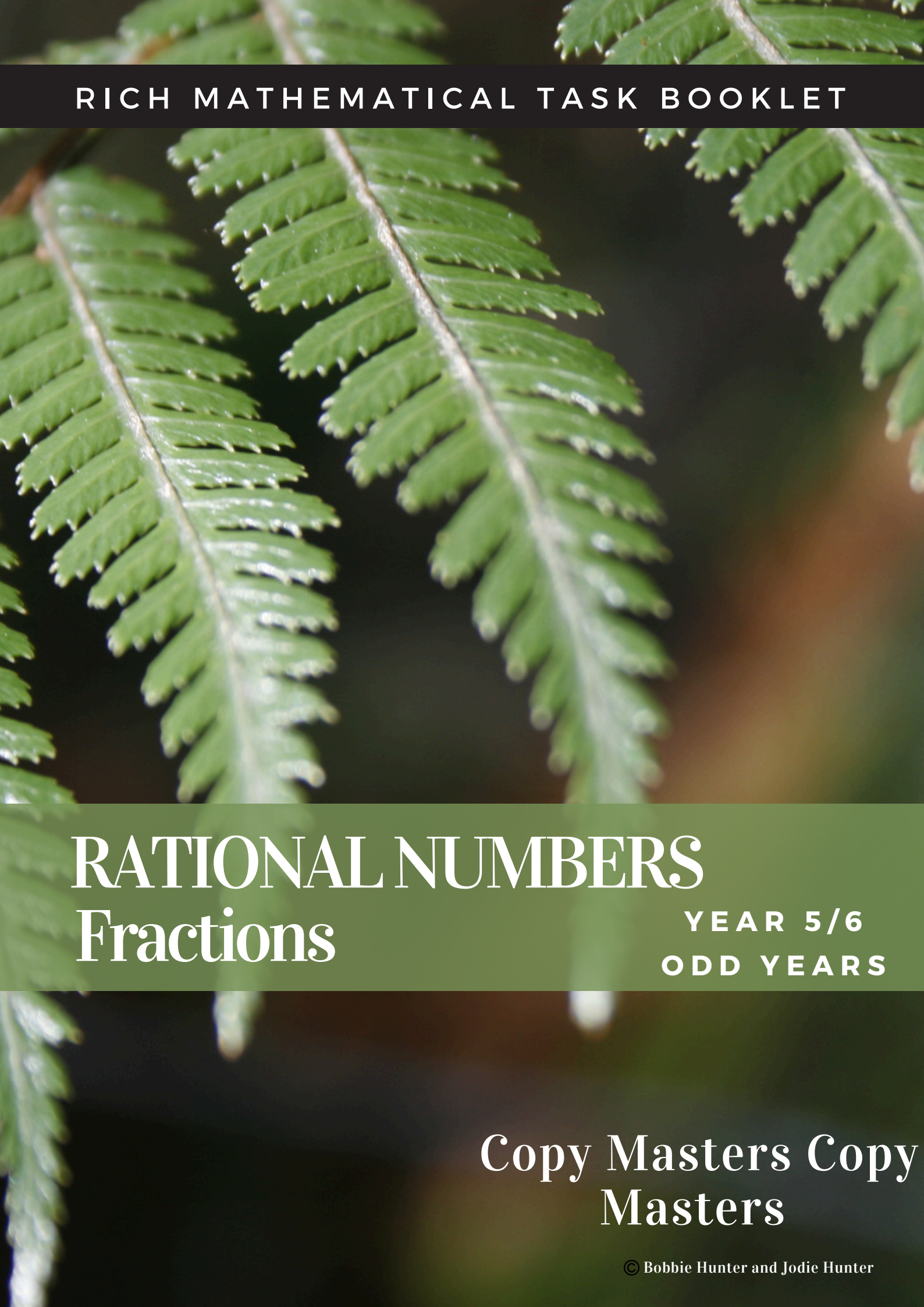

RICH MATHEMATICAL TASK BOOKLET

RATIONAL NUMBERS
Fractions

YEAR 5/6
ODD YEARS

Copy Masters Copy Masters

Task 1

Use the fraction tiles to make one whole in different ways. Record your responses.

Use the fraction tiles to make different fractional numbers that are more than one whole but less than one and a half. Record your responses.

Use the fraction tiles to make different fractional numbers that are more than one whole but less than one and a half. Record your responses.

Use the fraction tiles to make different fractional numbers that are less than three quarters but more than one tenth. Record your responses.

Use the fraction tiles to make different fractional numbers that are less than two thirds but more than one eighth. Record your responses.

Task 1 (independent)

What other fractions are the same as one whole?

Record these using at least three different representations (number line, drawings, equations).

0 1

What other fractions are the same as one half?

Record these using at least three different representations (number line, drawings, equations).

0 1

What other fractions are the same as one third?

Record these using at least three different representations (number line, drawings, equations).

0 1

What other fractions are the same as two eighths?

Record these using at least three different representations (number line, drawings, equations).

0 1

Task 2

Tiani and her friends are pretending to be in a quiz show where they have to say either true or false to each statement.

Tiani says that there are more than 15 numbers between 1 and 2. Her friends say that that statement is false, but they are wrong.

Can you prove that there are more than 15 numbers between 1 and 2. Use a number-line to show where your numbers would be.

Task 2 (independent)

Use the fraction tiles to explore the following questions:

Is $\frac{6}{10}$ of a piece of ribbon the same as $\frac{3}{5}$ of a piece of ribbon?

Why or why not?

Is $\frac{4}{7}$ of a piece of ribbon the same as $\frac{3}{5}$ of a piece of ribbon?

Why or why not?

Is $\frac{1}{4}$ of a piece of ribbon the same as $\frac{2}{8}$ or $\frac{4}{16}$ or $\frac{5}{20}$ of a piece of ribbon?

Why or why not?

Is $\frac{8}{9}$ of a piece of ribbon bigger than $\frac{5}{6}$ of a piece of ribbon?

Why or why not?

Is 1 piece of ribbon bigger than $\frac{1}{4} + \frac{2}{2}$ of a piece of ribbon?

Why or why not?

Task 3

Who eats more? Who eats less?

A. Eight children sharing 9 doughnuts equally.
B. Five children sharing 7 doughnuts equally.
C. Four children sharing 6 doughnuts equally.
D. Six children sharing 8 doughnuts equally.
E. Three children sharing 4 doughnuts equally.
F. Ten children sharing 14 doughnuts equally.

Put them in order from smallest to largest. Be ready to explain and justify your reasoning in multiple ways.

Task 3 (independent)

Who drinks more? Who drinks less?

A. Six children sharing 8 cans of drink equally.
B. Ten children sharing 11 cans of drink equally.
C. Four children sharing 6 cans of drink equally.
D. Three children sharing 4 cans of drink equally.
E. Five children sharing 9 cans of drink equally.
F. Eight children sharing 10 cans of drink equally.

Put them in order and be ready to explain in multiple ways.

Task 4

Sisilia's netball team is trying to work out which players should be the goal attack and goal shooter. They look at the results from the first practice:

For every 8 shots she took, Marieta scored three goals.

For every 4 shots he took, Jirah scored two goals.

For every 6 shots she took, Valerie scored four goals.

For every 3 shots he took, Hemi scored one goal.

For every 12 shots she took, Aroha scored seven goals.

Based on these results which players should they select for these positions? Be ready to explain and justify your reasoning in multiple ways.

Task 4 (independent)

The soccer team all have the same sized cups. Throughout the game this is how much they drank:

Tayla drinks five quarters of a cup.

Loni drinks three halves of a cup.

Tere drinks five thirds of a cup.

Mia drinks ten eighths of a cup.

Put how much they drank in order from most to least.

Prove your solution using at least 3 different representations.

Task 5

Georgia and her two friends want to play elastics. To do this they have to join their smaller bits of elastic together.

Georgia has $\frac{3}{4}$ of a metre of elastic.

Lily has $\frac{2}{3}$ of a metre of elastic.

Tasi has $\frac{1}{2}$ a metre of elastic.

When all the pieces are joined together how long is the elastic they make?

Task 5 (independent)

Litea and her two friends are at the movies. They each buy a big tub of popcorn.

Litea eats $\frac{3}{8}$ of her tub.

Kaia eats $\frac{2}{4}$ of his tub.

Gaylene eats $\frac{10}{12}$ of her tub.

They tip all the left-over popcorn into two tubs. How much is left to take home?

Task 6

Jean and her friends are making some clay beads for necklaces. They have 3 packs of modelling clay.

Henry uses $\frac{2}{3}$ of a pack of modelling clay.

Tupou uses $\frac{3}{4}$ of a pack of modelling clay.

Claire uses $\frac{5}{8}$ of a pack of modelling clay.

Jean uses the rest.

How much does Jean have to make her clay beads?

Task 6 (independent)

Find the solutions.

Sara has $\frac{1}{6}$ of a bag of marbles. Lily has $\frac{1}{12}$ of a bag of marbles.

How much of a bag of marbles do they have altogether?

Sara has $\frac{1}{5}$ of a bag of marbles. Lily has $\frac{1}{10}$ of a bag of marbles.

How much of a bag of marbles do they have altogether?

Sara has $\frac{1}{6}$ of a bag of marbles. Lily has $\frac{1}{4}$ of a bag of marbles.

How much of a bag of marbles do they have altogether?

Sara has $\frac{1}{3}$ of a bag of marbles. Lily has $\frac{1}{7}$ of a bag of marbles.

How much of a bag of marbles do they have altogether?

Sara has $\frac{2}{3}$ of a bag of marbles. Lily has $\frac{1}{9}$ of a bag of marbles.

How much of a bag of marbles do they have altogether?

Sara has $\frac{4}{6}$ of a bag of marbles. Lily has $\frac{1}{5}$ of a bag of marbles.

How much of a bag of marbles do they have altogether?

Task 7

Tere's aunties are making a finely embroidered tivaevae tataura.

For each part of the frangipani Aunty Tarai uses $\frac{3}{4}$ of a ball of the red cotton.

Aunty Teremoana uses $\frac{1}{5}$ of the red cotton ball.

How much more cotton does Aunty Tarai use?

Tere's aunties are making a finely embroidered tivaevae tataura.
Aunty Tarai uses $\frac{8}{10}$ of the red cotton ball.

Aunty Teremoana uses $\frac{2}{4}$ of the red cotton `ball.

How much more cotton does Aunty Tarai use?

Tere's aunties are making a finely embroidered tivaevae tataura.
Aunty Tarai uses $\frac{10}{12}$ of a red cotton ball.

Aunty Teremoana uses $\frac{6}{8}$ of the red cotton ball.

How much more cotton does Aunty Tarai use?

Task 7 (independent)

1. $\frac{1}{2} - \frac{1}{4} =$

2. $\frac{1}{3} - \frac{1}{4} =$

3. $\frac{5}{6} - \frac{1}{2} =$

4. $? - \frac{1}{4} = \frac{1}{8}$

5. $? - \frac{2}{5} = \frac{3}{5}$

6. $\frac{9}{10} - ? = \frac{1}{2}$

7. $\frac{5}{8} - ? = \frac{1}{4}$

8. $\frac{6}{9} = \frac{1}{2} + ?$

9. $\frac{3}{5} = ? + \frac{1}{10}$

Task 8

Alani and Erihapeti are helping their Mum make palusami (a corned beef, taro root leaves and coconut dish) for dinner. Each portion will feed four people. For each portion of palusami they use:

$\frac{1}{2}$ cans of corned beef

$\frac{7}{8}$ of a bag of fresh spinach

$\frac{2}{3}$ of a small onion

$\frac{1}{4}$ teaspoon of salt

$\frac{3}{4}$ cup of water

$\frac{4}{5}$ cans of coconut cream

There are 12 people having dinner altogether. How much of each ingredient will they need?

Task 8 (independent)

Alani and Erihapeti are helping their Mum make palusami (a corned beef, taro root leaves and coconut dish) for dinner.

For each portion of palusami they use:

$\frac{1}{4}$ cans of corned beef

$\frac{1}{8}$ of a bunch of taro or spinach chopped

$\frac{1}{3}$ of a small onion

$\frac{1}{4}$ clove of garlic minced

$\frac{1}{2}$ tablespoon of soy sauce

$\frac{1}{3}$ cup of coconut milk

There are 6 people having dinner altogether. How much of each ingredient will they need?

What about if there were 12 people for dinner?

Task 9

Two classes are participating in a healthy eating programme. To help them a local shop has donated several boxes of fruit. In the boxes are 100 mandarins, 72 apples, and 35 pears. The teachers have decided to share the fruit between the two classes – can you work out how many each class should get:

Class One gets $\frac{6}{10}$ of the mandarins

Class Two gets $\frac{3}{4}$ of the apples?

Class One gets $\frac{4}{5}$ of the pears?

Which class gets the most pieces of fruit? Decide if you think this was fair.

Task 9 (independent)

You have a bag of 396 marbles, and you share them equally with three friends.

What fraction do you each get?

How many marbles will you each get?

You have a bag of 99 marbles, and you share them equally with two friends.

What fraction do you each get?

How many marbles will you each get?

What is a half of 248?

What is a half of 2480?

What is a quarter of 88?

What is a quarter of 880?

What is a third of 165?

What is a third of 1650?

What is one fifth of 150?

What is two fifths of 150?

What is four fifths of 150?

Task 10

For Garden to Table, the classes are planting potatoes. They are trying to

work out which class will have the most potato plants.

Three fifths of a bag of 35 seedling potatos

Four sixths of a bag of 30 seedling potatoes

Three eighths of a bag of 64 seedling potatoes

Two quarters of a bag of 44 seedling potatoes

Task 10 (independent)

The classes are planting potatoes. They are trying to work out which class

will have the most potato plants.

Two thirds ($\frac{2}{3}$) of a bag of 39 seedling potatoes

Three quarters ($\frac{3}{4}$) of a bag of 32 seedling potatoes

Three eighths ($\frac{3}{8}$) of a bag of 48 seedling potatoes

Task 11

Sione has read $\frac{1}{4}$ of this book and is at page 26. How many pages are in the book?

Mele has spent $28 which was $\frac{2}{3}$ of her birthday money. How much birthday money did she have?

Tali has given $\frac{3}{12}$ of her stickers which is 18. How many stickers did Tali begin with?

Task 11 (independent)

Mika has read $\frac{1}{8}$ of this book and is at page 12. How many pages in the book?

Peni has spent $66 which was $\frac{4}{6}$ of his birthday money. How much birthday money did he have?

Loti has given away $\frac{7}{12}$ of her stickers which is 21. How many stickers did Loti begin with?

Task 12

Solve these equations:

1. $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}=$
2. $\_\_ = 1\frac{1}{10}+\frac{1}{2}$
3. $? = \frac{1}{3}+\frac{1}{3}+\frac{1}{3}+\frac{1}{3}+\frac{1}{3}+\frac{1}{3}+\frac{1}{3}$
4. $4\frac{2}{5}+\_\_ = 6$
5. $4\times\frac{1}{4}+3\times\frac{1}{4}=$
6. $\_\_ = 5-2\frac{5}{7}$
7. $8\times\frac{1}{2}=$
8. $\frac{1}{5}-\frac{1}{12}=\_\_$
9. $\frac{3}{4}+\frac{3}{4}=?+\frac{1}{2}$
10. $\frac{4}{5}-\_\_=\frac{1}{3}$

Be ready to explain and justify your explanations using representations and/or notation.