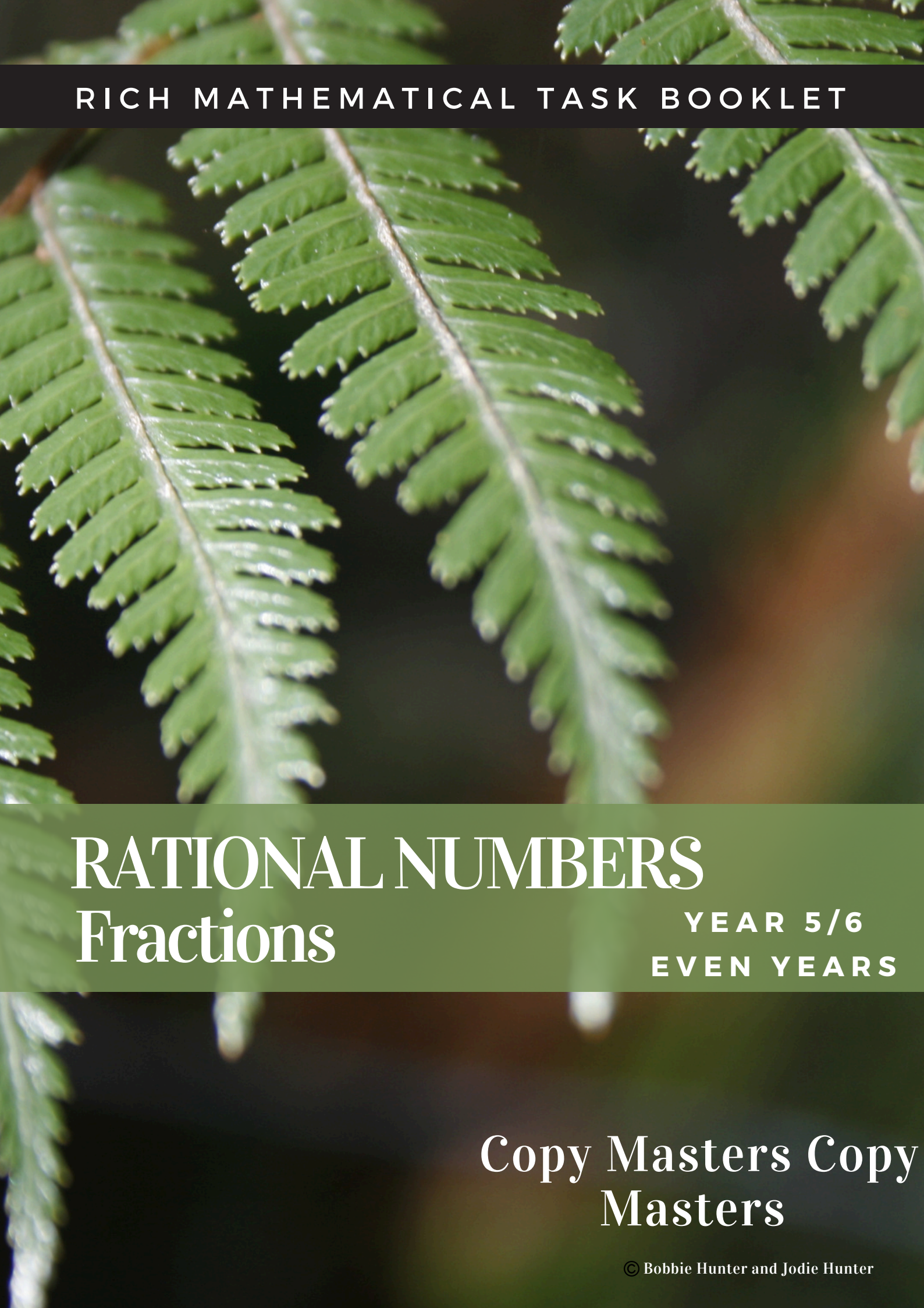

RICH MATHEMATICAL TASK BOOKLET

RATIONAL NUMBERS
Fractions

YEAR 5/6
EVEN YEARS

Copy Masters Copy Masters

Task 1

What are all the different ways you can use the fraction tiles to make more than one half but less than ten twelfths?

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 make a fraction number that is less than two quarters but more than one tenth?

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 make a fraction number that is more than one whole but less than one and 5 eighths?

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

What are all the different ways you can use the fraction tiles to make a fraction number that is the same as three quarters?

As you make these record them and be ready to explain and justify why they are equivalent.

What are all the different ways you can use the fraction tiles to make a fraction number that is the same as two thirds?

As you make these record them and be ready to explain and justify why they are equivalent.

Task 1 (independent)

1. $\frac{1}{5}$ of 25 =
2. $\frac{4}{5}$ of 25 =
3. $\frac{1}{2}$ of 200 =
4. $\frac{2}{5}$ of 100 =
5. $\frac{3}{5}$ of 100 =
6. $\frac{1}{4}$ of 360 =
7. $\frac{2}{9}$ of 63 =
8. $\frac{2}{9}$ of 630 =
9. $\frac{2}{4}$ of 1 000 =
10. $\frac{1}{3}$ of ___ = 12

Task 2

Anau and Lola are having a mathematical argument about whether there is numbers between whole numbers.

Anau says that she can write more than 20 numbers that come between 1 and 2. She decides to convince Lola by writing the numbers and using a representation and number-line to prove that they exist.

Represent numbers between 1 and 2 and then put them on the number-line.

Task 2 (independent)

Draw a number-line starting from 2 and finishing at 8. Put at least 15 different fractions on the number-line.

Draw a number-line starting from 4 and finishing at 6. Put at least 15 fractions on the number-line. Don’t use the same fractions as you used previously.

Draw a number-line starting from 11 and finishing at 12. Put at least 10 fractions on the number-line. Don’t use the same fractions as you used previously.

Task 3

Cooper has ordered fractions from smaller to biggest:

$$\frac{2}{3} \quad \frac{2}{4} \quad \frac{1}{6} \quad \frac{5}{8} \quad \frac{6}{10}$$

Do you agree or disagree with Cooper?

Use representations including a number line to show how you would order the fractions from smallest to largest.

Task 3 (independent)

Put these fractions on a numberline in order of size.

1: $\frac{4}{10}$ $\frac{3}{5}$ $\frac{6}{15}$

2: $\frac{7}{12}$ $\frac{3}{4}$ $\frac{5}{8}$

3: $\frac{5}{6}$ $\frac{4}{12}$ $\frac{6}{9}$

4: $\frac{11}{16}$ $\frac{7}{12}$ $\frac{3}{14}$

5: $\frac{11}{22}$ $\frac{10}{12}$ $\frac{9}{11}$

6: $\frac{7}{8}$ $\frac{2}{3}$ $\frac{3}{4}$

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

What rule or pattern did you use to help you order these fractions?

Write a set of fractions for a friend to order.

Task 4

Mama Mereana and her sisters have been working together sewing a tivaevae for a family wedding.

By last month they had completed two fifths of it.

Last week was busy so they only completed another sixth of it. This week they have completed another third.

How much have they completed and how much more do they have to sew to complete it?

Task 4 (independent)

Add these fractions:

1: $\frac{1}{10} + \frac{1}{6} + \frac{1}{3} =$

2: $\frac{1}{12} + \frac{1}{4} + \frac{1}{8} =$

3: $\frac{1}{5} + \frac{2}{10} + \frac{3}{15} =$

4: $\frac{3}{4} + \frac{1}{3} + \frac{4}{5} =$

5: $\frac{1}{4} + \frac{2}{5} + \frac{3}{6} =$

6: $\frac{1}{3} + \frac{9}{12} + \frac{6}{9} =$

What patterns do you notice?

Record the rule you could use to find the common denominator.

Task 5

How good are your estimating skills? Which is the answer closest to?

$\frac{1}{2} + \frac{7}{8} =$

Is it 10, 8, $\frac{1}{2}$, 1?

$\frac{4}{5} + \frac{10}{11} =$

Is it 16, $1\frac{1}{2}$, 2, $1\frac{3}{4}$?

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

Is it $\frac{1}{2}$, 1, $\frac{1}{4}$?

$7\frac{3}{4} - 4\frac{5}{6} =$

Is it 4, $3\frac{1}{2}$, 3?

Be ready to justify your reasoning using at least two different ways.

Task 5 (independent)

Estimate if the following answers are less or more than $\frac{1}{2}$.

$\frac{1}{6}+\frac{1}{8}$

$\frac{2}{9}+\frac{1}{3}$

$\frac{1}{4}+\frac{1}{12}$

$\frac{3}{8}+\frac{1}{10}$

Estimate if the following answers are less or more than 2.

$\frac{5}{6}+\frac{2}{3}+\frac{1}{4}$

$\frac{9}{10}+\frac{11}{12}+\frac{1}{5}$

$2\frac{1}{5}-\frac{1}{2}$

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

Task 6

A car travels $\frac{11}{12}$ of a kilometre in one minute. How many kilometres will the car have travelled after 9 minutes?

A landscaper uses $\frac{4}{9}$ of a litre of paint to paint 18 fence pailings. The landscaper needs to paint 90 pailings. How much paint do they need?

A school is preparing to donate some books overseas. Each bundle of books weighs $\frac{3}{4}$ of a kilogram. The school need to organise 15 bundles to post. What is the total weight of the books?

Task 6 (independent)

Zac is preparing bags of feijoa to sell at the local market. Each bag has $1\frac{1}{2}$ of a kilogram of feijoa. Zac needs to prepare 25 bags to sell, how many kilograms of apples does he need to fill the bags?

Frankie travels $\frac{1}{5}$ of a kilometre in one minute. How many kilometres will she have travelled after 23 minutes?

A recipe to make 15 pieces of rocky road needs $\frac{7}{8}$ of a cup of sugar. Sophie wants to make enough rocky road for her hub at school which has 75 students. How much sugar does Sophie need?

Task 7

Lauasi and Samas were making sapasui with their Dad. To make enough sapasui for their family of four they need:

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

$\frac{1}{5}$ of a bottle of peanut oil

$\frac{5}{6}$ of a cup of water

$\frac{2}{3}$ of a tablespoon of garlic

$\frac{3}{4}$ a bag of chicken pieces

$2\frac{1}{4}$ packets of vermicelli noodles.

They are having Sunday lunch with the rest of their fono. They want to make enough sapasui for 24 people.

Write a list of the ingredients they will need to cook enough sapasui to feed everyone.

Michael's father ate $\frac{1}{10}$ of a loaf of bread before Michael made lunch for his brothers and sisters.

Michael used $\frac{2}{3}$ of the loaf of bread that was left.

How much of the loaf did Michael use and how much was left?

Task 7 (independent)

Malia is making otai. For each bottle of otai she needs:

1 and $\frac{3}{4}$ cups of pineapple.

2 and $\frac{1}{2}$ cups of watermelon.

1 and $\frac{1}{4}$ of a cup of coconut milk.

Three quarters of a cup of coconut water.

$\frac{1}{2}$ of a cup of lemon juice.

Malia wants to make 8 bottles of otai. How much of each ingredient will she need?

Task 8

You and your brother are painting the shed. You decide to divide the garage into sections you will each paint.

Your Dad gives you 2 and $\frac{1}{4}$ cans of paint.

You find that on average you use $\frac{3}{8}$ of a can of paint to paint each section.

How many sections did you and your brother paint altogether?

Task 8 (independent)

You and your brother are painting the shed. You decide to divide the garage into sections you will each paint.

Your Dad gives you 5 and $\frac{1}{3}$ cans of paint.

You find that on average you use $\frac{3}{4}$ of a can of paint to paint each section.

How many sections did you and your brother paint altogether?

Record an explanation to tell someone else what is important about multiplying fractions.

You and your brother are painting the shed. You decide to divide the garage into sections you will each paint.

Your Dad gives you 9 and $\frac{7}{8}$ cans of paint.

You find that on average you use $\frac{3}{7}$ of a can of paint to paint each section.

How many sections did you and your brother paint altogether?

Record an explanation to tell someone else what is important about multiplying fractions.

Task 9

Michael's father at $\frac{1}{10}$ of a loaf bread before Michael made lunch for his brothers and sisters.

Michael used $\frac{2}{3}$ of the loaf of bread that was left.

How much of the load did Michael use and how much was left?

Task 9 (independent)

Draw models of the following equations:

$\frac{4}{6}$ x $\frac{1}{2}$ =

$\frac{4}{5}$ x $\frac{2}{7}$ =

$\frac{1}{3}$ x $\frac{3}{4}$ =

Solve the equation using your model.

$\frac{5}{8}$ x $\frac{3}{5}$ =

Task 10

Nia was making a kahoa kakala (flowers lei) for her granddaughter's graduation.

She collected heilala flowers and some mohokoi flowers.

She started $\frac{2}{7}$ of the kahoa kakala with only mohokoi flowers.

She then added 132 heilala flowers which made the kahoa $\frac{7}{8}$ full.

How many flowers did Nia use for the whole kahoa kakala?

Task 10 (independent)

Nia was making a kahoa kakala (flowers lei) for her granddaughter's graduation.

She collected heilala flowers and some mohokoi flowers.

She started $\frac{1}{3}$ of the kahoa kakala with only mohokoi flowers.

She then added 30 heilala flowers which made the kahoa $\frac{4}{6}$ full.

How many flowers did Nia use for the whole kahoa kakala?

Nia was making a kahoa kakala (flowers lei) for her granddaughter's graduation.

She collected heilala flowers and some mohokoi flowers.

She started $\frac{3}{10}$ of the kahoa kakala with only mohokoi flowers.

She then added 36 heilala flowers which made the kahoa $\frac{4}{5}$ full.

How many flowers did Nia use for the whole kahoa kakala?

Task 11

If 90 beads is $3\frac{3}{5}$ sets. How many beads are in 1 set?

If a cyclist travels $5\frac{2}{3}$ kilometres in $\frac{3}{4}$ of an hour. How fast is the cyclist travelling in kilometres per hour?

Task 11 (independent)

Kiriwai has been given a cake to decorate. She is given 60 lollies to decorate it. She decides to split the cake into three sections and decorate each section but with a different proportion of lollies on each section.

She puts $\frac{3}{10}$ of her lollies on the first section.

She puts $\frac{2}{5}$ of the lollies on the second section.

She puts $\frac{1}{10}$ of the lollies on the third section.

How many lollies does she put on each section?

Kiriwai has been given a cake to decorate. She is given 81 lollies to decorate it. She decides to split the cake into three sections and decorate each section but with a different proportion of lollies on each section.

She puts $\frac{2}{9}$ of her lollies on the first section.

She puts $\frac{1}{3}$ of the lollies on the second section.

She puts $\frac{4}{9}$ of the lollies on the third section.

How many lollies does she put on each section?

Task 12 (optional task)

Solve these equations:

1. $v = \frac{2}{3} + \frac{3}{7}$
2. $\frac{5}{15} + b = \frac{3}{4}$
3. $\frac{1}{3} = \frac{7}{15} - n$
4. $7\frac{1}{5} = 6\frac{1}{2} + b$
5. $8\frac{1}{2} = 9\frac{1}{3} - q$
6. $\frac{2}{3}$ x =3
7. $r = \frac{5}{8}$x 5
8. $3\frac{3}{5} + \frac{2}{5} = t$
9. $\frac{7}{20} = \frac{i}{15}$
10. $\frac{1}{3} = y$ x 4
11. 12 x $2\frac{3}{4} = 24 + p$
12. $13\frac{1}{2}$ x $\frac{4}{5}$ = 27 x s

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