RATIONAL NUMBERS
Fractions

YEAR 1

Teacher Booklet

Task 1

You are sharing one whole sandwich with your friend. Show what you would do so that you both have the same amount of sandwich to eat.

Teacher Notes

During the launch talk about how we all have to share something with other people and retell a story of your own about sharing something with one other person. Have students make links to times they have had to share one thing with someone else in their whanau and what they did. From there make links to how you might share part of a sandwich if someone else did not have one.

Engage in a hands-on, bus stop activity where the children explore what half looks like using different media.

Have playdough, ribbon or string, multilink blocks (to represent possible food items).

Facilitate the students to notice that when talking about fractions we always refer to the unit whole as one or one whole and halves (not two pieces or bits). Have them explain using materials what they did and ending with "of my one whole …"

Monitor for students using vocabulary like two bits or two pieces and informally revoice as two halves and that they are both the same and equal.

Record using the word half before introducing notation

For the independent task, you will need playdough and cutters.

Shareback

Select students to share who have split their whole into two equal parts.

Big Ideas

Numbers can be described in many different ways including as fractions.

The whole is important in naming fractions. A fraction is relative to the size of the whole or unit A comparison of a part to the whole can be represented using a fraction.

A fraction describes the division of a whole (region, set, segment) into equal parts.

Curriculum Links

During the first year

Identify and represent halves and quarters as fractions of sets and regions, using equal parts.

Connect

Use the playdough as one whole ball.

Cut into equal parts and ask the students to describe what you have done. Shape the playdough as a rectangular cuboid.

Draw a number line starting from 0 to 2 and mark one in the middle ... model putting one half on the number-line and illustrate that this number comes between 0 and one whole. Align this with cutting the rectangular cuboid.

Cut into equal parts in different ways and ask the students to describe what you have done.

Suggested Learning Outcomes

Share a whole into equal parts.

Put two equal parts (units) together to make one whole.

Count or add fractional parts to make one whole.

Independent Tasks

Choose a container and fill it with water. Pour out half of the water. How much water is left?

Do the same with a different sized container. What do you notice?

Draw a picture to record your actions. Show where half is on each container.

Anticipations

Solutions, Misconceptions

Task 2

You and your sister want to make a special card for someone in your family, but you only have one piece of coloured card. Your parent says you have to share the card equally.

What are all the different ways you and your sister could halve your card so that you both get the same amount?

Explain how you know each pair of halves are equal.

Teacher Notes

During the launch, reinforce the need for the students to be able to explain and justify how the two halves of the one whole piece of card are equal.

Have A4 pieces of paper to represent card, pens, other different size pieces of paper including postage stamp size and larger than A4 paper.

Facilitate the students to notice that two halves of one whole have to be equal.

Monitor for students using two bits of pieces and revoice as two halves of one whole.

Notice students who use many different representations to explain all the different ways a whole can be shown as two halves equally

Expect students to represent different ways of showing two halves using drawings.

For the independent task, you will need 2D shapes or pattern blocks

Shareback

Select students to share who have shown different ways of showing halves and can explain and show how each pair of halves is equal.

Big Ideas

Numbers can be described in many different ways including as fractions.

The whole is important in naming fractions. A fraction is relative to the size of the whole or unit

A comparison of a part to the whole can be represented using a fraction.

A fraction describes the division of a whole (region, set, segment) into equal parts.

The bottom number in a fraction tells how many equal parts the whole or unit is divided into. The top number tells how many equal parts are indicated.
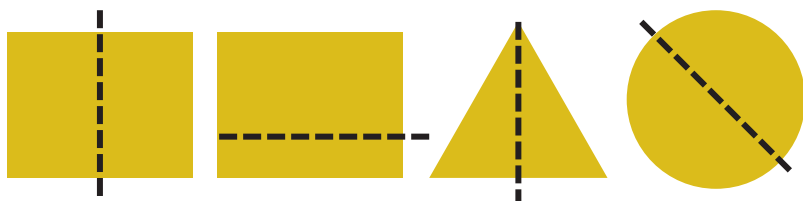
Curriculum Links

During the first year

Identify and represent halves and quarters as fractions of sets and regions, using equal parts.

Connect

Show each representation and ask the students to explain whether it shows halves or not.

Discuss and explore what is a half.

Suggested Learning Outcomes

Share a whole into equal parts.

Put equal parts (units) together to make one whole.

Count or add fractional parts to make one whole.

Independent Tasks

Look at the shape blocks.

Find the other half to make the whole.

Draw around the shape to show one half, now draw around the one whole.

Anticipations

Solutions, Misconceptions

Task 3

To cut out two joined paper dolls you must fold your strip paper of paper into two equal parts.

Can you explain how many folds you need to make? Did you make sure that the ends matched? Be ready to explain why?

What about if you wanted to make three joined paper dolls. Can you fold your paper strip into four equal parts? Be ready to explain how many folds you needed to make and how you made sure that each part was equal?

Teacher Notes

During the launch revisit the need for students ensuring equal size parts through talking with them about sharing a chocolate bar or Tim Tam biscuit fairly. Make links to the ways they used a numberline to show their measurement of length and when representing numbers on a numberline.

Have examples of joined paper dolls cut out to show the students. Have strips of paper by cutting 2 cm wide pieces lengthwise from A4 sheets, other concrete material to use to measure pieces (but not rulers), larger paper for students to draw representations on, pens.

Facilitate the students to notice the way in which different students have used measures to ensure equal parts including using concrete materials and their fingers.

Ensure in the activity that students recognise that folding a strip of paper into equal parts is using partitioning as they did in number. Here, instead of dividing a group of objects into equal groups as they did in number activities using folding, they are illustrating dividing a length into equal parts. Link to the use of the number line as divided into equal parts (usually as whole parts but this lays foundations for them to see fractions between whole numbers). Record a number line to support them to make the connection.

Monitor for students using vocabulary which emphasises fair and equal and halves and quarters/fourths and sharing or dividing into equal parts.

Notice students who use different ways to ensure equal parts including using concrete materials and their fingers and use the language of fractions. Expect students to represent using the folds and strips of paper but re-represent as drawings and equal sections or parts.

For the independent task, you will need containers that are the same size and shape and water.

Big Ideas

Numbers can be described in many different ways including as fractions.

The whole is important in naming fractions. A fraction is relative to the size of the whole or unit

A comparison of a part to the whole can be represented using a fraction.

A fraction describes the division of a whole (region, set, segment) into equal parts.

The bottom number in a fraction tells how many equal parts the whole or unit is divided into. The top number tells how many equal parts are indicated.

Curriculum Links

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Shareback

Select students to share who have shown different ways of showing two equal parts and then four equal parts and can explain and show how each section in the fold is equal to the others.

Teachers notate for students in both words and numbers what they show with their representations. Emphasise the whole and that the bottom number represents how many parts the whole has been divided into and the top number represents how many parts of the whole they have.

Connect

On a sheet of paper have the students draw two long thin rectangles to represent their paper strips.

Have them re-represent on their rectangle the two equal sections on the first strip and the equal four sections on the second strip.

Have them explain and justify how they know that the other parts are all the same length.

Ask them to re-represent the fractions as a number line.

Suggested Learning Outcomes

Share a whole into equal parts.

Put equal parts (units) together to make one whole.

Count or add fractional parts to make one whole.

Independent Tasks

Roll playdough into two shapes that are the same size.

Cut the first shape in half. How many pieces of playdough do you have now?

Draw both playdough shapes recording what you notice.

Roll playdough into two shapes that are the same size.

Cut the first shape into quarters. How many pieces of playdough do you have now?

Draw both playdough shapes recording what you notice.

Mathematical Language

Whole, half, halves, thirds, fraction, share, fair, divide, same as, equal, more than, less than.

Anticipations

Solutions, Misconceptions

Task 4

With your buddy use the fraction tiles to find as many different ways as you can, to make one whole tile.

Record what you show using words or numbers.

Use the fraction tiles to find as many different ways as you can to make less than one whole.

Record what you show using words or numbers.

Use the fraction tiles to find as many different ways as you can to make more than one whole.

Record what you show using words or numbers.

Teacher Notes

Before the launch, ask the students to participate in a choral count counting from $\frac{1}{2}$ in one half,

$\frac{1}{2}$ 1 $1\frac{1}{2}$ 2

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

Ask them to identify patterns and discuss what they notice.

Provide students with fraction tiles for one whole, halves, and quarters.

Teachers notate for students in both words and numbers what they show with their representations. Emphasise the whole and that the bottom number represents how many parts the whole has been divided into and the top number represents how many parts of the whole they have.

Facilitate the students to notice the connection between the concrete representation and their recording in words and numbers.

Notice students who notice equivalence in the fractional parts. Record these as number sentences using the equal sign.

For the independent task, have available fraction tiles for whole, halves, and quarters. Have the words: halves, half, quarters, fourths, whole and their equivalent in numbers available as cards for students to use as they record their combinations to make one whole.

Big Ideas

Numbers can be described in many different ways including as fractions.

The whole is important in naming fractions. A fraction is relative to the size of the whole or unit

A comparison of a part to the whole can be represented using a fraction.

A fraction describes the division of a whole (region, set, segment) into equal parts.

The bottom number in a fraction tells how many equal parts the whole or unit is divided into. The top number tells how many equal parts are indicated.

Curriculum Links

During the first year
Identify and represent halves and quarters as fractions of sets and regions, using equal parts.

Shareback

Select students to share who are able to represent and explain using the fraction tiles the different combinations which make one whole. Begin with those students who made combinations of the whole using the same size pieces (halves, quarters) and recorded the combinations as numbers or words.

Connect

Select students who were able to represent and explain using the fraction tiles and different combinations which make one whole. (e.g., one half and two quarters).

Explore and discuss why these make one whole.

Suggested Learning Outcomes

Share a whole into different parts.

Combine and recombine different units of fractions to make one whole.

Identify and recognise equivalent fractions.

Independent Tasks

Use the fraction tiles to make different combinations of one whole.

Draw your representations as bars and record in words and fractions how you made one whole.

Anticipations

Solutions, Misconceptions

Task 5

Jayden and Martha's nana has baked a banana bread loaf. She tells them they can have three slices of the banana bread to share but they are to make sure that they both have the same amount. How many slices of banana bread does each one get to eat?

Teacher Notes

During the launch, discuss the context of the problem, make links to banana bread and its equivalent form other students know (e.g., date loaf) and times when students have had to share food in a fair way. Shift focus to what the problem is asking them to do. Emphasise the need for fair sharing as each getting an equal portion.

Have drawing paper and pens available. Have as accessible fraction strips and fraction tiles but do not direct students to use them unless they need to use them to justify their reasoning. Teacher might model with them when students are explaining their reasoning.

Facilitate the students to notice that fair sharing of a whole into halves means equal size pieces.

Monitor for students using vocabulary of fractions (e.g., one whole piece and one-half piece).

Expect students to represent using drawings and as needed re-represent using materials.

For the independent task have fraction tiles for the whole, quarters,, halves and paper and pen.

Shareback

Select students to share who can explain equal sharing of the three slices of the banana bread using either materials or drawings to justify their reasoning.

Connect

What about if Jayden and Martha had to share one slice of banana bread?

What about if Jayden and Martha had to share five slices of banana bread?

What pattern can you notice?

Suggested Learning Outcomes

Share whole parts equally.

Solve problems that involve dividing a whole number into a fraction.

Independent Tasks

Use the fraction tiles to make as many different combinations as you can of:

Less than one whole.

Less than one half.

The same as one half.

More than one half but less than a whole.

Draw your representations as bars and record in words, numbers (fractions) and equations.

Anticipations

Solutions, Misconceptions

Task 6

Kahoa has helped her Mum make some panikeke for their family. Mum ate one and then she said that Kahoa could share five with her three sisters, but they all had to have the same amount.

How much panikeke would they each get to eat?

What if Kahoa had to share one panikeke with her brother? How much panikeke would they each get to eat?

Teacher Notes

During the launch, discuss the context of the problem, make links to coconut buns and their equivalent form other students know (e.g.,panopopo, scones, muffins) and times when students have had to share food in a fair way. Shift focus to what the problem is asking them to do. Emphasise the need for fair sharing as each getting an equal portion

Have concrete material available if needed for students to select (e.g., fraction tiles, playdough).

Facilitate the students to notice that fair sharing of a whole into quarters means four equal size pieces of the one whole.

Monitor for students using vocabulary of fractions (e.g., one whole panikeke and quarters of one whole panikeke).

Expect students to represent using drawings and as needed re-represent using materials. Notate for the students the solutions as addition using either numbers or words to make the whole, parts of the whole and the total panikeke.

Notice students who draw on multiplicative thinking (i.e., means they immediately see $1 \div 4 = \frac{1}{4}$ so each person gets either $1\frac{1}{4}$ or five quarters).

For the independent task have fraction tiles for the whole, quarters, thirds, halves and add in eighths and paper and pen.

Shareback

Select students to share who can explain equal sharing of the five panikeke using drawings to justify their reasoning.

Connect

What if Kahoa had to share one panikeke with one sister?
Two panikeke with three cousins?
Two panikeke with seven cousins?

What pattern can you notice?

Suggested Learning Outcomes

Share whole parts equally.

Solve problems that involve dividing a whole number into a fraction.

Independent Tasks

Dad has made some coconut bread. How much would you get if you had to share:

One slice of coconut bread with two people.
Two slices of coconut bread with two people.
One slice of coconut bread with four people.
Two slices of coconut bread with four people.
Two slices of coconut bread with eight people.
Four slices of coconut bread with eight people.

Draw and write how you solved the problems.

Anticipations

Solutions, Misconceptions

Task 7

Ayla and Zack were playing a game using their toy cars. First, they drew a start line on the ground and a finish line. Then they took turns pushing their car to see who could make their car reach the finish line.

On the first turn Ayla's car reached halfway and Zack's car reached a quarter of the way.
Whose car was closest to the finish line? Prove your explanation by drawing a picture of the line and marking on it where both cars are.

On the second turn Ayla's car reached one fourth of the line and Zack's car reached three quarters of the way.
Whose car was closest to the finish line? Prove your explanation by drawing a picture of the line and marking on it where both cars are.

On the third turn Ayla's car reached four fourth of the line and Zack's car reached two halves of the way.
Whose car was closest to the finish line? Prove your explanation by drawing a picture of the line and marking on it where both cars are.

Teacher Notes

During the launch, discuss the context of the problem, and draw other possible contexts (marbles, balls) but emphasise that there always needs to be a start and finish line for fairness. Shift focus to what the problem is asking them to do. Emphasise the need for fair sharing of the line according to the fraction the line is divided into.

Have copies of blank lines available if needed. Have drawing paper and pens available. Have as accessible fraction strips and fraction tiles but do not direct students to use them unless they need to use them to justify their reasoning.

Facilitate the students to notice that a line can be divided into many different parts according to the fractions being referred to and that the line can extend past one whole.

Notice students who draw on multiplicative thinking (i.e., means they immediately see $1 \div 4 = \frac{1}{4}$ so each person gets either $1\frac{1}{4}$ or five quarters).

For the independent task have copies of the attached worksheet available

Big Ideas

Numbers can be described in many different ways including as fractions.

The whole is important in naming fractions. A fraction is relative to the size of the whole or unit

A comparison of a part to the whole can be represented using a fraction.

A fraction describes the division of a whole (region, set, segment) into equal parts.

The bottom number in a fraction tells how many equal parts the whole or unit is divided into. The top number tells how many equal parts are indicated.

A fraction describes division ($\frac{a}{b} = a \div b$, a & b are integers & b 0), and it can be interpreted on the number line in two ways. For example, $\frac{2}{3} = 2 \div 3$.

On the number line, $2 \div 3$ can be interpreted as 2 segments where each is $\frac{1}{3}$ of a unit ($2 \times \frac{1}{3}$) or $\frac{1}{3}$ of 2 whole units ($\frac{1}{3} \times 2$); each is associated with the same point on the number line.

Each fraction can be associated with a unique point on a numberline.

There is no least or greatest fraction on the number line.

Shareback

Select students to share who can explain equal sharing of the line into appropriate fractions using drawings to justify their reasoning.

Connect

What about if Ayla's car reached 3 halves of the line.
How could you draw a line to show that?

What about if Ayla's car reached 5 fourths of the line.
How could you draw a line to show that?

What other ways could you divide your line so that it shows equal parts?

For each scenario, record as a number line including the fraction and whole numbers.

Suggested Learning Outcomes

Show fractions on a number-line.

Independent Tasks

Whose car got the closest to the finish line? What fraction of the line did their car reach?
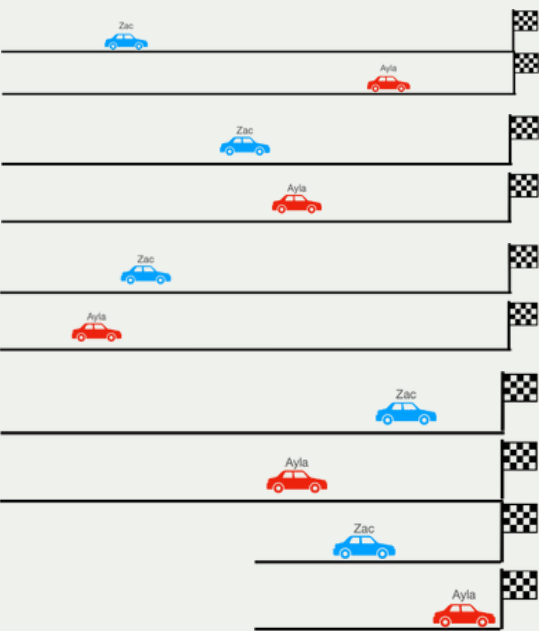
Anticipations

Solutions, Misconceptions

Task 8

Who has more? Who has less?

Alefosio has a quarter of a plate of ota'ika and Kailoa has a half of a plate of ota'ika. Who has more? Who has less?
Be ready to explain and justify your explanation using a drawing.

Alefosio has three half plates of ota'ika and Kailoa has a four quarters of a plate of ota'ika. Who has more? Who has less?
Be ready to explain and justify your explanation using a drawing.

Alefosio has six quarters of a plate of ota'ika and Kailoa has five halves of a plate of ota'ika. Who has more? Who has less?
Be ready to explain and justify your explanation using a drawing.

Teacher Notes

During the warmup, revisit representing different fractions (Halves, quarters) using fraction strips, blank lines and drawings.

During the launch discuss what ota'ika is. Have students describe food that they eat (raw fish) which is similar but is given an alternative name.

Have copies of blank lines available if needed. Have drawing paper and pens available. Have as accessible fraction strips and fraction tiles but do not direct students to use them unless they want to use them to justify their reasoning.

Facilitate the students to notice that when making comparisons we use models or representation of the same size.

Shareback

Select students to share who are to make comparisons of the different fraction sizes using representations to justify their reasoning. These could include drawings of plates or lengths or fraction strips.

Big Ideas

Numbers can be described in many different ways including as fractions.

The whole is important in naming fractions. A fraction is relative to the size of the whole or unit

A comparison of a part to the whole can be represented using a fraction.

A fraction describes the division of a whole (region, set, segment) into equal parts.

The bottom number in a fraction tells how many equal parts the whole or unit is divided into. The top number tells how many equal parts are indicated.

A fraction describes division ($\frac{a}{b}$ = a ÷ b, a & b are integers & b 0), and it can be interpreted on the number line in two ways. For example, $\frac{2}{3}$ = 2 ÷ 3.

On the number line, 2 ÷ 3 can be interpreted as 2 segments where each is $\frac{1}{3}$ of a unit (2 x $\frac{1}{3}$) or $\frac{1}{3}$ of 2 whole units ($\frac{1}{3}$ x 2); each is associated with the same point on the number line.

Each fraction can be associated with a unique point on a numberline.

There is no least or greatest fraction on the number line.

Connect

Bigger, smaller or the same?

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

$\frac{4}{4}$ or $\frac{5}{4}$ $\qquad\qquad$ $\frac{6}{4}$ or $\frac{1}{2}$

Suggested Learning Outcomes

Identify and compare different unit fractions.

Recognise equivalent fractions.

Independent Tasks

Look at the fractions below and draw a representation for each one.
Now use the symbols > (greater than), < (less than), = (equal) to make the number sentences true.

$\frac{1}{2}$ ☐ $\frac{2}{2}$ $\qquad\qquad$ $\frac{4}{4}$ ☐ $\frac{3}{4}$

$\frac{5}{4}$ ☐ $\frac{2}{2}$ $\qquad\qquad$ $\frac{3}{4}$ ☐ $\frac{1}{2}$

$\frac{2}{2}$ ☐ $\frac{2}{4}$ $\qquad\qquad$ $\frac{1}{2}$ ☐ $\frac{1}{4}$

Anticipations

Solutions, Misconceptions

Task 9

Mr Grinling is sharing a bag of marshmallows with Mrs Grinling.
The bag has 10 marshmallows.
They each get half the bag so how many marshmallows do they get?

Mr Grinling is sharing a bag of jelly-beans with Mrs Grinling.
The bag has 14 jelly-beans.
They each get half the bag so how many jelly-beans do they get?

Mr Grinling is sharing a bag of jet-planes with Mrs Grinling.
The bag has 18 jet-planes.
They each get half the bag so how many jet-planes do they get?

Teacher Notes

For the conceptual starter, ask the students to solve the following equations:
1 + 1 =
2 + 2 =
3 + 3 =
4 + 4 =
5 + 5 =
6 + 6 =
7 + 7 =
8 + 8 =
9 + 9 =
10 + 10 =

During the launch, ensure that you reinforce that each bag of candy is one whole as part of developing the context of the task.

Have counters or beans available for the students to use to represent the task context or facilitate the students to draw these.

Facilitate the students to notice that they are finding the fraction of a whole even when there are a number of items in the set. Draw attention to the denominator as naming what the whole is being divided into (e.g., two groups).

Shareback

Select students to share who either share the groups equally by using chunks or a structured method. If no students use chunking then model this as a way that previous students have used.

Connect

Model how to record solving the fraction tasks as an equation:

$\frac{1}{2}$ of 10 = 5   10 ÷ 2 = 5

Ask students to record the equations for the next two tasks.

Ask students to discuss what they notice and support students to connect finding $\frac{1}{2}$ to dividing by two.

Suggested Learning Outcomes

Find fractions of a set.

Find half of a set using equal sharing.

Find half of a set using grouping.

Independent Tasks

Mr Grinling has some bags of marbles.

There are 8 marbles in a bag. One half of the marbles are blue. How many marbles are blue?

There are 12 marbles in a bag. One half of the marbles are red. How many marbles are red?

There are 4 marbles in a bag. One half of the marbles are green. How many marbles are green?

There are 16 marbles in a bag. One half of the marbles are yellow. How many marbles are yellow?

Anticipations

Solutions, Misconceptions

Task 10

The Grinlings are celebrating Mrs Grinling's birthday.
Mr Grinling bakes a cake and has 16 M&Ms to decorate the cake.
Mr Grinling cut the cake in two and shared the M&Ms equally.
What fraction of the M&Ms would there be on each side?
How many M&Ms would be on each side?

Mr Grinling bakes a cake and has 16 M&Ms to decorate the cake.
Mr Grinling cut the cake in four and shared the M&Ms equally.
What fraction of the M&Ms would there be on each side?
How many M&Ms would be on each side?

Mr Grinling bakes a cake and has 20 M&Ms to decorate the cake.
Mr Grinling cut the cake in four and shared the M&Ms equally.
What fraction of the M&Ms would there be on each side?
How many M&Ms would be on each side?

Teacher Notes

During the launch, ensure that you reinforce that each set of M&Ms are one whole as part of developing the context of the task.
Have counters or beans available for the students to use to represent the task context or facilitate the students to draw these.
Facilitate the students to notice that they are finding the fraction of a whole even when there are a number of items in the set. Draw attention to the number of pieces as the denominator that names what the whole is being divided into (e.g., two groups or four groups).

Shareback

Select students to share who either share the groups equally by using chunks or a structured method. If no students use chunking then model this as a way that previous students have used.

Connect

Ask the students to tell you what to record for the equations for the two tasks.

$\frac{1}{2}$ of 16 = 8   16 ÷ 2 = 8

$\frac{1}{4}$ of 16 = 4   16 ÷ 4 = 4

Ask students to discuss what they notice and support students to connect the denominator to division.

Suggested Learning Outcomes

Find half of a set using equal sharing.

Find half of a set using grouping.

Find one quarter of a set using equal sharing.

Find one quarter of a set using grouping.

Independent Tasks

The Grinlings are celebrating Mrs Grinling's birthday.
Mr Grinling bakes a cake and has 14 M&Ms to decorate the cake.
Mr Grinling cut the cake in two and shared the M&Ms equally.
What fraction of the M&Ms would there be on each side?
How many M&Ms would be on each side?

Mr Grinling bakes a cake and has 12 M&Ms to decorate the cake.
Mr Grinling cut the cake in four and shared the M&Ms equally.
What fraction of the M&Ms would there be on each side?

Anticipations

Solutions, Misconceptions

Task 11

Look at the pairs of fractions and identify which is the biggest number and which is the smallest number. Make sure you justify your thinking in at least two different ways (e.g., drawing, fraction pieces, or a number-line)

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

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

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

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

Teacher Notes

Facilitate the students to notice the relationship between the numerator and denominator.

Notice students who use the language of justification and draw on equal lengths as representations of the whole as justification

Expect students to represent using concrete means including both drawings and a number-line.

Shareback

Select students to share who have used two different representations to justify their reasoning.

Connect

Put these fractions in order from smallest to biggest

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

Big Ideas

Numbers can be described in many different ways including as fractions.

The whole is important in naming fractions. A fraction is relative to the size of the whole or unit

A comparison of a part to the whole can be represented using a fraction.

A fraction describes the division of a whole (region, set, segment) into equal parts.

The bottom number in a fraction tells how many equal parts the whole or unit is divided into. The top number tells how many equal parts are indicated.

Each fraction can be associated with a unique point on a number line.

Curriculum Links

During the first year
Identify and represent halves and quarters as fractions of sets and regions, using equal parts.

Suggested Learning Outcomes

Recognise unit fractions.

Compare unit fractions.

Identify equivalent fractions.

Mathematical Language

Whole, half, halves, thirds, fourths, quarters, eighths, fraction, same as, equal, more than, less than, numerator, denominator.

Independent Tasks

Sepi ate one quarter of a liquorice strap; Mara ate two halves of a liquorice strap. Who ate the most? Why?

Josie ate one half of a liquorice strap; Lee ate three quarters of a liquorice strap.
Who ate the most? Why?

Moana ate one half of a liquorice strap; Eli ate two quarters of a liquorice strap. Who ate the most? Why?

Now write your own fraction problems and ask a classmate to solve them.

Anticipations

Solutions, Misconceptions

Task 12

Use the fraction tiles to find as many different ways as you can to make the same number as three halves.
Record what you show using words or numbers. Be ready to explain and justify how they make more than a whole.

Use the fraction tiles to find as many different ways as you can to make the same number as six quarters.
Record what you show using words or numbers. Be ready to explain and justify how they make more than one whole.

Teacher Notes

During the launch, revisit all the combinations they can make for one whole and more than one whole. Have them represent these using lines.

Provide fraction tiles for one whole, halves, quarters, and thirds.

Teachers notate for students and/or support students to record in both words and numbers what they show with their representations. Re-emphasise the whole and that the bottom number represents how many parts the whole has been divided into and the top number represents how many parts of the whole they have.

Facilitate the students to connect to the concept of fractional numbers as less than one whole and more than one whole and record as using greater than, less than symbols and as addition equations with the equals sign.

For the independent task, you will need playdough and cutters or the Assessment Task below. Encourage students to draw, write or describe everything they know about halves and quarters. Transcribe where necessary.

Shareback

Select students to share who represented and explained using fraction tiles and other representations.

Connect

Select students who were able to represent and explain using unlike fractions and different combinations to make the same number. Record the solutions as addition for the students. Ask the students whether they notice any patterns or relationships (focus on equivalence).

Suggested Learning Outcomes

Share a whole into different parts.

Count or add fractional units.

Identify and recognise equivalent fractions.

Independent Tasks

Assessment Task

Mathematical Language

Whole, one, two, three, four, five, half, halves, fourths, quarters, fraction, share, fair, equal, more than, less than, same, because, compare.

Anticipations

Solutions, Misconceptions

Assessment Task 1 - Fractions - Year 1

Write and draw everything you know about halves and quarters.

Are there any other fractions you know that you can write and draw about?