

DEVELOPING MATHEMATICAL INQUIRY COMMUNITIES

Number: Fractions

Level 1 (NE / Year 0)

Teacher Booklet

Level 1/New Entrant teacher booklet: Number: Fractions

Task 1	Imagine you are like Mr Grinling and only have one whole thing left in your basket for you and Hamish to eat for lunch. Show what you would do so Hamish does not meow at you for eating more than him?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use.
Learning Outcomes: Students will be able to:	• 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.
Mathematical language	Whole, one, two, half, halves, fraction, share, fair, equal.
Sharing back/Connect	Select students to share who have split their whole into two 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. Cut into equal parts and ask the students to describe what you have done.
Teacher Notes	• Before the launch read <i>The Lighthouse Keeper's Lunch</i> by David Armitage • 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 <u>one</u> thing with someone else in their whanau and what they did. Then make links to how Mr Grinling might have to share something from his lunch box with Hamish the cat fairly. 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).

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	• 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 reinforce 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. Make playdough balls of different sizes and shapes for the students to explore equal sharing
Independent Tasks	How could you share this fairly with your friends? Draw a picture of how you shared one playdough shape between two (or more) friends.
Anticipations	

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Task 2	Mrs Grinling shares one bottle of juice with Mr Grinling. They have the same amount each. How much does Mr Grinling drink? How much does Mrs Grinling drink?
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Curriculum links	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use.
Learning Outcomes: Students will be able to:	• 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.
Mathematical language	Whole, one, two, half, halves, fraction, share, fair, equal.
Sharing back/Connect	Select students to share who have split their whole into two equal parts. Connect: Use a collection of bottles and cups and ask the students to show where the halfway mark is. Have the students describe what you have done as two halves and reinforce that the two halves make one whole.
Teacher Notes	• During the launch, revisit the concept of sharing something with someone else in a fair way. Link across to sharing a glass of juice with someone else. Launch the problem and then have the students engage in a hands-on, bus stop activity where they explore what half looks like using different media including liquids. • Have bottles, cups, glasses of water, playdough, ribbon or string, multilink blocks (to represent possible food and drink 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 ...”

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	• Monitor for students using vocabulary like two bits or two pieces and informally revoice as two halves and reinforce that they are both the same and equal. • Record using the word half before introducing notation • For the independent task, you will need different sized and shaped containers, and water for the students to work with.
Independent Tasks	Choose one container and fill it up 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	

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Task 3	Mr Grinling had two whole sandwiches. The seagulls stole one sandwich out of his lunch basket. Mr Grinling shares what is left equally with Hamish the cat. How much do they each get? Mrs Grinling put one sandwich in the basket for Mr Grinling's lunch. A naughty seagull steals half of the sandwich. How much does Mr Grinling have left for his lunch?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use.
Learning Outcomes: Students will be able to:	• 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.
Mathematical language	Whole, one, two, half, halves, fraction, share, fair, equal.
Sharing back/Connect	Select students to share who draw different representations to justify their explanations. Connect: Brittany said that if Mr Grinling had a whole sandwich and cut it in half, he would have two sandwiches. Do you agree?
Teacher Notes	• Facilitate the students to notice the unit whole as one whole and halves as two equal parts that are exactly the same size. • Monitor for students using notions of fair sharing as the two pieces being the same no matter how they are split. • Notice students who use the words half and whole. • Record using the word half before introducing notation. Teacher could record notation but reinforce the way in which the bottom number relates to the pieces the whole is cut into.
Independent Tasks	Draw a shape. If the shape is cut into two halves, what might it look like?

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	Draw another shape, if the shape is cut into two halves, what might it look like?
Anticipations	

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Task 4	Mrs Grinling has three filled bread rolls. She sends half of these over in the basket to Mr Grinling to have for his lunch and she eats the rest. How much of the three filled bread rolls does she eat and how much does Mr Grinling eat?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use.
Learning Outcomes: Students will be able to:	• 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.
Mathematical language	Whole, one, two, three, four, five, half, halves, fraction, share, fair, equal.
Sharing back/Connect	Select students to share who model the solution as three halves and three halves or as one whole and one half and one whole and one half. If either of the solutions are not generated by students then model this as a possible alternate way. Connect: What if Mrs Grinling had only one filled bread roll to share? What if she had two? What if she had four? What if she had five?
Teacher Notes	• During the launch, emphasise that filled bread rolls are long so to have halves, they are finding half of a length. • Have playdough available and expect students to represent using drawings. • Monitor for students using notions of fair sharing as the two pieces being the same no matter how they are split. • Record using the word half before introducing notation. Teacher could record notation but reinforce the way in

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	which the bottom number relates to the pieces the whole is cut into. • For the independent task, you will need sheets of paper that are different sizes.
Independent Tasks	Fold different sized pieces of paper “in half”. What do you notice? Put together cut up halves of paper so they make one whole. What do you notice?
Anticipations	

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Task 5	Mrs Grinling puts five sausages in the basket for Mr Grinling and Hamish to have for lunch. They share them equally. How much do they each get to eat? Mrs Grinling puts seven sausages in the basket for Mr Grinling and Hamish to have for lunch. They share them equally. How much do they each get to eat?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use. NA2-6: Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols.
Learning Outcomes: Students will be able to:	• Share a whole into equal parts. • Put equal parts (units) together to make one whole. • Count how many fractional parts make one whole.
Mathematical language	Whole, half, halves, fraction, share, fair, equal.
Sharing back/Connect	Select students to share who model the solution by dividing all the wholes into halves or who model the solution using whole numbers and halves. If either of the solutions are not generated by students then model this as a possible alternate way. Model writing the solutions as numbers including fractions. Connect: One whole = ? halves Two wholes = ? halves Three wholes = ? halves Four wholes = ? halves Five wholes = ? halves What do you notice?

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Teacher Notes	• Have playdough available and expect students to represent using drawings. • Record using the word half before introducing notation. • For the independent task, you will need playdough and cutters.
Independent Tasks	Roll six playdough sausages. Cut each sausage in half. What do you notice? Count the halves. How many halves are there? Draw a picture of your sausages and show where half is on each sausage. Now choose your own number of sausages to make. Cut them all in half and record what you notice.
Anticipations	

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Task 6	Mrs Grinling has one bottle of juice left in her refrigerator. Every day she sends half a bottle of juice across to Mr Grinling to drink at lunch time. How many days can she send juice over to Mr Grinling? Mrs Grinling has two bottles of juice left in her refrigerator. Every day she sends half a bottle of juice across to Mr Grinling to drink at lunch time. How many days can she send juice over to Mr Grinling? Mrs Grinling has three bottles of juice left in her refrigerator. Every day she sends half a bottle of juice across to Mr Grinling to drink at lunch time. How many days can she send juice over to Mr Grinling?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use. NA2-6: Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols.
Learning Outcomes: Students will be able to:	• Share a whole into equal parts. • Put equal parts (units) together to make one whole. • Count or add fractional parts to make one whole.
Mathematical language	Whole, half, halves, fraction, share, fair, equal.
Sharing back/Connect	Select students to share who model the solution by dividing all the wholes into halves. Connect: Continue the pattern: Five wholes = ? halves Six wholes = ? halves Seven wholes = ? halves

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	What is a rule to find the number of halves?
Teacher Notes	• During the launch, show the students that bottles of juice can be represented (by turning one on its side) as a long representation so to have halves they are finding half of a length. • Have bottles and water available and expect students to represent using drawings and notation. Teacher could record notation but reinforce the way in which the bottom number relates to the number of pieces that the whole is cut into.
Independent Tasks	Mum brings six muffins home from work and says four people can share the muffins. How much does each person get? Draw a picture to record your thinking.
Anticipations	

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Task 7	Mr Grinling eats 5 half sandwiches. The seagulls eat three whole sandwiches. Who do you think ate more? Why?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use. NA2-6: Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols.
Learning Outcomes: Students will be able to:	• Put equal parts (units) together to make one whole. • Count or add fractional parts to make one whole. • Compare half to whole.
Mathematical language	Whole, half, halves, fraction, share, fair, equal, more than, less than.
Sharing back/Connect	Select students to share who prove their solution using a representation (drawing) and use this to compare the difference between five halves and three wholes. Connect: If Mr Grinling ate one whole sandwich and Mrs Grinling ate one half sandwich who ate more? Why? If Mr Grinling ate one whole sandwich and Mrs Grinling ate two half sandwiches who ate more? Why? If Mr Grinling ate one whole sandwich and Mrs Grinling ate three half sandwiches who ate more? Why?
Teacher Notes	• Facilitate the students to notice the difference between three whole sandwiches as six halves compared to five halves. • Notice students who see the problem as a comparison and model their response as such with explanations that use because.

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	• Expect students to represent and explain using drawings and notation. • For the independent task, you will need different sized boxes, cubes, blocks.
Independent Tasks	Fill two different sized boxes with cubes or blocks until they are half full. Record how many cubes or blocks you used. What do you notice? Record your measurement by drawing the two different sized boxes and marking where half full is.
Anticipations	

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Task 8	Mrs Grinling makes some meat pies. Mrs Grinling eats one whole pie. Hamish eats three half pies. Mr Grinling eats two half pies. Who ate the most? Who ate the least?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use. NA2-6: Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols.
Learning Outcomes: Students will be able to:	• Put equal parts (units) together to make one whole. • Count or add fractional parts to make one whole. • Compare half to whole.
Mathematical language	Whole, half, halves, fraction, share, fair, equal, more than, less than.
Sharing back/Connect	Select students to share who prove their solution using a representation (drawing) and use this to compare the difference. Connect: Are two halves bigger, smaller, or equal to one whole? Are two wholes bigger, smaller, or equal to two halves? Are three halves bigger, smaller, or equal to two wholes? Are four halves bigger, smaller, or equal to two wholes?
Teacher Notes	• During the launch, model the pie as a rectangular shape. • Facilitate the students to notice the relationship between one whole pie as two halves and the difference between three halves as greater. • Notice students who see the problem as a comparison and model their response as such with explanations that use the same as, more than, less than and because.

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	• Expect students to represent using materials and explanations including drawings and notation. • For the independent task, you will need different sized boxes, cubes, blocks.
Independent Tasks	Fill two different sized boxes with cubes or blocks until they are half full. What do you notice? If you tip the cubes or blocks from one box into the other box, is the second box full, or not? Why do you think that is?
Anticipations	

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Task 9	Mrs Grinling has baked banana loaf. She shares the banana loaf with three of her friends. How much do they each get?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use.
Learning Outcomes: Students will be able to:	• Share a whole into equal parts. • Put equal parts (units) together to make one whole. • Count or add fractional parts to make one whole.
Mathematical language	Whole, half, halves, fourths, quarters, fraction, share, fair, equal, more than, less than, same.
Sharing back/Connect	Select students to share who have developed different representations of the whole banana cut into four equal parts. Draw links to models showing the cake cut in the two ways. If the students do not use a model representing cutting lengthwise as well as vertically and diagonally teacher to introduce and model. Connect: Use a playdough model shaped into a rectangular cuboid. Cut lengthwise into two equal parts and ask the students to describe what you have done. Cut lengthwise into four equal parts and ask the students to describe what you have done.
Teacher Notes	• Before launching the task, have the children describe sharing food with their family and friends when there have been more than just two. Have them talk about how this was done fairly. After briefly talking about the problem have them engage in a hands-on, bus stop activity where the children explore what fourths/quarters look like using different media.

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	• Have available playdough, ribbon or string, multilink blocks (to represent food), paper and scissors for the first activity. • During the launch, for the problem, model the banana loaf as a rectangle for the students. • Facilitate the students to notice that when talking about fractions we always refer to the unit whole as one and quarters as fourths or quarters. Have them explain using materials what they did and ending with “of my one whole...” • Monitor for students using vocabulary like four bits or four pieces and informally revoice as four fourths or four quarters. Emphasise that they are both the same and equal. • Record using the word quarter or fourths before introducing notation. • For the independent task, you will need different sized containers and water.
Independent Tasks	Fill one container with water until it is full. Pour all of the water into a different sized container. What do you notice? Why do you think that is?
Anticipations	

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Task 10	Mrs Grinling has made two whole pies for their lunch. She eats one half of a pie and she sends the rest to Mr Grinling to share equally with Hamish. They both eat the same amount. How much do they each eat?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use. NA2-6: Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols.
Learning Outcomes: Students will be able to:	• Share a whole into equal parts. • Put equal parts (units) together to make one whole. • Count or add fractional parts to make one whole.
Mathematical language	Whole, half, halves, fourths, quarters, fraction, share, fair, equal, more than, less than, same.
Sharing back/Connect	Select students to share who have developed an explanation using representations including the halves and quarters or quarters for all the pies. If either of the solutions are not generated by students, then model this as a possible alternate way. Model writing the solutions as numbers including fractions. Connect: Mrs Grinling made one pie and ate half of it. Mr Grinling and Hamish shared the other half equally. How much would they each eat?
Teacher Notes	• During the launch, revisit sharing fairly a banana loaf between four friends. Use the language of fourths and quarters interchangeably. Model the pie for the students as a rectangle representation. • Monitor for students using vocabulary like four bits or four pieces and informally revoice as four fourths or four quarters. Emphasise that they are both the same and equal. Ensure that students see that the second half of the pie is

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	half of a whole and so that pie needs to be split into quarters and described as two quarters. • Record using the word quarter or fourths before introducing notation. • For the independent task, you will need playdough.
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 in quarters. How many pieces of playdough do you have now? Draw both playdough shapes recording what you notice.
Anticipations	

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Task 11	Hamish eats two quarters of a ham sandwich. Mr Grinling eats half a ham sandwich. Who eats more? How do you know? Hamish eats one quarter of a ham sandwich. Mr Grinling eats half a ham sandwich. Who eats more? How do you know? Hamish eats four quarters of a ham sandwich. Mr Grinling eats a whole ham sandwich. Who eats more? How do you know?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use. NA2-6: Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols.
Learning Outcomes: Students will be able to:	• Put equal parts (units) together to make one whole. • Count or add fractional parts to make one whole. • Count or add fractional parts to make other fractions. • Compare the size of fractions.
Mathematical language	Whole, half, halves, fourths, quarters, fraction, share, fair, equal, more than, less than, same.
Sharing back/Connect	Select students to share who develop different representations for the fractions and use them to compare the difference. Connect: One half is bigger, smaller, equal to two quarters One quarter is bigger, smaller, equal to one half Three quarters are bigger, smaller, equal to two halves.
Teacher Notes	• Facilitate the students to notice the relationship between one whole sandwich as two halves and four

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	quarters/fourths and the difference between one half as greater than a quarter. • Notice students who see the problem as a comparison and model their response as such with explanations that use equal, more than, less than and because. • For the independent task, you will need squares of paper.
Independent Tasks	Draw and record all the different ways you can divide squares into parts that are the same size?
Anticipations	

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Task 12	Mr Grinling has a party with the other lighthouse keepers. Mrs Grinling bakes a banana loaf for it. There are eight people altogether to share the loaf. How much do they each get? What about if there were four people altogether. How much do they each get? Who would get the most?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use. NA2-6: Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols.
Learning Outcomes: Students will be able to:	• Share a whole into equal parts. • Put equal parts (units) together to make one whole. • Count or add fractional parts to make other fractions. • Compare the size of fractions.
Mathematical language	Whole, half, halves, quarter, fourths, eighths, fraction, share, fair, equal, more than, less than, same.
Sharing back/Connect	Select students to share who show models of representations for one whole split into eight equal slices and have developed an explanation that explains that one whole is the same as eight eighths. Connect: Eight eighths are bigger, smaller, equal to one whole. One whole is bigger, smaller, equal to two halves. Three halves is bigger, smaller, equal to one whole One whole is bigger, smaller, equal to five quarters.
Teacher Notes	• During the launch, model the representation of the banana loaf as a rectangle.

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	- Facilitate the students to notice the relationship between one whole as four quarters or eight eighths. - Expect students to represent using materials and explanations including drawings and notation.
Independent Tasks	Mrs Grinling made some sandwiches. Hamish ate two quarters. Mrs Grinling ate three halves. Mr Grinling ate one whole. The seagulls ate two eighths. Put it in order from who ate the most to the least.
Anticipations	

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Task 13	At the lighthouse keepers party, they have nine liquorice straps. Mrs Grinling shares the straps equally with 8 people including herself. How much do they each get to eat?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use. NA2-6: Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols.
Learning Outcomes: Students will be able to:	• Share a whole into equal parts. • Put equal parts (units) together to make one whole and one-eighth. • Add or count fractional parts to make a whole number.
Mathematical language	Whole, half, halves, quarter, fourths, eighths, fraction, share, fair, equal, more than, less than, same.
Sharing back/Connect	Select students to share who have developed representations to show how to share the quantity using fractions and that explain that one whole is the same as eight eighths. Connect: Draw a representation of three identical liquorice straps divided into halves, quarters, and eighths. Ask students to identify fractions that are equal from the representations (e.g., two quarters equals one half).
Teacher Notes	• Expect students to represent using materials and explanations including drawings and notation. • For the independent task, you will need playdough.
Independent Tasks	Roll three playdough sausages. Cut the first sausage into halves. Cut the second sausage into quarters.

Level 1/New Entrant teacher booklet: Number: Fractions

	Cut the third sausage into eighths. Now mix up the pieces from each sausage and re-make your sausages so that they are all whole. Use different fraction sizes to build each sausage. How many different ways can you make up one sausage? How many different ways can you make up two sausages? How many different ways can you make up three sausages? Draw and record two different ways you made up one sausage.
Anticipations	

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Task 14	Mr Grinling ate one quarter of a liquorice strap. Mrs Grinling ate two eighths of a liquorice strap. Who ate the most? Why? Mr Grinling ate one half of a liquorice strap. Mrs Grinling ate two eighths of a liquorice strap. Who ate the most? Why? Mr Grinling ate one half of a liquorice strap. Mrs Grinling ate four eighths of a liquorice strap. Who ate the most? Why?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use. NA2-6: Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols.
Learning Outcomes: Students will be able to:	• Share a whole into equal parts. • Put equal parts (units) together to make one whole. • Count or add fractional parts to make other fractions. • Compare the size of fractions.
Mathematical language	Whole, half, halves, quarter, fourths, eighths, fraction, share, fair, equal, more than, less than, same.
Sharing back/Connect	Select students to share who develop representations to make the comparisons. Connect: Give students strips of paper of the same length. Ask the students to fold the paper strips to represent two halves, four quarters, eight eighths and extend to folding into three so students see three thirds.
Teacher Notes	• Have strips of paper the same length available for students to use to represent the liquorice straps.

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	For the independent task, you will need strips of paper to represent licorice straps.
Independent Tasks	Mr Grinling ate three eighths of a licorice strap. Mrs Grinling ate two quarters of a licorice strap. Who ate the most? Why? Mr Grinling ate three quarters of a licorice strap. Mrs Grinling ate two halves of a licorice strap. Who ate the most? Why? Mr Grinling ate five eighths of a licorice strap. Mrs Grinling ate one half of a licorice strap. Who ate the most? Why?
Anticipations	

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Task 15	Mr and Mrs Grinling and Hamish shared a bottle of milk. Hamish drank an eighth of the bottle. Mr Grinling drank three eighths of the bottle. Mrs Grinling drank the rest. How much did she drink? Who drank the most?
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	NA1-1: Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions. NA1-4: Communicate and explain counting, grouping, and equal-sharing strategies, using words, numbers, and pictures. NA2-1: Use simple additive strategies with whole numbers and fractions. NA2-5: Know simple fractions in everyday use. NA2-6: Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols.
Learning Outcomes: Students will be able to:	• Share a whole into equal parts. • Put equal parts (units) together to make one whole. • Count or add fractional parts to make other fractions. • Compare the size of fractions.
Mathematical language	Whole, half, halves, quarter, fourths, eighths, fraction, share, fair, equal, more than, less than, same.
Sharing back/Connect	Select students to share who have developed representations for the different amounts and have developed an explanation that uses informal addition. Connect: Give students strips of paper or fraction tiles and ask them to show the total of: seven eighths and one eighth; six eighths and two eighths; five eighths and three eighths; four eighths and four eighths.
Teacher Notes	• Have strips of paper the same length available to solve the problem. • Facilitate the students to notice the relationship between one whole as different amounts of eighths.

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	• Notice students who see the pattern to make one whole from eighths using informal addition. • Expect students to represent using materials and explanations including drawings and notation.
Independent Tasks	Select the following assessment task (attached at the end of the document) as the independent activity: NR1: Fractions: Halves and quarters
Anticipations	

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DEVELOPING MATHEMATICAL INQUIRY COMMUNITIES ASSESSMENT TASK

NUMBER – FRACTIONS (region): LEVEL 1

Task NR1

Write and draw everything you know about halves and quarters.

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