Year 3 Maths No Problem lesson plans Chapter 11, Lesson 5 - 13, Pages 95 - 103, week beginning 18/05/20

Lesson 5: Subtracting Fractions

Textbook pages: 126 – 127

Lesson Objective

To be able to subtract fractions with the same denominator within 1 whole.

Lesson Approach

To begin this lesson, provide pupils with an enlarged copy of the cake in the In Focus task and discuss the problem with them. There are two parts to the problem. The first part of the problem tells us that Ruby has already eaten 2 pieces of cake and the picture shows the amount of cake left. The second part tells us that she is going to eat 1 more piece of cake.

Ask pupils how many pieces the cake was divided into at first. How can we tell? Since Ruby says 2 pieces have already been eaten and there are 5 pieces left, this tells us there were 7 pieces at first. Then ask pupils what is the fraction for 1 piece of cake. 1⁄7 should be read as 1 seventh. What fraction of the cake has Ruby eaten? 2⁄7 should be read as 2 sevenths. What fraction of the cake is left? 5⁄7 should be read as 5 sevenths.

Ruby says she is taking 1 more piece. What fraction of the cake is 1 piece? There are 5⁄7 of the cake remaining. After she eats 1⁄7 more, what fraction of cake is left? Ask pupils if they know which calculation to do to find the fraction of cake left? We need to use subtraction to find the fraction of cake left: 5⁄7 – 1⁄7 = 4⁄7.

Go through Let's Learn 2, subtracting 1⁄9 from 5⁄9. Guide pupils to conclude that subtracting fractions with the same denominator is the same as subtracting whole numbers (as in addition). We do not subtract the denominator as it tells us how many parts a whole has been divided into. We subtract the numerators as they tell us the number of parts we are counting.

During Guided Practice, pupils are subtracting fractions with the same denominator.

Lesson 6: Finding Equivalent Fractions

Textbook pages: 128 – 130

Lesson Objective

To be able to recognise and show equivalent fractions.

Lesson Approach

To begin this lesson, provide pupils with a number of paper strips of equal length. Ask them to take a piece of paper and fold it into 4 equal parts, shading in 1 part. Tell them the shaded part is their piece. Ask them what fraction they have, prompting them to see it is 1 fourth or 1 quarter. Write 1⁄4 on the board and place a strip of paper divided into 4 parts beside it.

Now show pupils the In Focus task and ask them to discuss what is meant by this problem. How can we have more parts but still use the same strip of paper? Is there something we can do to increase the number of parts here? Prompt pupils to fold the paper more times. Is it possible to turn the 4 parts into 8 parts? Allow them time to attempt this. Now that we have 8 parts, what should we call each part? We call them 1 eighth. Ask pupils if they know how to write the fraction for 1⁄8. Then write it on the board and place a strip of paper divided into 8 parts beside it.

Ask pupils to compare the two strips of paper – compare each part and compare the whole. Ask them to tell you what they observe. The whole has remained the same but the number of parts has changed. Lead pupils to see that 1⁄4 is now 2⁄8 by putting the two strips one above the other to compare. Guide them to see that although the whole has been divided into more equal parts, the whole has not changed. We call these fractions equivalent because they are equal. Therefore, 1⁄4 = 2⁄8. Ask them to try finding other equivalent fractions of 1⁄4.

During Guided Practice, pupils are expected to divide the images into smaller parts, paying close attention to which number is being given: the numerator (the number of parts that will be shaded) or the denominator (the number of parts that the whole has been divided).

Lesson 7: Finding Equivalent Fractions

Textbook pages: 131 – 133

Lesson Objective

To be able to recognise and show equivalent fractions.

Lesson Approach

To begin this lesson, provide pupils with strips of paper and ask if they are able to fold them into 3 equal pieces. Allow pupils some time to work this out as it is trickier than making an even number of equal pieces. In the end, they just need to be as close as possible. Have them shade in 1 part and ask them the name of the part, reminding them that the name of a whole piece that has been separated into 3 equal pieces makes thirds. Then show pupils the In Focus task. Ask them if they think it is possible to write 1 third in different ways. Could folding the paper be helpful, as in the last lesson? Allow them some time to work on this, taking their answers and creating a chart of possible solutions. Are they able to turn the 3 equal pieces into 6 or into 12 or any other number? How many pieces are shaded in each? Does this mean they are then equal to 1⁄3?

During Guided Practice, pupils are looking at a fraction diagram and determining whether or not fractions are equivalent. Notice the variation in the horizontal and vertical layouts as well as the fact that 4 is a common number. Help pupils navigate through complications, i.e. that 4 shaded parts do not make fractions equivalent, etc.

Lesson 8: Finding Equivalent Fractions

Textbook pages: 134 – 136

Lesson Objective

To be able to recognise and show equivalent fractions.

Lesson Approach

To begin this lesson, provide pupils with a number of strips of paper then show them the In Focus task.

As they begin folding, tell them your friend said if you place a number line above or below the folded paper and make markers at each of the folds, you can place the fractions on a number line. Is this true? How might that look? Let pupils try this in their exercise books or on a whiteboard. Model this for them on a large piece of paper and ask them what would go at the start of the number line. Is it the number 1, or is it 0?

Allow pupils to discuss which number they think would go at the start of the number line and why. Tell them your friend said that he pretends a number line is just like the measures on the side of a measuring cup. When there is no water in the measuring cup, there is 0.

As you begin to fill the cup, what happens? Can you use this information to help construct a number line? It is important for pupils to see the folded paper above or below the number line so they can see the relationship. Ask pupils if, by looking at the chart you have collectively created, they can see equivalent fractions.

During Guided Practice, pupils are completing fraction number lines to find equivalent fractions.

Lesson 9: Finding Equivalent Fractions

Textbook pages: 137 – 139

Lesson Objective

To be able to find equivalent fractions.

Lesson Approach

To begin this lesson, provide pupils with pieces of paper and crayons. Ask them to fold their pieces of paper in half and to shade 1⁄2. Now show pupils the In Focus task and ask if they are able to solve Charles' problem.

Tell pupils they can cut or fold the paper to help Charles find fractions equivalent to 1⁄2. As they begin to find equivalent fractions, structure their learning by writing the equivalent fractions on the board or on a piece of paper for the class to see.

When pupils are confident making fractions equivalent to 1⁄2, ask if they are able to see a pattern as identified in Let's Learn 4. Do they notice anything about the numerators and denominators? Tell them your friend said that she sees a pattern involving multiplication. What does she mean by this? Let pupils discuss this idea. Are they able to use this pattern to create other equivalent fractions? During Guided Practice, pupils are finding equivalent fractions using pictures and multiplication.

Lesson 10: Finding Equivalent Fractions

Textbook pages: 140 – 142

Lesson Objective

To be able to find equivalent fractions.

Lesson Approach

To begin this lesson, provide each pupil with an enlarged copy of the fraction in the In Focus task. Ask them what is 2⁄5. Where is 2⁄5 shown on the bar model? Guide pupils to see that the whole is divided into 5 parts, each part is 1 fifth and the 2 coloured parts make 2⁄5. It is read as 2 fifths. Ask them what they understand by tenths. What does it tell us about the whole? It means that a whole is divided into 10 equal parts. How can we write 2⁄5 as tenths?

Provide pupils with diagrams of bar models divided into 5 equal parts and allow them some time to work on this. Guide them by asking how 5 parts can be converted into 10 parts. How do we get 10 from 5? Can we use multiplication? Allow pupils to work on this problem together. When structuring their learning, review the multiplication method and picture splitting method learned in previous lessons. Continue with the same procedure using the examples from Let's Learn.

During Guided Practice, pupils are using the multiplication method and picture splitting method to solve the problems.

Lesson 11: Finding Equivalent Fractions

Textbook pages: 143

Lesson Objective

To be able to find equivalent fractions.

Lesson Approach

To begin this lesson, provide each pupil with a bar model diagram divided into 3 parts and ask them to shade 2⁄3. Now show pupils the In Focus task and ask them if it is possible to write 2⁄8 as 8/__? What does it mean when the numerator changes from 2 to 8? It means that we have change the 2 parts into 8 parts. How can we do that?

Allow pupils time to draw on their bar models. Let them show their drawing and explain their thinking. Ask them if the whole still remains as 3 parts? If we divide 2⁄3 into 8 smaller parts, we must do the same for all the thirds. How many parts is the whole now? How many parts are shaded? We can see that 2⁄3 = 8⁄12.

During Guided Practice, pupils are looking at a new pictorial representation that resembles what they have just done in the In Focus task.

Lesson 12: Finding the Simplest Fraction

Textbook pages: 144 – 146

Lesson Objective

To be able to find the simplest form of a fraction.

Lesson Approach

Prepare a 'cake' similar to the one in the In Focus task for this lesson using 12 small pieces of rectangular paper.

To begin the lesson, show pupils the the In Focus task and ask them how many pieces the cake has been cut into. What fraction is each piece? Ruby takes 3 pieces of the cake. What fraction does she take? Ruby takes 3⁄12 of the cake. Use Let's Learn and the pre-prepared 'cake' to show the class 3⁄12. Then move the pieces to show that 3 pieces (3⁄12) can form 1 part and 12 pieces (12⁄12) can form 4 parts. We can see that 3⁄12 = 1⁄4 of the cake. When we do this, we say that 1⁄4 is the simplest form of 3⁄12.

Repeat the process for the fraction of the cake Ravi takes (4⁄12) and the fraction Lulu takes (2⁄12). In order to demonstrate the simplest form, it is easier to show the fractions of cake the children take using the ways shown in Let's Learn.

During Guided Practice, pupils are using a picture to help them see the simplest form of a fraction. Encourage them to draw diagrams to help them answer the second set of questions if needed.

Lesson 13: Finding the Simplest Fraction

Textbook pages: 147 – 150

Lesson Objective

To be able to find the simplest form of a fraction.

Lesson Approach

To begin this lesson, show pupils the In Focus task and ask them how they will know which fractions are equivalent to 8⁄12. Give them time to shade the bars to show equivalence. Which fractions are equivalent to 8⁄12? There are 2 fractions, 4⁄6 and 2⁄3.

Follow Let's Learn to structure pupils' responses, starting first with 2⁄3. Ask them whether they notice anything special between 8⁄12 and 2⁄3 and allow them to discuss. Ask them to use multiplication and division to show the special relationship. Do the same for 4⁄6 and 8⁄12. Then show pupils that 8⁄12 = 4⁄6 = 2⁄3. We say that 2⁄3 is the simplest form of 8⁄12.

During Guided Practice, pupils are simplifying fractions using pictorial representations and division.