

Year 4 Maths No Problem workbook, Chapter 9 mind workouts and Review 9, Chapter 10, lessons 1 - 6, week beginning 11/05/20

Please complete the mind workout in the workbook (page 58) and the textbook (pages 85 – 86.)

Please complete Review 9, pages 59 – 64.

These need to be completed independently.

Chapter 10

Lesson 1: Measuring Mass

Textbook pages: 88 – 89

Lesson Objective

To be able to estimate mass to the nearest kilogram.

Lesson Approach

To begin this lesson, show pupils the In Focus task and ask them to think about how they can write the mass of the watermelon in kilograms only. Display the bar model from Let's Learn. What can we say about 100 g in relation to 1 kg? How many 100 g are there in 1 kg? How can we express 100 g as a decimal? What about 200 g? If we know the watermelon weighs 1 kg 200 g, how can we write the mass in kilograms (as a decimal)?

Ask pupils to think about what they have already learnt about estimating. The watermelon weighs 1.2 kg. Can we use a number line to show where 1.2 kg is? Allow pupils some time to do this. Then model drawing a number line and ask which two amounts, in kilograms, 1.2 kg lies between. What does each increment stand for? Where should we mark 1.2 kg? Is 1.2 kg nearer to 1 kg or 2 kg? So we can say that 1.2 kg is about 1 kg and use the approximate sign to show this. Explain to pupils that estimating any measurement is the same as estimating whole numbers and decimals.

During Guided Practice, pupils are estimating masses to the nearest kilogram.

Lesson 2: Measuring Mass

Textbook pages: 90 – 92

Lesson Objective

To be able to measure mass.

Lesson Approach

To begin this lesson, show the first image of In Focus task without the question at this stage. Ask them to look at the scales and discuss which bag they think is the heaviest/lightest and why. Then reveal the problem. Give pupils some time to discuss who they think is correct and why.

Direct pupils' attention to the weighing scales. Ask them how they determined the mass of the blue bag of rice. Is there a way to be sure of the mass indicated by each small marking? Show them the diagram in Let's Learn and ask them how many intervals there are between 1 kg and 2 kg. We can use a bar model to show the mass represented by each interval. As there are 5 intervals, we know that each interval must be 200 g, as $5 \times 200 = 1000$, and $1000\text{g} = 1\text{ kg}$. The needle on the scales is pointing to the first small marking after 1 kg. We can read the mass of the bag of rice as 1 kg and 200 g. Ask pupils to write this in kilograms only. 200 g is $\frac{1}{5}$ of 1 kg. $\frac{1}{5}$ is equivalent to $\frac{2}{10}$, and $\frac{2}{10}$ is 0.2 as a decimal. So we know that 1 kg 200 g can be written as 1.2 kg.

Show pupils the number line and ask them to count the intervals between 0 kg to 1 kg and between 1 kg and 2 kg. Guide them to see that the number is exactly the same as the digital scales with the red bag of rice.

During Guided Practice, pupils are reading and recording the masses of different items on weighing scales.

Lesson 3: Converting Units of Mass

Textbook pages: 93 – 95

Lesson Objective

To be able to convert between different units of measure for mass.

Lesson Approach

To begin this lesson, show pupils the In Focus task and ask them to discuss this with their partners before sharing their thoughts. Prompt pupils with questions, such as: What do we know? What is the problem asking us to do? What do we know about the measurements of the chicken?

Work through Let's Learn with the class, converting the mass of each chicken portion. There are 3 types of conversion presented: converting kilograms to grams, converting compound units of kilograms and grams to grams, and converting kilograms in decimal notation to grams. What is the key fact we should keep in our minds when converting masses? (1 kg = 1000 g)

When all of the measurements have been converted to grams, ask pupils how will we know if we have enough chicken for the party. How much do we need? What do we know about 3.5 kg in grams? Do we have enough? What is the difference in kilograms?

During Guided Practice, pupils are converting measurements in kilograms and grams to grams.

Lesson 4: Measuring Volume

Textbook pages: 96 – 99

Lesson Objective

To be able to measure volume in litres using decimals.

Lesson Approach

Let pupils know the focus of this lesson is on measuring volume. What do they already know about measuring volume? Show pupils the In Focus task and allow them to discuss the problem. Ask them what is the same and what is different about the containers. When pupils respond, ensure they refer to the height/width and the scales marked on the containers. Do we have to find the exact volume of the water to know which container has the greatest amount? How can we tell just by looking? What about the least amount of water? Can we tell just by looking?

Display the image from Let's Learn 1. Prompt pupils with questions, such as: How many millilitres are there in 1 l? What do the scale increments represent? How many millilitres is each increment worth? How do we know? Repeat the same process for Let's Learn 2 and 3. How many different ways can we write the same volume in litres?

Display the Guided Practice and ask pupils to decide what they should do first before matching the volumes, i.e. identify the increments on the scales and calculate the volume of each beaker. Display question 2 and ask pupils what they notice about the labels on the containers. Have a short discussion on where and how they would indicate the volume of 568 ml on the container. Then ask them to complete Guided Practice in pairs.

Lesson 5: Measuring Volume

Textbook pages: 100 – 102

Lesson Objective

To be able to measure volume in litres using decimals.

Lesson Approach

To begin this lesson, show pupils the In Focus task and allow them time to discuss this and share their thoughts with the class. What did you do first when attempting to solve the problem and why?

Show the class how to find the volume of each container using the models and images in Let's Learn. Highlight the differences between the two types of beakers and the measuring scales. One beaker measures up to 100 ml and the other measures up to 500 ml. The scale on the 100 ml beaker has intervals of 10 ml, and the scale on the 500 ml beaker has intervals of 50 ml. In the previous lesson, we learnt that 100 ml is 0.1 l. What about 10 ml? $10 \text{ ml} = ? \text{ l}$. Can we write that as a decimal? Do the same for 50 ml and 500 ml. Then ask pupils to write 40 ml and 450 ml in litres as decimals. Who was correct, Amira or Sam?

During Guided Practice, pupils are measuring and recording volumes of water in litres.

Lesson 6: Converting Units of Volume

Textbook pages: 103 – 106

Lesson Objective

To be able to convert different units of measure for volume.

Lesson Approach

To begin this lesson, show pupils the In Focus task. Ask them to discuss the problem with their partners before taking some feedback.

There are three conversions illustrated in Let's Learn using approximation: converting 1000 ml to litres, 100 ml to litres and 500 ml to litres. Draw a number line as shown in Let's Learn 1 and ask pupils to place 1136 ml on the number line. Is 1136 ml nearer to 1000 ml or 2000 ml? What is another way of writing 1000 ml? When we approximate to the nearest litre, we can say 1136 ml is about 1 l. Write it down using the approximate sign.

We can also approximate volume to the nearest 100 ml. Work through Let's Learn 2 using the bar model. Why is each part labelled as 0.1? How many millilitres is 0.1 l equivalent to? Let's use another number line to show what the approximate value is for 1136 ml when we approximate it to the nearest 100 ml. Draw the number line as shown in Let's Learn 2. Ask pupils to place 1136 ml on the number line. Is it closer to 1100 ml or 1200 ml? How do we write 100 ml as a decimal? How do we write 1100 ml as a decimal? $1100 \text{ ml} = 1.1 \text{ l}$. When we approximate to the nearest 100 ml, we can say 1136 ml is about 1.1 l. Write it down using the approximate sign. Repeat the same process for Let's Learn 3.

During Guided Practice, pupils are converting volume from litres to millilitres and comparing the volume of two bottles.