Lesson 11: Comparing and Ordering Decimals

Textbook pages: 35 – 37

Lesson Objective

To be able to compare and order numbers with the same number of decimal places up to 2 decimal places.

Lesson Approach

Prepare the materials as shown in the In Focus task.

To begin this lesson, show pupils the In Focus task and invite four volunteers to each form a number using the digit cards 5, 9, 8, 1. Write the numbers on the board and ask pupils how we can order them from smallest to greatest. How can we make the comparison? How can we arrange the numbers so that the comparison will be easier? Gather their responses and go through their strategies.

Demonstrate the comparison by arranging the numbers on a place-value chart. Guide pupils to see that since the tens have the greatest value compared to the ones, tenths and hundredths, we should start comparing the digits in the tens place. Show the class how to compare the four numbers and arrange them in order from smallest to greatest. Then work through Let's Learn 1 and 2, using a number line and place-value chart.

During Guided Practice, pupils are comparing and ordering numbers with 2 decimal places.

Lesson 12: Making Number Patterns

Textbook pages: 38 – 39

Lesson Objective

To be able to identify numbers, which are 1 tenth or 1 hundredth more/less in a number sequence.

Lesson Approach

To begin this lesson, show pupils the In Focus task and ask them to study the number pattern formed by Charles. Can they read the number pattern aloud? Guide them to read it as 3 tenths, 4 tenths, 5 tenths, 6 tenths, 7 tenths... What could the next number be? If pupils say 8 tenths, ask them what rule they used.

Work through Let's Learn 1. Use number discs and a number line to show that the rule used in the number pattern is to add 1 tenth each time. Ask pupils to find the next three numbers and write the number pattern in decimals. Guide them to see that when they reach 9

tenths, the next number, 10 tenths, must be regrouped to make 1. Regrouping must also be done for 11 tenths, 12 tenths and so on.

Ask pupils to study the number pattern created by Holly and allow them time to discuss what the number pattern rule could be. Ask them if they can find the next 5 numbers. Then work through Let's Learn 2, encouraging pupils to read the number pattern aloud.

During Guided Practice, pupils are adding and subtracting 1 tenth and 1 hundredth to/from decimal and whole numbers.

Lesson 13: Rounding Decimals

Textbook pages: 40 – 44

Lesson Objective

To be able to round numbers with 1 decimal place to the nearest whole number.

Lesson Approach

To begin this lesson, show pupils the In Focus task and the measurements made by each child as shown in Let's Learn. In Let's Learn 1, Emma has drawn a line 0.9 cm. Ask pupils to look at the ruler. Where is 0.9 cm? It is between which two numbers? Guide pupils to say that 0.9 is between 0 and 1. Then ask them whether 0.9 is nearer to 0 or 1. It is nearer to 1. We can say that 0.9 cm is about 1 cm. We can also say that 0.9 cm is approximately equal to 1. Write the 'approximately equals to' sign on the board. As 0.9 cm is not equal to 1 cm, we cannot use the equal sign, we can only use the 'approximately equals to' sign.

Work through the rest of Let's Learn with pupils. Can we think of some rules for rounding numbers to the nearest whole number? Allow pupils to talk to their partners before agreeing on some 'top tips' together.

During Guided Practice, pupils are writing measurements as fractions and decimals, and rounding measurements to the nearest whole number.

Lesson 14: Rounding Decimals

Textbook pages: 45 – 47

Lesson Objective

To be able to round numbers with 1 decimal place to the nearest whole number.

Lesson Approach

To begin this lesson, show pupils the In Focus task and ask them how we could use what we know about rounding to estimate the total mass. Display the 'top tips' for rounding that was generated in the previous lesson.

Work through Let's Learn to show the class how to round the amounts in each basket. Encourage pupils to use the key vocabulary, i.e. 'is nearer to', 'approximately' and 'to the nearest', when talking with their partners. Ask questions to probe pupils' understanding,

such as: Where should I place __ on the number line? Is it closer to __ or __? What is the closest whole number? Show them how to round the three amounts and mentally calculate the estimated total.

During Guided Practice, pupils are rounding numbers with 1 decimal place to the nearest whole number.

Lesson 15: Writing Fractions as Decimals

Textbook pages: 48 – 50

Lesson Objective

To be able to recognise and write decimal equivalents to 1⁄4, 1⁄2, 3⁄4.

Lesson Approach

To begin this lesson, show pupils the In Focus task and ask them to read the fractions. Provide them with printouts of 100-blocks. Ask them to show each fraction by shading the 100-blocks and share their answers with each other.

Use the shaded 100-blocks from pupils to relate fractions to decimals. Start with 1⁄2. Get pupils to look at their 100-block printout and ask them how many tenths there are in the 100-block. Show them how to count the tenths and then count together with them. There are 10 tenths. Ask pupils how many hundredths are there in the 100-block. Show them there are 10 hundredths in each tenth, and count together with them in multiples of hundredths. There are 100 hundredths. Ask them how many tenths and hundredths there are in 1⁄2. Count the shaded part in tenths together with pupils. There are 5 tenths. So we know that 1⁄2 = 5 tenths. Ask pupils to write the tenths as a fraction and decimal. 5 tenths = 5⁄10 = 0.5. Since 1⁄2 = 5 tenths, then we can also write 1⁄2 as 0.5. Then show pupils how to write 1⁄2 as tenths as a fraction using multiplication and convert it to a decimal.

Using the same methods, show pupils how to convert 1⁄4 and 3⁄4 into decimals, asking them to help demonstrate where appropriate. Encourage pupils to commit to memory the decimal equivalents of 1⁄2, 1⁄4 and 3⁄4.

During Guided Practice, pupils are writing 1⁄2, 1⁄4 and 3⁄4 as decimals.

Lesson 16: Dividing Whole Numbers by 10

Textbook pages: 51 – 53

Lesson Objective

To be able to divide 1- or 2-digit numbers by 10.

Lesson Approach

To begin this lesson, show pupils the In Focus task and ask them how the bars of chocolate can be shared equally among 10 children. Allow them to discuss this with their partners and then ask them to share their answers with the class. Explain to pupils that when dividing 3

by 10, what we need to do is to divide each whole into 10 parts, and distribute each part to each child. Draw the 3 bars divided into 10 parts each. Show how the parts are distributed. Each child will get 1⁄10 from each bar, and 3⁄10 from 3 bars. How do we write 3⁄10 as a decimal? 3⁄10 = 0.3. So we know that 3 divided by 10 = 0.3. Show a few more examples, using 4 bars of chocolate shared equally among 10 children, and then divide 5 bars among 10 children. Guide pupils to see that when a whole number is divided by 10, the digit remains the same, but its place value changes from ones to tenths.

Display Let's Learn 2. What is the same and what is different about this question? How can we use what we have just learnt to help with this question? Show pupils how to calculate the answer using the images in the textbook. Explain what has happened using a place-value chart. Provide pupils with other 2-digit numbers to divide by 10 and ask them to describe the effect.

During Guided Practice, pupils are dividing a 1-digit and a 2-digit number by 10.

Lesson 17: Dividing Whole Numbers by 100

Textbook pages: 54 – 56

Lesson Objective

To be able to divide 1- or 2-digit numbers by 100.

Lesson Approach

To begin this lesson, show pupils the In Focus task. How can Charles share the soap equally to make 100 equal packs? Ask pupils to discuss this in pairs and then invite them to share their solutions. Help them to apply what they have learnt from dividing a whole number by 10 to dividing a whole number by 100.

Work through Let's Learn to model sharing the blocks of soap to make 100 packs. Guide pupils to see that the digits remain the same but the place value of the digits change. Lead them to see that when 10 is divided by 100, it becomes a tenth, 0.1. When 4 is divided by 100, it becomes 4 hundredths, 0.04. Use the place-value chart to illustrate this. Then give pupils a few 1-digit and 2-digit numbers and ask them to divide them by 100 using the place-value chart to help them.

During Guided Practice, pupils are dividing 1-digit and 2-digit numbers by 10 and 100.

Lesson 18: Chapter Consolidation

Textbook pages: 57 – 58

Lesson Objective

To be able to apply knowledge of decimal numbers to solve problems.

Lesson Approach

Mind Workout
Pupils use a calculator to find patterns in the quotient when 1 is divided by another whole number, and explore if it is possible to tell what digit is in the 10th decimal place in each case.

Maths Journal
Pupils write about the invention of decimals and describe everyday situations where decimals are used.

Self Check
Pupils complete this as a chapter summary and discuss what to do with their teacher if any boxes are not ticked.