Power Maths Strengthen Activities

MISCONCEPTION

Children may confuse the operation needed to convert from one unit to another. They may think a larger unit must become smaller when converting to a smaller unit (and so divide instead of multiplying), and vice versa.

STRENGTHENING UNDERSTANDING

1. Discuss conversion facts, for example length. 10 mm = 1 cm; 100 cm = 1 m; 1,000 m = 1 km. Look at the first conversion and draw two bar models of equal length, one below the other, and label one with 10 mm and the other with 1 cm. Using arrows and the appropriate calculation, explain how to convert 10 to 1 (÷10) and 1 to 10 (×10) and show this on the bar models.

2. Draw new bar models and work out the relationship for the other two pairs of conversions. Can children see that to convert from a smaller unit to a bigger unit, they divide as there are less of the bigger sized units, and vice versa? Using this information, encourage children to answer further questions, converting to both smaller or bigger units of measure, using bar models.

3. Children use this information to create posters about the conversions. Their posters should also contain some of their own conversion questions, which a partner can solve, before checking answers.

ASSESSMENT CHECKPOINT

Can children, referring to posters, complete the conversions in Q3 on Practice Book p112?

RESOURCES

Whiteboards, pens, pencils, papers, Practice Book

MISCONCEPTION

Children may think that they can compare or calculate with any amounts without it being necessary to convert.

STRENGTHENING UNDERSTANDING

1. Show on a whiteboard, 500 ml and 500 l. Ask: *What is the same, what is different about these two measurements?* Encourage children to reason that although the numerical value is the same, the unit value is different and so these would be very different volumes.

2. Show children a picture of a 500 ml container compared to one that contains 500 l. Ask: *Is it important to be aware of the unit of measure when solving problems? Why?* Ensure children understand that you can only compare or calculate with like units of measure, so sometimes a conversion is necessary.

3. Ask: *How can you find the difference in volume between 500 ml and 500 l?* Work through how to calculate this with the children, demonstrating the conversion (either to ml or to l) and subtracting. Give children other examples, in context, to work through.

ASSESSMENT CHECKPOINT

Can children convert the units of mass and order in Q4 on Practice Book p118?

RESOURCES

Whiteboards, pens, pictures of 500 ml and 500 l containers, Practice Book

MISCONCEPTION

Children may think they can express all remainders as decimals, as with metric measures (for example, 2 kg 500 g = 2·5 kg). However, 2 weeks 5 days is not 2·5 weeks and 3·25 hours is not 3 hours 25 minutes.

STRENGTHENING UNDERSTANDING

1. Ask: *What does 2·5 kg mean?* Can children show 2·5 kg as kg and grams? (2 kg 500 g) Link to a number line. Ask: *What does the point 5 mean?* (half of a kg) Now ask: *What does it mean for 2·5 hours?* Establish that it still means half, but half of an hour which is 30 minutes.

2. Use two numbers lines to compare. Draw one line from 2 to 3, marked and labelled with four intervals. Draw another below, the same size, but marked in hours and minutes from 2 to 3. Can children represent 3 hours and 15 minutes as a decimal number? Show this using bar models. Encourage children to link 15 minutes to $\frac{1}{4}$ which is the same as 0·25.

3. Discuss other units of measure that are not base 10, like days of the week, months of the year, hours in a day, etc. How would you work out how to write 2 days and 8 hours as a decimal? (2·33 days) Give children other examples to solve.

ASSESSMENT CHECKPOINT

Can children explain the error in Q3 on Practice Book p133?

RESOURCES

Whiteboards, pens, Practice Book