

Maths in Stage 3

Stage 3 students have been involved in the following activities daily -

- 10-15 minutes of quick number facts - usually in a game involving dice
- Mentals
- Strategy practise - revising previous number strategies
- Main focus lesson

Year 5

We have been discovering numbers on the multiplicative place value chart. Students are taught that to move numbers along the place value chart, we are making numbers ten times bigger or smaller. Year 5 are using this knowledge for measurement to convert between different measurements.

Investigation and Reflection

In pairs, students measure lengths and perimeters in centimetres and millimetres, and in metres and centimetres. They record their measurement as a number of millimetres, and then as a number of centimetres and millimetres (for example, 38 mm and 3 cm and 8 mm) or as a number of centimetres, and then as a number of metres and centimetres (for example, 386 cm and 3 m and 86 cm). They record their measurement in a metric measurement chart, explaining how they can read the measurement as both millimetres and as centimetres and millimetres, or as both centimetres and as metres and centimetres. They record the length in centimetres and a fraction of a centimetre (for example, 3 $\frac{8}{10}$ cm) or in metres and a fraction of a metre (for example, 3 $\frac{86}{100}$ m), then in centimetres and a decimal fraction of a centimetre (for example, 3.8 cm) or in metres and decimal fraction of a metre (3.86 m). They then convert between centimetres and millimetres, and between metres and centimetres, by multiplying and dividing by 10 or 100 related to multiplicative place value, for example, $38 \div 10 = 3.8$ so $38 \text{ mm} = 3.8 \text{ cm}$ and $3.8 \times 10 = 38$ so $3.8 \text{ cm} = 38 \text{ mm}$, or $386 \div 100 = 3.86$ so $386 \text{ cm} = 3.86 \text{ m}$ and $3.86 \times 100 = 386$ so $3.86 \text{ m} = 386 \text{ cm}$.

In pairs, children discuss, then record a response to the question: How can we measure length in centimetres and metres and fractions of metres and convert using multiplicative place value? How can we measure length in millimetres and centimetres and fractions of metres and convert using multiplicative place value? (Investigation instructions and Reflection for students appear here, on the Explicit Teaching Video, on the Explicit Teaching PowerPoint, and on the Investigation PDF.)

Problem Solving

• Which measurement is equal to 15 centimetres? 0.15 m 1.5 m 15 m 150 m (0.15 metres)

• Which measurement is equal to 16 millimetres? 0.16 cm 1.6 cm 16 cm 160 cm (1.6 centimetres)

(Differentiable problems for students appear here, on the Explicit Teaching PowerPoint, on the Investigation PDF, on the Problem Solving PDF, and in 3 levels on the Problem Solving PowerPoint.)

Year 6

In year 6 we have been using our knowledge of decimals and multiplying them with whole numbers. We are also using our knowledge of our multiplicative place value chart to multiply whole numbers and decimals. The two strategies we are learning about are – distributive and power of ten.

Investigation and Reflection

Children select cards to make whole numbers and decimals that they are ready to divide. They divide the whole number by the decimal by either:

- keeping the decimal as a decimal and dividing, or
- multiplying the decimal by powers of 10 to make a whole number, dividing by the whole number, then dividing the product by the power of 10.

Children explain their strategy to a friend.

In pairs, children discuss, then record a response to the question: How can we divide decimals by whole numbers and powers of 10? (Investigation instructions and Reflection for students appear here, on the Explicit Teaching Video, on the Explicit Teaching PowerPoint, and on the Investigation PDF.)

Problem Solving

• What number makes this number sentence correct? $1.6 \times ? = 4.8$ (3)

• I divided 2.4 by a whole number and got 1.2. What number did I divide by? (2)

• I divided a decimal by a whole number and got 6.2. What number might I have divided by? (12.4 \div 2, 18.6 \div 3, 24.8 \div 4, 31 \div 5, etc Children find 2 or 3)

• What number, when divided by 9, would have a quotient of 0.7? (6.3)

(Differentiable problems for students appear here, on the Explicit Teaching PowerPoint, on the Investigation PDF, on the Problem Solving PDF, and in 3 levels on the Problem Solving PowerPoint.)