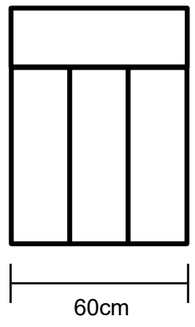
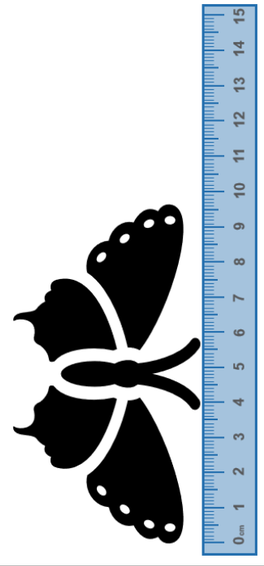
Year 4 Mathematics

ACiQ | v9.0

Australian Curriculum v9.0: Using complexity and familiarity to create questions in Mathematics

The QCAA Mathematics standards elaborations use complexity and familiarity to describe the discernible differences between performance levels. Complexity and familiarity are described in the standard elaborations Notes section — Table 2. This resource provides examples of questions with different levels of complexity and familiarity for Year 4.

Aspect of the achievement standard	Related content description/s	Examples of evidence	Mathematical proficiencies
Students use their understanding of place value to represent tenths and hundredths in decimal form and to multiply natural numbers by multiples of 10.	**Number** • solve problems involving multiplying or dividing natural numbers by multiples and powers of 10 without a calculator, using the multiplicative relationship between the place value of digits AC9M4N05	• multiplying natural numbers by multiples of 10 using their understanding of place value	Fluency
They use scaled instruments and appropriate units to measure length, mass, capacity and temperature.	**Measurement** • interpret unmarked and partial units when measuring and comparing attributes of length, mass, capacity, duration and temperature, using scaled and digital instruments and appropriate units AC9M4M01	• using scaled instruments and appropriate units to measure length	Fluency
Students measure and approximate perimeters and areas.	**Measurement** • recognise ways of measuring and approximating the perimeter and area of shapes and enclosed spaces, using appropriate formal and informal units AC9M4M02	• measuring and approximating perimeters	Fluency

Complexity annotations	Complex unfamiliar questions (A or equivalent)	Familiarity annotations	Complexity annotations	Complex familiar questions (B or equivalent)	Familiarity annotations	Complexity annotations	Simple familiar questions (C or equivalent)	Familiarity annotations
Students work through a number of elements. They use their understanding of multiplying natural numbers by multiples of 10 as they solve the problem involving a Measurement context. Students use appropriate units to record their answer. Interpretation is required to develop a response.	Two snails are back-to-back and move in opposite directions. They move approximately 16 mm per minute. How far apart will they be after 10 minutes? Show your thinking below. Record your answer with appropriate units.	All the information to solve the problem is not immediately identifiable. The required procedure is not clear from the way the problem is posed. The context of calculating the distance that snails travel is unfamiliar to students as it was not the focus in the teaching and learning program.	Students make connections between Number and Measurement. Students use additive and multiplicative thinking to calculate the perimeter, using appropriate formal units. Some interpretation required to develop a response.	The following shape is made of four identical rectangles. Calculate the perimeter of the shape. Show your thinking below. Record your answer with appropriate units. 	All the information to solve the problem is identifiable. The required procedure is clear from the way the problem is posed. The context is familiar to students. Manipulating physical materials to explore arrangements of shapes to calculate perimeter was a focus in the teaching and learning program.	Students use a scaled instrument to measure the length of the butterfly's wingspan. They record their answer using appropriate units.	Approximately how long is the butterfly's wingspan? Use the ruler shown below. Record your answer with appropriate units. 	All the information to solve the problem is identifiable. The required procedure is clear from the way the problem is posed. The context is familiar to students as using scaled instruments and interpreting units when measuring length was a focus in the teaching and learning program.