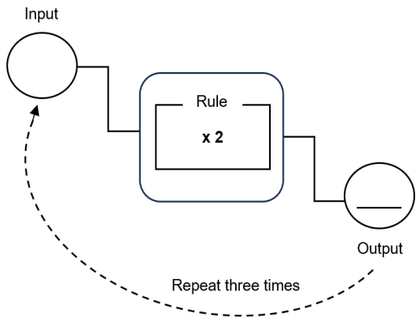
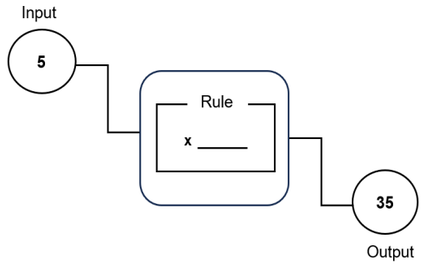
Year 3 Mathematics

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 3.

Aspect of the achievement standard	Related content description/s	Examples of evidence	Mathematical proficiencies
They ~~use mathematical modelling to~~ solve practical problems involving single-digit multiplication and division, recalling multiplication facts for twos, threes, fours, fives and tens, and using a range of strategies.	**Number** • multiply and divide one- and two-digit numbers, representing problems using number sentences, diagrams and arrays, and using a variety of calculation strategies AC9M3N04 **Algebra** • recall and demonstrate proficiency with multiplication facts for 3, 4, 5 and 10; extend and apply facts to develop the related division facts AC9M3A03	• solving practical problems involving single-digit multiplication and division, recalling multiplication facts for twos, threes, fours, fives and tens, using a range of strategies	Fluency
They create algorithms to investigate numbers and explore simple patterns.	**Number** • follow and create algorithms involving a sequence of steps and decisions to investigate numbers; describe any emerging patterns AC9M3N07	• exploring simple patterns	Understanding
		• creating algorithms to investigate numbers	Problem-solving

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 make connections as they explore a simple pattern, recall multiplication facts for two in order to multiply one- and two-digit numbers, and create an algorithm. They record the sequence of steps and decisions made. Interpretation is required to develop a response.	Explore the function machine's multiplication pattern. The first input is 4. Record the steps you took below. 	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 repeating steps on a function machine is unfamiliar. Students have followed and created algorithms and explored and described patterns.	Students use their proficiency with multiplication facts for 3 to explore the pattern and determine if 25 is part of the pattern. They represent the problem to communicate their thinking. Some interpretation is required to develop a response.	A pattern starts at 12 and increases in 3s. I think 25 will be part of the pattern. How can I check my thinking?	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 multiplication facts for three and investigating number patterns was a focus in the teaching and learning program.	Students follow a simple algorithm and explore the pattern. Students recall multiplication facts for five. They describe the pattern by recording the rule on the function machine.	Explore the function machine's multiplication pattern. Record the rule. 	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. Investigating function machines and exploring simple patterns by recalling multiplication facts was part of the teaching and learning program.