

Number and Algebra: Fractions and Decimals:

Place Value Function Machine

Australian Curriculum

This lesson plan could be used to support the teaching and learning of the following Content Descriptions from the Australian Curriculum.

Y6: Number and Algebra, Fractions and Decimals

Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123)

Multiply and divide decimals by powers of 10 (ACMNA130)

Child-Friendly Aim: To multiply and divide numbers by 10, 100 and 1000, giving answers up to three decimal places.	Success Criteria: I can compare and order decimal numbers. I can multiply decimal numbers by 10, 100 and 1000. I can divide numbers by 10, 100 and 1000, giving answers up to three decimal places.	Resources: Lesson Pack Whiteboards and pens
	Key/New Words: Decimal, fraction, tenth, hundredth, thousandth.	Preparation: Get in Line Decimal Number Cards – one per class Place Value Function Machine Activity Sheet – one per child Extra Challenge Activity Sheet – as required

Prior Learning: It will be helpful if children have experience identifying the value of digits in whole numbers and recognise tenths and hundredths in the context of money and measurement.

Learning Sequence

	Get in Line: Give each child a Get in Line Decimal Number Card . Children attempt to line up so that their numbers are all in order from smallest to biggest. They can show their number card to others, but should not talk.	
	Multiply/Divide by 10, 100 & 1000: Use the animated place value chart on the Lesson Presentation to help the children visualise what is happening to the digits in decimal numbers when they are multiplied or divided by 10, 100 or 1000.	
	Function Machine: Use the text and images displayed on the Lesson Presentation to introduce the place value machine which multiplies or divides numbers by 10, 100 or 1000. Work together as a class to calculate the output numbers.	
	Place Value Function Machine: Children complete the differentiated Place Value Function Machines Activity Sheet , to show they can multiply and divide numbers by 10, 100 and 1000, giving answers up to three decimal places. Can the children multiply or divide decimals by 10, 100 or 1000 and find the answer to three decimal places?	
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Calculate the output number of a function machine multiplying and dividing numbers by 10, 100 or 1000.</p> </div> <div style="text-align: center;"> <p>Calculate the output or input number of a function machine multiplying and dividing numbers by 10, 100 or 1000.</p> </div> <div style="text-align: center;"> <p>Calculate the output number of a three-sequence function machine involving multiplying and dividing numbers by 10, 100 or 1000. An Extra Challenge Activity Sheet is also included.</p> </div> </div>	
	Dice Game: At the start of each round, the children are given a decimal number shown on the Lesson Presentation . During each three-minute round, the children take it in turns to roll the dice. They then multiply and divide the number based on the number they roll: 1 = $\times 10$, 2 = $\div 1000$, 3 = $\times 100$, 4 = $\times 1000$, 5 = $\div 100$, 6 = $\div 10$. The person with the biggest number at the end of the round wins a point.	

Exploreit

Exploreit: Ask children to bring in an old shopping receipt, or provide some receipts for them to look at. Ask the children to multiply and divide the prices of items by 10, 100 and 1000.

Buildit: Build decimal numbers using place value arrow cards. Explore how the arrow cards change when the numbers are multiplied and divided by 10, 100 and 1000.