Lesson Plan: Decimals on a number line
Newman Primary School, July 2018

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LEVEL: Year 3 and 4	CONTENT: Number and Algebra	FOCUS: Decimals

In the Classroom	
PURPOSE/ LEARNING INTENTION	We are learning to place decimals and fractions on a number line We are learning the connections between decimals and fractions We are learning that there are many ways to write the same numbers We are learning to recognise, interpret and model fractions and decimals
WARM UP	Number talk – "More or less than a half?" Put a fraction on the board and ask the question Then put a decimal on the board and do the same Repeat a few times Suggested numbers: 1/5 and 0.2, ¾ and 0.75 etc. Encourage the talk as this will help with the activity
EXPLICIT TEACHING & LEARNING	Going to be working in groups or pairs Will be given paper for a number line and some fractions and decimals to put on the line Will use pegs to fix the numbers Need everyone in the group to agree with the placement of the numbers Stop groups after a while to look at what they have done Are all the number lines the same? Do they have questions for each other? Discuss what they have done and then let them continue with the task At the end of the lesson look at the number lines and try to get a consensus of how the numbers should be placed Discuss which numbers are the same, i.e. 1/5 = 0.2 Make clear there are many ways of writing the same numbers How we say numbers can help i.e. 1/5 – one fifth, 0.2 – two tenths
DISCUSSION/ KEY QUESTIONS	Are fractions and decimals the same or different? When do we use fractions? When do we use decimals? Why do we need both?
REFLECTION	What have they learnt? Did anything in the lesson surprise them? What are they still wondering?
RESOURCES	String Cash register paper Pegs Numbers – fractions and decimals

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Curriculum Connections	
CONTENT	**Model and represent unit fractions including 1/2, 1/4, 1/3, 1/5 and their multiples to a complete whole (ACMNA058)** • partitioning areas, lengths and collections to create halves, thirds, quarters and fifths, such as folding the same sized sheets of paper to illustrate different unit fractions and comparing the number of parts with their sizes • locating unit fractions on a number line • recognising that in English the term 'one third' is used (order: numerator, denominator) but that in other languages this concept may be expressed as 'three parts, one of them' (order: denominator, numerator) for example Japanese **Count by quarters halves and thirds, including with mixed numerals. Locate and represent these fractions on a number line (ACMNA078)** • converting mixed numbers to improper fractions and vice versa • investigating the use of fractions and sharing as a way of managing Country: for example, taking no more than half the eggs from a nest to protect future bird populations **Recognise that the place value system can be extended to tenths and hundredths. Make connections between fractions and decimal notation (ACMNA079)** • using division by 10 to extend the place-value system • using knowledge of fractions to establish equivalences between fractions and decimal notation
WHAT CAME BEFORE	**Recognise and interpret common uses of halves, quarters and eighths of shapes and collections (ACMNA033)** • recognising that sets of objects can be partitioned in different ways to demonstrate fractions • relating the number of parts to the size of a fraction
WHAT COMES NEXT	**Compare and order common unit fractions and locate and represent them on a number line (ACMNA102)** • recognising the connection between the order of unit fractions and their denominators **Compare, order and represent decimals (ACMNA105)** • locating decimals on a number line
VOCABULARY	Number line Fraction Decimal Half Quarter Tenth Third Fifth etc.
MISCONCEPTIONS	Fractions and decimals are two separate number systems

WHAT PROFICIENCIES ARE TO BE UTILISED?	**Level 3** • **understanding** includes connecting number representations with number sequences, partitioning and combining numbers flexibly, <mark>representing unit fractions</mark>, using appropriate language to communicate times, and identifying environmental symmetry • **fluency** includes recalling multiplication facts, using familiar metric units to order and compare objects, identifying and describing outcomes of chance experiments, interpreting maps and communicating positions • **problem-solving** includes formulating and modelling authentic situations involving planning methods of data collection and representation, making models of three-dimensional objects and using number properties to continue number patterns • **reasoning** includes using generalising from number properties and results of calculations, comparing angles and creating and interpreting variations in the results of data collections and data displays **Level 4** • **understanding** includes <mark>making connections between representations of numbers</mark>, partitioning and combining numbers flexibly, <mark>extending place value to decimals</mark>, using appropriate language to communicate times and describing properties of symmetrical shapes • **fluency** includes recalling multiplication tables, communicating sequences of simple fractions, using instruments to measure accurately, creating patterns with shapes and their transformations and collecting and recording data • **problem-solving** includes formulating, modelling and recording authentic situations involving operations, comparing large numbers with each other, comparing time durations and using properties of numbers to continue patterns • **reasoning** includes using generalising from number properties and results of calculations, deriving strategies for unfamiliar multiplication and division tasks, comparing angles, communicating information using graphical displays and evaluating the appropriateness of different displays.
ASSESSMENT/ SUCCESS CRITERIA	I can place decimals on a number line I can place fractions on a number line I can match fractions to equivalent decimals