Year 3 Unit 9: Fractions (3 weeks)

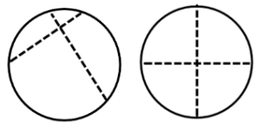
Before you start…

- *What representations do pupils have for simple fractions?*
- *How familiar are pupils with using part-whole language to describe relationships?*
- *How familiar are pupils with finding simple fractions of quantities and shapes?*

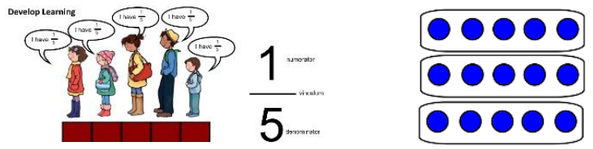
Example: If the queue of people is the whole, _____is part of the whole.

If pupils are unfamiliar with Cuisenaire rods then you may wish to spend time prior to lesson five exploring this resource.

Which of these shapes are split into equal parts? How do you know?



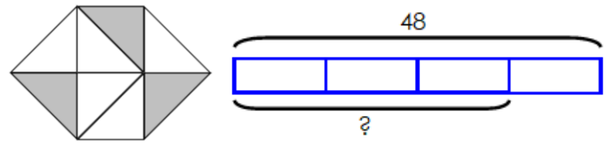
***Video:** Representing fractions using Cuisenaire*



Teaching Fractions with Understanding: Part-whole Concept

This article provides more ideas about gaining a conceptual understanding of fractions.

***Video:** Understanding the procedure for finding a fraction of a quantity*



Understanding part-whole relationships

L1 Describe part-whole relationships
L2 Recognise parts that are equal and that are not equal

In order to understand fractions, pupils need a flexible understanding of part-whole relationships. Using the Big Picture to provide a context, pupils make connections to previous learning of identifying the part and the whole.

? *Equal parts is a key aspect of understanding fractions. What examples and non-examples of equal parts will you present?*

Exploring unit fractions

L3 Identify and describe unit fractions
L4 Find fractions of a given quantity (unit fractions only)
L5 Represent fractions using Cuisenaire

Pupils describe unit fractions in context and later attach it to the abstract notation with explanation of the denominator and numerator in relation to the pictorial representation. Pupils explore finding a fraction of an amount. Again, this begins with grouping using a pictorial representation and, when confident, pupils can then investigate in the abstract. They note patterns they can see and make connections to multiplication and division facts. Pupils explore unit fractions using Cuisenaire (see video above).

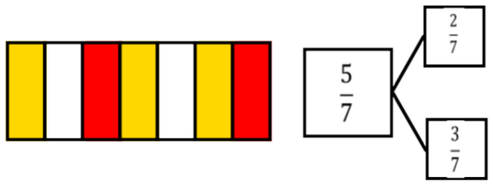
? *What language will you use to support pupils to have a deep understanding of the role of the denominator and numerator?*

Exploring non-unit fractions

L6 Identify and describe non-unit fractions
L7 Find non-unit fractions of a given quantity

In these lessons pupils focus on non-unit fractions and consolidate their understanding of the language of numerator and denominator. They find fractions of quantities in context using a variety of representations, including the use of a bar model.

Before moving on to Unit 10, you may wish to spend time consolidating. From your assessments, consider if pupils recognise and can: compare unit and non-unit fractions? Recognise equivalent fractions? Solve fraction problems in context?



$\frac{3}{7} + \frac{2}{7} = \frac{5}{7}$ $\quad \frac{5}{7} - \frac{3}{7} = \frac{2}{7}$ $\quad \frac{5}{7} - \frac{2}{7} = \frac{3}{7}$

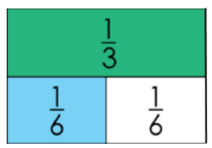
Adding and subtracting fractions

L14 Add and subtract fractions with the same denominator

Pupils solve problems that involve adding and subtracting fractions with the same denominator using concrete manipulatives and pictorial representations. Make connections to known facts, for example *if I know 3 add 2 is equal to 5, then 3 sevenths add 2 sevenths is equal to 5 sevenths.*

? *What representations will you use to address the misconception that the denominators do not get added like the numerators?*

***Video:** Adding fractions with the same denominator*



Two sixths is equal to ___ third.

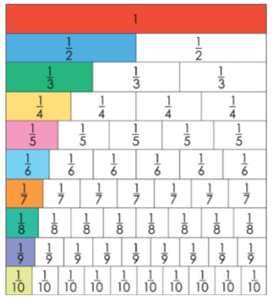
$\frac{2}{6} = \frac{\square}{\square}$

Understanding equivalent fractions

L11 – L13: Recognise equivalent fractions

It is important that pupils build their understanding of equivalent fractions through concrete and pictorial representations. Fraction bars or strips of paper are suggested initially, moving on to other pictorial representations to support the pupils in building connections, enhancing their understanding before moving on to more abstract representations in lesson 13.

Lesson 10 is a suggested consolidation lesson. You may want to give pupils further practice in finding fractions of quantities and comparing/ordering them.



Comparing fractions

L8 Compare fractions with the same denominator
L9 Compare unit fractions

Using manipulatives to build conceptual understanding, pupils begin to compare and order fractions with the same denominator. Pupils apply this to compare unit fractions.

? *What misconceptions might a pupil have when comparing fractions; how can you address these and use them as learning opportunities?*

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