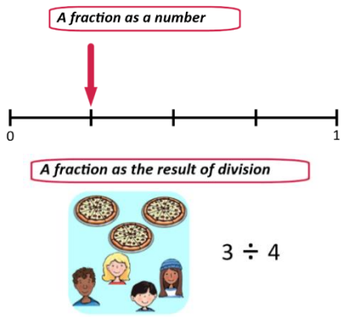
Year 5 Unit 6: Fractions and Decimals (3 weeks)

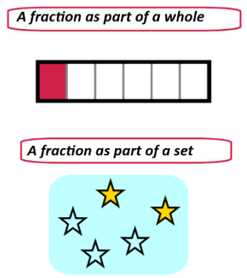
Before you start…

- *Are you familiar with models used in this unit such as representing fractions with Cuisenaire?*
- *Are your pupils familiar with language such as numerator, denominator and vinculum?*
- *Do your pupils have a conceptual understanding of tenths and hundredths?*

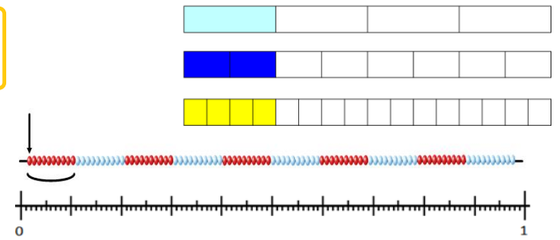
Video: *Writing fractions*



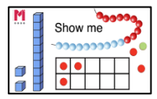
Video: *Representing fractions with Cuisenaire*



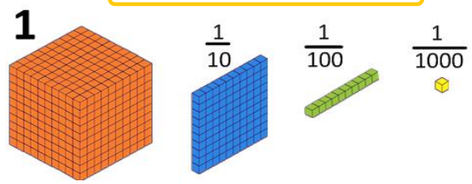
Video: *Exploring fractions with paper folding*



Challenge pupils to try and show their understanding using a range of manipulatives.



Video: *Reassigning Dienes: Thousandths*



Interpreting fractions in different ways

L1 Recognise different interpretations of fractions
L2 Represent fractions

Fractions are complex and can be interpreted in different ways; use the first lesson as an opportunity to explore various interpretations and assess pupils' understanding. In lesson two, Cuisenaire rods provide further opportunity to explore, reason and deepen pupils' understanding of fractions.

Understanding equivalent fractions

L3 Identify, name and write equivalent fractions
L4 Equivalent tenths and hundredths
L5 Compare and order fractions

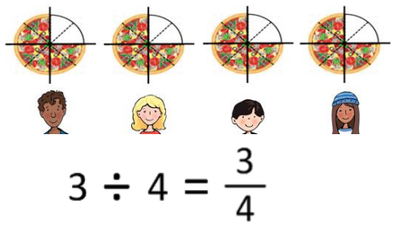
Pupils explore equivalent fractions including equivalents for tenths and hundredths. Experiences with equivalent fractions should go beyond multiplying the numerator and denominator by the same value. The focus should be on identifying different relationships between and within fractions, noticing patterns and allowing pupils to make connections to multiplication and division.

? *What pictorial representations will support pupils' conceptual understanding of equivalent fractions?*
? *Why might a bead string be a useful representation when exploring tenths and hundredths?*

Connecting fractions and decimals

L6 Read and write fractions as decimals
L7 Relate thousandths to tenths and hundredths
L8 Compare and order decimals and fractions

Year 5 is the first time pupils will explore thousandths. Dienes blocks are assigned new values (see above) and are used to represent and connect fractions and decimals. Pupils explore the relationship between thousandths, tenths and hundredths. Draw attention to connections between decimal place value and whole number place value. Pupils should then have opportunity to compare both decimals and fractions by placing them on a number line, explaining their choices and generating statements of inequality.



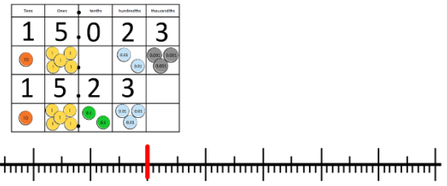
Solving problems with fractions

L13 Solve problems involving fractions and division

Pupils explore divison problems in context, connecting short division with place value counters to fractions. Pupils recognise that remainders can be written as a decimal and are encouraged to record answers in more than one way to show their understanding.

Video: *Relating fractions to division*

Video: *Division with remainders*



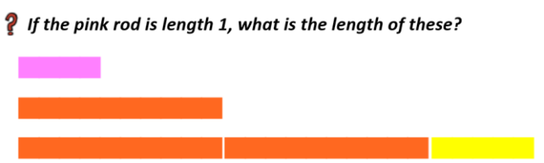
Exploring numbers with up to three decimal places

L11 Read, write and order numbers with up to three decimal places
L12 Round decimals

Pupils explore the value of each digit within decimal numbers, using place value counters. Connections should be made to whole number place value. Number lines are the chosen representation because it supports pupils in understanding relationships between numbers. Again, connections should be made to previous learning of rounding whole numbers.

? *What deliberate errors will you draw pupils' attention to?*

L10 is a suggested consolidation lesson. You may want explore further inequality statements that include fractions and decimals greater than 1, using manipulatives to explain and reason why they are correct.



Understanding mixed numbers and improper fractions

L9 Recognise improper fractions and mixed numbers

So far the focus has been on fractions that are less than one. This lesson reviews learning from Year 4, providing opportunites to explore mixed numbers and improper fractions using Cuisenaire. Connections should be made to decimal numbers greater than 1. Inequality statements are explored and pupils should be encouraged to use Cuisennaire to support an explanation of how they know they are correct.

Pupils may find it difficult to attach new values to Dienes. How can you to ensure your pupils have enough experience with Dienes and the new values to use them meaningfully?