

<b>Number sense 6.5</b>	Length of unit: <b>3 weeks</b>	Week beg:	Year:6	Teacher:
<p><b>Success Criteria</b></p> <p>Pupils can represent and explain the relationship between decimals, fractions and percentages and equivalences within fractions. They use this understanding to solve problems.</p> <p>Pupils can use their understanding of the multiplicative nature of the number system to convert between different units of measures, knowing when it is appropriate to use their understanding of how to multiply and divide by 10, 100 and 1000.</p> <p>Pupils make appropriate decisions about when to use their understanding of counting, place value and rounding for solving problems including adding and subtracting.</p>	<p><b>Prior Learning</b></p> <p>Check that children can already</p> <ul style="list-style-type: none"> <li>• read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit</li> <li>• count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</li> <li>• interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero</li> <li>• round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000</li> <li>• solve number problems and practical problems that involve all of the above</li> <li>• multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</li> <li>• read and write decimal numbers as fractions [for example, <math>0.71 = \frac{71}{100}</math>]</li> <li>• recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</li> <li>• round decimals with two decimal places to the nearest whole number and to one decimal place</li> <li>• read, write, order and compare numbers with up to three decimal places</li> <li>• solve problems involving number up to three decimal places</li> <li>• convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</li> <li>• solve problems involving converting between units of time</li> <li>• compare and order fractions whose denominators are all multiples of the same number</li> <li>• recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt;1</math> as a mixed number [for example, <math>\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}</math>]</li> <li>• recognise the per cent symbol (%) and understand that per cent relates to “number of parts per hundred”, and write percentages as a fraction with denominator 100, and as a decimal</li> </ul>		<p><b>Resources</b></p> <p>Maths vocabulary book</p> <p>Using and Applying in every maths lesson</p> <p>Assessment through guided maths</p> <p>Think Maths!</p> <p>Pitch and Expectations Y6 and Y7</p> <p>Mind the Gap (L3 to L4)</p> <p>Overcoming Barriers to Learning – L3 to 4 and L4 to 5 (available online)</p> <p>Securing Level 4 and Securing Level 5 documents</p> <p>Errors and Misconceptions in Maths at KS2</p>	
<p><b>Guidance</b></p> <p>Pupils know approximate conversions and are able to tell is an answer is sensible.</p> <p>Pupils connect conversion (for example, from kilometers to miles) to a graphical representation as preparation for understanding linear/proportional graphs.</p> <p>Pupils can explore and make conjectures about converting a simple fraction to a decimal fraction (for example <math>3 \div 8 = 0.375</math>). For simple fractions with recurring decimal equivalents, pupils should learn about rounding the decimal to three decimal places or appropriate approximations depending on the context.</p>				

## Learning objectives

### Number and place value

- read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
- round any whole number to a required degree of accuracy
- use negative numbers in context and calculate intervals across zero
- solve number and practical problems that involve all of the above

### Fractions (including decimals and percentages)

- identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
- use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- compare and order fractions, including fractions greater than 1
- associate a fraction with division and calculate decimal fraction equivalents (for example 0.375) for a simple fraction (for example  $\frac{3}{8}$ )
- recall and use equivalences between simple fractions, decimals and percentages, including in a different context

### Measurement

- use, read, write and convert between standard units, converting measurements of length, mass and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
- convert between miles and kilometres.

## Pupil outcomes:

I can explain and represent how I know how to order the numbers  $\frac{9}{7}$ ,  $1\frac{1}{3}$ ,  $\frac{8}{6}$ ,  $\frac{10}{11}$ ,  $\frac{11}{12}$ ,  $\frac{21}{24}$  and mark them on a number line.

I can convert the fractions to decimals and percentages and calculate how far each fraction is from 1.

I can explain and represent how I know how to convert from km to metres and km to miles. I can use this understanding to say which of these places in Paris is furthest from London: Eiffel Tower (452km), Charles de Gaulle Airport ((433 000m), Euro Disney (291 miles). I can explain and justify how I know and the level of accuracy used.