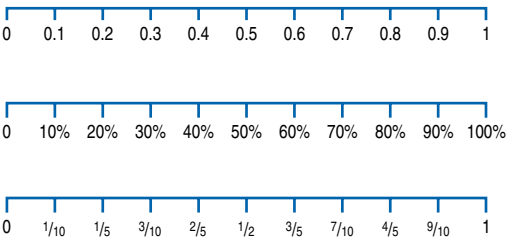
NUMBER — Fractions, decimals, percentages, ratio and proportion

Pupils should learn to:	As outcomes, Year 7 pupils should, for example:
Understand percentage as the number of parts per 100; recognise the equivalence of fractions, decimals and percentages; calculate percentages and use them to solve problems	**Understand percentage as the number of parts in every 100, and express a percentage as an equivalent fraction or decimal.** For example: Convert percentages to fractions by writing them as the number of parts per 100, then cancelling. For example: • 60% is equivalent to $^{60}/_{100} = {}^{3}/_{5}$; • 150% is equivalent to $^{150}/_{100} = {}^{3}/_{2} = 1\frac{1}{2}$. Convert percentages to decimals by writing them as the number of parts per 100, then using knowledge of place value to write the fraction as a decimal. For example: • 135% is equivalent to 135 ÷ 100 = 1.35. **Recognise the equivalence of fractions, decimals and percentages.** Know decimal and percentage equivalents of simple fractions. For example, know that 1 ≡ 100%. Use this to show that: • $^{1}/_{10}$ = 0.1 which is equivalent to 10%; • $^{1}/_{100}$ = 0.01 which is equivalent to 1%; • $^{1}/_{8}$ = 0.125 which is equivalent to $12\frac{1}{2}$%; • $1\frac{3}{4}$ = 1.75 which is equivalent to 175%; • $^{1}/_{3}$ = 0.333… which is equivalent to $33\frac{1}{3}$%. Express simple fractions and decimals as equivalent percentages by using equivalent fractions. For example: • $^{3}/_{5}$ = $^{60}/_{100}$ which is equivalent to 60%; • $^{7}/_{20}$ = $^{35}/_{100}$ which is equivalent to 35%; • $2\frac{3}{4}$ = $^{275}/_{100}$ which is equivalent to 275%; • 0.48 = $^{48}/_{100}$ which is equivalent to 48%; • 0.3 = $^{30}/_{100}$ which is equivalent to 30%. Use number lines to demonstrate equivalence.  **Link the equivalence of fractions, decimals and percentages to the probability scale (pages 278–9), and to the interpretation of data in pie charts and bar charts (pages 268–71).**

NUMBER

Fractions, decimals, percentages, ratio and proportion

As outcomes, Year 8 pupils should, for example:	As outcomes, Year 9 pupils should, for example:
Understand percentage as the operator 'so many hundredths of'. For example, know that 15% means 15 parts per hundred, so 15% of Z means $^{15}/_{100} \times Z$.	This column has intentionally been left blank.
Convert fraction and decimal operators to percentage operators by multiplying by 100. For example: • 0.45 $0.45 \times 100\% = 45\%$ • $^{7}/_{12}$ $(7 \div 12) \times 100\% = 58.3\%$ (to 1 d.p.)	
Link the equivalence of fractions, decimals and percentages to the probability scale (pages 278–9), and to the interpretation of data in pie charts and bar charts (pages 268–71).	