

## Fractions, decimals, percentages, ratio and proportion

### As outcomes, Year 8 pupils should, for example:

Use vocabulary from previous year and extend to: profit, loss, interest, service charge, tax, VAT... unitary method...

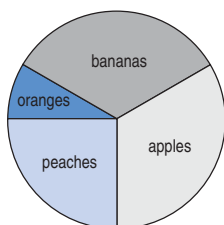
### Use the equivalence of fractions, decimals and percentages to compare simple proportions and solve problems.

Apply understanding of simple percentages to other contexts, such as:

- the composition of alloys in science: for example, a 2p coin is 95% copper, 3.5% tin and 1.5% zinc;
- the age distribution of a population in geography;
- the elements of a balanced diet in nutrition;
- the composition of fabrics in design and technology: for example, a trouser fabric is 83% viscose, 10% cotton, 7% Lycra.

Answer questions such as:

- There is 20% orange juice in every litre of a fruit drink. How much orange juice is there in 2.5 litres of fruit drink? How much fruit drink can be made from 1 litre of orange juice?
- This chart shows the income that a market stall-holder got last week from selling different kinds of fruit.



The stall-holder got £350 from selling bananas. Estimate how much she got from selling oranges.

- 6 out of every 300 paper clips produced by a machine are rejected. What is this as a percentage?
- Rena put £150 in her savings account. After one year, her interest was £12. John put £110 in his savings account. After one year, his interest was £12. Who had the better rate of interest, Rena or John? Explain your answer.

[Link to problems involving percentages \(pages 2-3\).](#)

### As outcomes, Year 9 pupils should, for example:

Use vocabulary from previous years and extend to: cost price, selling price, compound interest...

### Recognise when fractions or percentages are needed to compare proportions and solve problems.

Answer questions such as:

- A slogan on a tube of mints says that it is 23% bigger. It contains 20 mints. How many mints are there in the normal tube?
- Which is the better buy: a 400 g pack of biscuits at 52p, or a pack of biscuits with 400g + 25% extra, at 57p?
- In a phone bill, VAT at 17.5% is added to the total cost of calls and line rental. What percentage of the total bill is VAT?
- In 1999, about 50% of the world's tropical rain forests had been destroyed. About 180 000 square kilometres are now destroyed each year. This represents about 1.2% of the remainder. Estimate the original area of the tropical rain forests.
- The prices of five items A, B, C, D and E in 1991 and 2001 are shown on these scales.



Which of the items showed the greatest percentage increase in price from 1991 to 2001?

[Link to problems involving percentages \(pages 2-3\).](#)