

Recipes, mixtures and scaling quantities

CURRICULUM ALIGNMENT

NUM.FRC.4b

investigate proportionality and ratios of quantities (sets).

NUM.FRC.4a

explore (model, compare and convert) the relationships between fractions, decimals and percentages.

INTERACTIVES Ratio Bars · challenge, display, explore

WHAT THIS LESSON TEACHES

When scaling a recipe or mixture, multiply every ingredient by the same scale factor so the balance stays correct.

→ A recipe for 4 scaled to 8 uses a scale factor of 2 - every ingredient doubles.

→ 1 part juice to 4 parts water in 1 litre: 5 parts, so each part is 200 ml.

MODEL THIS ON THE BOARD

SCALING THE PANCAKE RECIPE

- 1 Original recipe is for 4 people so scale factor for 8 people is 2.
- 2 Multiply every ingredient by 2: eggs 2×2 , flour $400 \text{ g} \times 2$ and milk $600 \text{ ml} \times 2$.
- 3 New amounts are 4 eggs, 800 g flour and 1200 ml milk.

ANSWER KEY

Scaffold: visual check on the page

Q1: 700 g

Q2: 1,500 ml

Q3: 420 ml

Q4: 120 ml

a) Always — All ingredients must be multiplied by the identical factor.

b) Never — The balance is lost so the mixture fails.

c) Always — 900 ml divided by 6 parts is 150 ml.

d) Never — Halving uses scale factor $1/2$.

EXTENSION SHEET · STRETCH ANSWERS

S1: 900 g

S2: 720 g

S3: 360 g

Investigation: Cooking for a crowd — open-ended; scan pupils' working for valid solution paths rather than a single answer.