

Proportion: scale up the recipe

CURRICULUM ALIGNMENT

NUM.FRC.4b investigate proportionality and ratios of quantities (sets).

INTERACTIVES **Ratio Bars** · challenge, display, explore

WHAT THIS LESSON TEACHES

Two quantities are in proportion when they change together at the same rate. If one amount is multiplied by a number, the other amount is multiplied by the same number.

→ A porridge recipe for 2 people uses 1 cup of oats; for 4 people (double) it uses 2 cups (double).

→ Going from a 4-portion recipe to a 12-portion recipe means a scale factor of x3 so every ingredient is tripled.

MODEL THIS ON THE BOARD

CLASS PORRIDGE FOR 28

- 1 The base recipe feeds 2 people with 1 cup oats and 2 cups water.
- 2 The class has 28 people so the scale factor is 28 divided by 2 = 14.
- 3 Oats: 1 cup x 14 = 14 cups.
- 4 Water: 2 cups x 14 = 28 cups.

ANSWER KEY

Scaffold: visual check on the page

Q1: 2 cups

Q2: 4 cups

Q3: 56 cups

Q4: 15 cups

a) Always : Both quantities must be multiplied by the same scale factor to stay in proportion.

b) Never : Changing only one quantity breaks the proportion and spoils the recipe.

c) Always : 6 divided by 2 equals 3 so every amount is multiplied by 3.

d) Sometimes : Scale-up factors are often whole numbers but the rule works for any positive multiplier.

EXTENSION SHEET · STRETCH ANSWERS

S1: 900 g

S2: 700 g

S3: 720 g

S4: 360 g

S5: 525 g