



A Dog's Breakfast

Achievement Objectives:

Understand operations on fractions, decimals, percentages, and integers.

Purpose:

This is a level 5 number activity from the Figure It Out series. It relates to Stage 8 of the Number Framework.

Specific Learning Outcomes:

find percentages of whole numbers

Description of mathematics:

Number Framework Links

Use this activity to help students consolidate and apply their knowledge of fractions, proportions, and ratios (stage 7).

Required Resource Materials:

FIO, Level 3+, Proportional Reasoning, A Dog's Breakfast, page 24
A calculator

Activity:

This activity gives students practice at finding percentages of amounts using a calculator and rounding.

In question 1, they need to add up the number of meals the dogs have in 1 day and then double this to give the number needed for 2 days.

In question 2, they need to calculate the daily food allowance for each dog and divide this by the number of times the dog is to be fed. For example, Danny the Dane's daily allowance is 2% of 59 kg. $0.02 \times 59 = 1\ 180$ g. $1\ 180 \div 2 = 590$ g per meal.

A more efficient strategy would be to use the fact that Danny's daily allowance is 2% of his body weight and he gets this in two instalments. This means that he must get 1% (half of 2%) of his body weight each morning and evening. 1% of 59 kg is 0.59 kg or 590 g.

Make sure that your students know how you expect them to solve percentage problems on a calculator. Insist that they enter percentages directly as their decimal equivalents. This reinforces the fact that, for example, $4\% = 0.04$ and means that the students will not be at a loss when they have to use a calculator without a % key.

Teach them how to read a decimal as a percentage (for example, 1.2 as 120%). Discourage them from multiplying by 100/1.

By learning good practices at this stage, they will come to understand the meaning of percentages and how to work with them as numbers.

Note that the activity uses kilograms as the unit for mass while the answers use grams.

Ask your students for their views on the reason for this apparent inconsistency.

The reason is that the gram unit is most suited to small weights, particularly those less than a couple of kg, while the kg unit is most suited to bigger weights, particularly those that are over a couple of thousands of grams.

This is partly because all those zeros on bigger weights become a nuisance (Sam the St Bernard with a weight of 78 000 g!) and partly because we are not usually interested in finding or writing the weights of heavier things accurate to the last gram.

The question calls for answers to be rounded to the nearest 10 g. Check that everyone understands how to do this, making sure that they understand the convention of rounding up when the number is halfway between two 10s.

Many students are very interested in pets and may like to use this activity as a springboard for extension work. They could investigate local kennels, including how they manage the feeding process, ensure hygiene, allow for exercise, and what they charge. Or they could investigate what daily food allowance is recommended for cats and survey friends and classmates to find out how much their cats weigh and how much food they are fed.

Answers to Activities

1. 26. (13 meals a day for 2 days)
2. Here is one way of setting out a chart:

	Day 1			Day 2		
	Morning	Midday	Evening	Morning	Midday	Evening
Pete	110 g	110 g	110 g	110 g	110 g	110 g
Benny	100 g		100 g	100 g		100 g
Spike	210 g		210 g	210 g		210 g
Molly	720 g			720 g		
Danny	590 g		590 g	590 g		590 g
Sam	520 g	520 g	520 g	520 g	520 g	520 g

A Dog's Breakfast

You need a calculator

Activity

Jamie helps out at the Top Dog boarding kennels. This afternoon, he is organising meals for the next 2 days for the 6 dogs at the kennels:



Jamie sorts out the right amount of food for each dog and puts it into bags, ready for the staff to give out at mealtimes. He uses these guidelines to help him work out the amounts:

Daily food allowance			
Dog size	Small (under 10 kg)	Medium (10 kg – 25 kg)	Large (over 25 kg)
Amount	4% of body weight	3% of body weight	2% of body weight

- How many bags of dog food does Jamie need to get ready?
- Make a chart that shows how much food should be given to each dog at each mealtime. (Round amounts to the nearest 10 grams.)