# Loafing About

The pig, the dog, and the cat watched hungrily as the little red hen and her chicks devoured the entire loaf of bread by themselves. "Mmmmm… That was delicious," gloated the little red hen. "This yummy, fresh bread just melts in your mouth."

With that she retired to her straw bed and slept soundly. The other animals got no sleep at all because of the awful, thunderous rumbling sounds from their empty stomachs.

When the sun dawned brightly the next morning, the little red hen started work again. "Do you want to help me make the next loaf of bread?" she asked the pig, the dog and the cat. The other animals reluctantly agreed. "Alright, here's the deal," she continued, "I want no slacking on the job so I'm going to keep a record of how long each of you spends helping me. That way I can share out the bread fairly at the end."
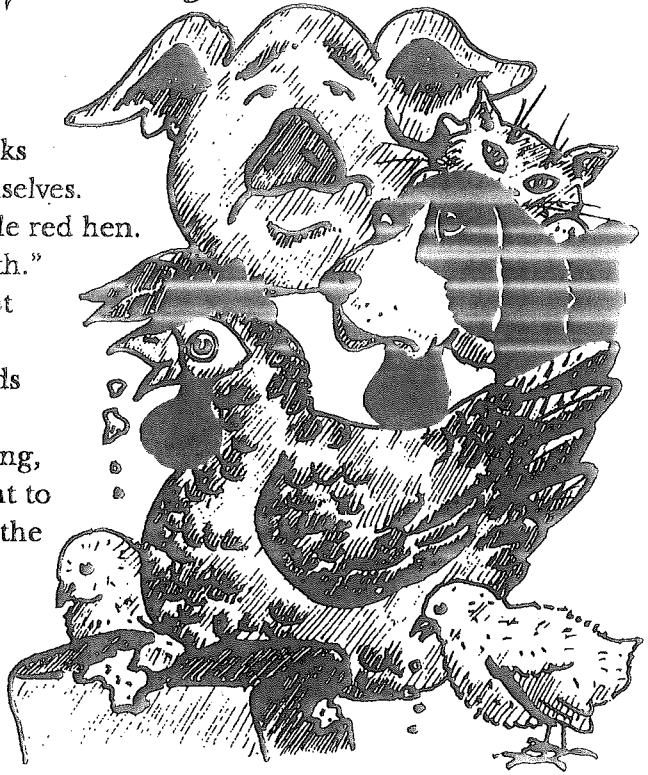
She found a wingful of grain.

"Who will help me plant this wheat?," she asked.

"I will," answered the pig, silently wishing that the farmer would eat roast poultry more often. It took the little red hen and the pig twenty-five minutes to plant the wheat.

"Who will help me water the wheat?" she enquired.

"I will," replied the dog, reminding himself to tell the farmer that eggs contain far too much cholesterol.

They watered the wheat five times and it took four minutes each time.

"Who will help me harvest the wheat?," she queried.

"I will," answered the cat thinking that it was time the farmer's wife made a new feather eiderdown. It took the cat and the little red hen half an hour to harvest the wheat.

"Who will help me to thresh the wheat?" the little red hen enquired.

"I think it's my turn again," answered the pig as he dreamed of butter melting on hot bread. It took both of them fifteen minutes to thresh the wheat.

"Who will help me grind the wheat?," she asked.

"Let me at it," replied the dog as he hallucinated about beef sandwiches made from fresh bread. Together they ground the wheat into flour in forty minutes.

"Who will help me to bake the bread?" queried the little red hen.

"Hand me an apron," volunteered the cat as she fantasised about mouse hotdogs with tomato sauce. It took one hour and ten minutes to bake the bread. Out it came from the oven, a one metre long golden-crusted French stick, hot and steamy.

How much bread should each animal have received for their work?
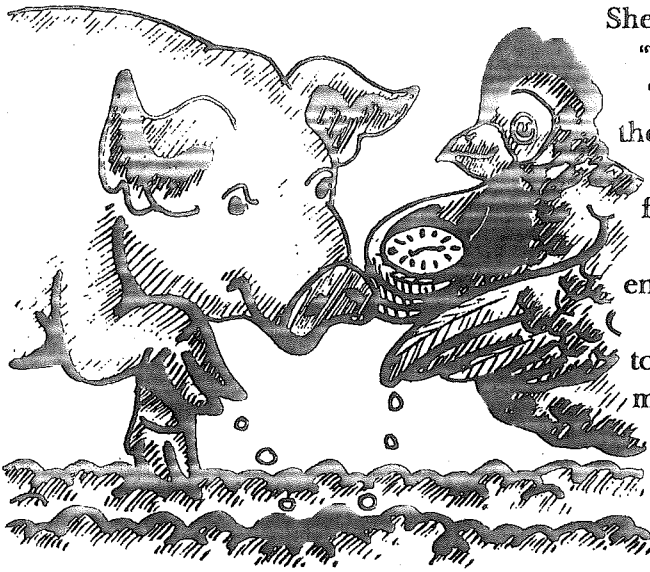
Learning outcomes

- Perform calculations with time.
- Express quantities as fractions or percentages of a whole.
- Express a fraction as a decimal, and vice versa.
- Find fractions equivalent to one given.

Developing the ideas

Using a picture book as a prompt, ask the students to retell the story of "The Little Red Hen".

Continue the story from the extension provided. Discuss how the Little Red Hen could share the loaf of bread fairly for the time each animal spent on making it. The easiest assumption is that each job (planting, baking, etc.) is of equal value but students may have other ideas. Point out that calculating with time is tricky by asking, "Why is 1 hour 45 minutes not the same as 1.45 hours?". (Time is in a base of sixty so 45 minutes is actually 3/4 of an hour.)

Ask, "How many minutes in total were spent making the loaf of bread?" (400 minutes). This can be calculated by adding each amount of time that occurs in the story.

Provide the students with calculators, metre long paper strips and multi-link cubes and tell them to attempt the problem co-operatively in groups. Look for problem-solving strategies which can be shared on reporting back. For example:
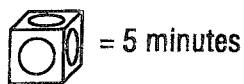
- Organised recording
  Hen 25 + 20 + 30 + 15 + 40 + 70 = 200 minutes
  Pig 25 + 15 = 40 minutes
  Dog 20 + 40 = 60 minutes
 Cat 30 + 70 = 100 minutes

Use of equipment

 = 5 minutes

Metre strip divided into 400 equal spaces
  (i.e. 0.25 cm parts)

Hen	Pig	Dog	Cat

The students will have to apply their knowledge of equivalent fractions. Where necessary model this with paper strips since the starting problem applies to length. Use simple fractions and pattern to generalise conversion rules. For example:

$\frac{1}{2}$	

is equivalent to

$\frac{1}{4}$	$\frac{1}{4}$		
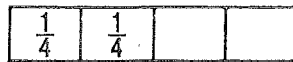
The amount of bread for each animal could be:
Hen $200 \div 400 = 1/2 = 50$ cm
Pig $40 \div 400 = 1/10 = 10$ cm
Dog $60 \div 400 = 0.15 = 15$ cm
Cat $100 \div 400 = 1/4 = 25$ cm

Extend the activity by giving the students the proportions of the metre-long loaf each animal got and writing them to tell the story of what jobs they did and how much time was spent on each job. For example: Hen 40 cm, Pig 30 cm, Dog 15 cm, Cat 15 cm.

Equipment and resources

- Calculators
- Metre long paper strips
- Metre rulers
- Multi-link cubes

Assessment ideas

Students should to recognise the need to convert all times into minutes and be able to add the total time for each animal. Reporting of their answers should be consistent with the requirements of the problem (e.g. the cat got 25 cm because this is 1/4 of one metre). Look for recognition of equivalent fractions (e.g. 40/400 = 1/10) and conversion of these fractions to decimals with the context of the problem.