



Jumping problem – Olivia

Objectives

The relevant framework objectives are:

- identify and use the appropriate operations (including combinations of operations) to solve word problems involving numbers and quantities (Key objective);
- explain methods and reasoning (key objective);
- use a fraction as an operator to find fractions of numbers or quantities, eg $\frac{5}{8}$ of 32, $\frac{7}{10}$ of 40 (key objective).

Activity description

The pupils investigated the problem:

'Freddy Frog sets off on Monday to jump to the pond which is 32 metres away and each day jumps half the remaining distance to the pond. Where will he be on Saturday, and the following Saturday?'

Commentary

Olivia's work shows that she has understood the principal of halving whole numbers and fractions. This is typical of performance of level 4 in Ma2.

She has presented her results in a clear and organised way and is beginning to give an explanation of her reasoning. This approach is typical of performance at level 4 in Ma1.




Items of work

Olivia's verbal response to the problem

CHILD: On Saturday he is at $\frac{1}{2}$ metres away. The following Saturday he will be $\frac{1}{256}$ metres away.



Olivia written solution to the 'jumping problem'

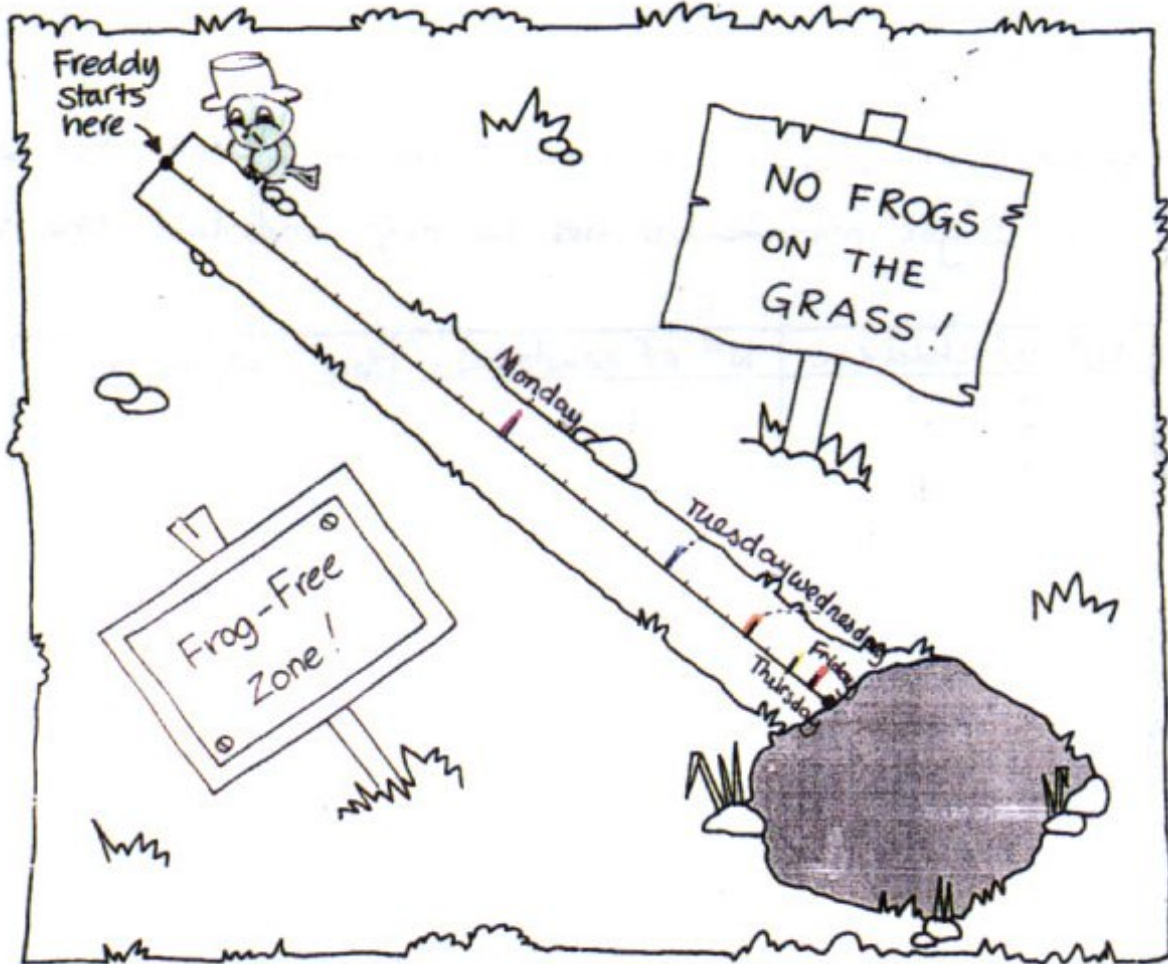
 Distance of Freddie Frog

	The pond	Days
<u>16</u>	Monday	Monday
<u>8</u>	Tuesday	Tuesday
<u>4</u>	wednesday	Wednesday
<u>2</u>	Thursday	Thursday
<u>1</u>	Friday	Friday
<u>1/2</u>	saturday	
<u>1/4</u>	sunday	
<u>1/8</u>	Monday	
<u>1/16</u>	Tuesday	
<u>1/32</u>	Wednesday	
<u>1/64</u>	Thursday	
<u>1/128</u>	Friday	

Freddie can never reach the pond because theres always a little bit left and you're always halving it.



Olivia's pictorial solution to the 'jumping problem'





About this entry

Subject: mathematics

Year: 6

Key stage: 2

NC programme of study: Ma2p1a, Ma2p1b, Ma2p1f, Ma2p1k, Ma2p2d

Attainment target: Ma1, Ma2

Evidence for: level 4

Framework for teaching mathematics – objectives:

- Use a fraction as an 'operator' to find fractions of numbers or quantities (e.g. $\frac{5}{8}$ of 32, $\frac{7}{10}$ of 40, $\frac{9}{100}$ of 400 centimetres).
- Identify and use appropriate operations (including combinations of operations) to solve word problems involving numbers and quantities.
- Explain methods and reasoning.