

INVESTIGATIONS

Toby Russo, North Fitzroy Primary School and James Russo, Monash University

THE TROUBLE WITH DAD AND MUM

Read *The Trouble with Mum* and *The Trouble with Dad* by Bette Cole, then have a go at these mathematical investigations.

DAD IS IN A PICKLE

Read *The Trouble with Mum*. Can you work out how many years dad has been pickled for, if Mum put him in his jar in 1982? Can you work it out another way? Which way was easier? Why?

EXTENSION

When Mum pickled her husband, there were 13 dried toads in the jar. Since then, every year (on her husband's birthday, by coincidence), Mum adds two more dried toads to the jar. How many dried toads are in the jar today? In what year will there be at least 100 dried toads in the jar? Will there ever be exactly 1000 dried toads in the jar? If so, in what year will this occur?

MUM PUTS OUT FIRES

Mum created several clouds to help put out the fire at the school, and made them rain non-stop for five minutes until the fire was out. If each cloud poured out 25 litres of rain per second, how many litres of rain fell in total? (note: you will need to decide how many clouds Mum created).

EXTENSION

If Mum wasn't there to save the day, the fire truck could have been called. If it took the same amount of water to put out the fire, and the hose from the fire truck poured out water at 300 litres per minute, how long would it have taken for the fire truck to put out the fire?

What if the fire truck and mum's magic clouds had worked together, and all poured water onto the fire at the same time? How long would it have taken to put out the fire?

THE SLIMMING MACHINE

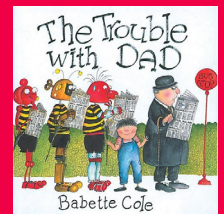
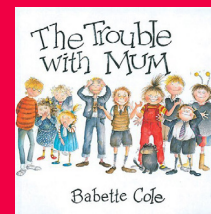
Read *The Trouble with Dad*. The slimming machine certainly does help you lose weight, even if it has the rather unfortunate side-effect of making you a lot smaller. If the lady stepped into the machine weighing 90kg, and stepped out weighing 15kg, how much weight did she lose? How many times lighter is she now?

EXTENSION

If Dad's new robot, a mechanical bull, went haywire and accidentally ran through the slimming machine, how much would it weigh? What if this crazy bull went through the machine twice; approximately how much would it weigh? How many times would the bull need to go through the slimming machine to weigh less than a rabbit? Less than a frog? Less than a fly? Less than a...? (note: you will need to decide how much the mechanical bull might weigh).

DAD'S ROBOTS

Dad's robots did a lot of damage. In total, the repairs cost \$640,000. Fortunately, the eight robots he sold to the rich businessman helped him cover the costs (assume he sold each robot for the same



amount). How much would he have had to have sold each of the eight robots for in order to:

- Pay for the damage?
- Pay for the damage and buy the family a mansion (note: you decide how much the mansion might cost)?
- Pay for the damage, buy the mansion, and pay for a new state-of-the-art robot-making lab worth (note: you decide how much the lab might cost)

EXTENSION

Now Dad and I make 16 robots a year in our new state-of-the-art robot-making laboratory. Each robot costs us \$50,000 to produce. Unfortunately, half of our robots blow up before we can sell them. If we still manage to make more than one million dollars a year profit, at what price might we be selling our robots?

What kinds of investigations have you used in your classroom as a launch for mathematical exploration? Our readers would love to hear your experiences. You can share your ideas with us at primenumber@mav.vic.edu.au.