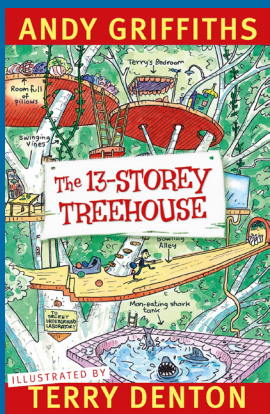# INVESTIGATIONS

James Russo, Monash University and Toby Russo, Spensley Street Primary School

TREEHOUSE SERIES MATHS PROBLEMS

Andy Griffiths and Terry Denton's Treehouse series is popular with primary school children. The following investigations draw from the first book, *The 13-Storey Treehouse.*

THE GIANT BANANA

In the secret underground laboratory, Terry uses his enlarger on a banana. Imagine it's just a regular size banana to begin with, but ends up the same height as Terry. How many times bigger did the enlarger make the banana? You will need to estimate the length of an average banana and Terry's height to work out the power of the ray.

Hint: Use your handspan to estimate the length of a banana. Measure your outstretched hand from the tip of your finger to the tip of your thumb. Now assume Terry is about your height. How much has the banana grown?

EXTENSION

How much more banana is there now? If it weighed 120 grams before it was enlarged, how much does it weigh now and how many kids could have it for a snack?

GROWING SEA MONKEY

Once the sea monkey had eaten all the sea-monkey growth food (and all the other sea-monkeys!) it began to grow quickly. Within a few seconds, it doubled in size. Then it doubled again! To begin, the sea-monkey was teeny (only 1cm wide). How long did it take to fill up the jar? Growing at this rate, how long until it was a human-sized mermaid called Mermaidia?

Hint: Imagine it doubled in size every 3 seconds. Draw a table to show how big it was after 6 seconds and 12 seconds.

EXTENSION

Imagine the sea-monkey didn't stop growing… how long until it was the size of an elephant? How long until it was as big as...

MERMAIDIA THE SEA MONSTER

Luckily Terry put his enlarger in reverse and blasted Mermaidia the sea monster! She began to shrink until she was just the size of a jelly bean. If the ferocious Mermaidia was 2m long, how powerful was the ray when in shrink mode?

Hint: Mermaidia is the size of a jelly bean after being zapped. Let's say a jelly bean is 2cm long...

EXTENSION

Imagine you used Terry's ray on different things at school. What is the largest thing you could shrink at school that would be small enough to fit in your pocket after you zapped it? What is the smallest thing you could shrink at school that would still be big enough to see with the naked eye afterwards?

THOUSAND-STOREY TREEHOUSE

Andy and Terry started with The 13-Storey Treehouse, followed by The 26-Storey Treehouse... and in 2019 released The 117-Storey Treehouse. Which book number are they up to? What do you think the title of their next book will be? What about the 14th book in their series? Imagine Andy and Terry continue to release books until they are so old their brains are living inside robots, what book do you think they would release in 2100?

If you're a fan of the Treehouse series, think about some other maths problems facing Andy, Terry and Jill on their adventures. How many combinations of flavours could there be at the ice-cream parlour with 78 flavours? What about Andy's Very Bad Teacher who didn't know how to count? You may want to share your ideas with us at primenumber@mav.vic.edu.au.