



# INVESTIGATIONS

Toby Russo, Bell Primary School and James Russo, Monash University

## PANCAKES, PANCAKES!

Read *Pancakes, Pancakes!*, by Eric Carle and tackle the investigations, suitable for students in Year 3 and beyond.

### CHALLENGING TASK 1: DESIGNING JACK'S FARM

Did you know it takes about 1 metre squared of wheat crops to get one bag of flour? Jack's family have a rectangular farm on which they are growing wheat. Their farm is surrounded by 24 metres of fence. What is the maximum amount of flour they can produce from the wheat on their farm? What are all the different size farms they might have? You may want to use concrete materials (e.g. toothpicks) to represent the different possibilities.

#### ENABLING PROMPT

Imagine Jack's wheat farm is 12 metres squared, so it produces 12 bags of wheat. What different shapes might the farm be? Use 12 unifix blocks to explore and record the different possible arrays. What is the perimeter (distance around the outside) of each possible farm?

#### EXTENDING PROMPT

How many pancakes can Jack get from all the wheat on his farm? Imagine each bag of flour is the same as 16 cups and each cup of flour can make 4 pancakes. If he started eating the pancakes on 1 January, 2019 and had one for breakfast each day, approximately when would he eat the last pancake?

### CHALLENGING TASK 2: WHAT TIME DO WE EAT?

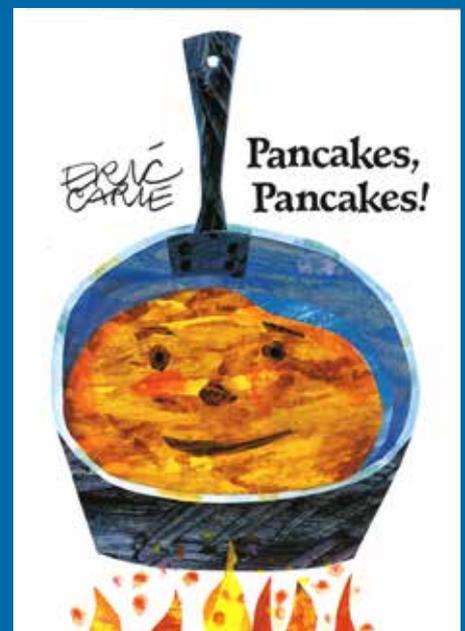
Wow! What a lot of work Jack had to do to make pancakes! He had to cut the wheat, transport the wheat on the donkey, mill the flour, collect the egg, milk the cow, churn the butter, collect the fire wood and fetch the strawberry jam and then cook the pancakes! If his alarm went off at 6am, what time do you think he eventually ate the pancake? Try to estimate a realistic length of time taken for each of the tasks to work out what time he ate.

#### ENABLING PROMPT

The first thing Jack needed to do was get flour for the pancakes. If Jack woke up at 6am and it took him 20 minutes to cut the wheat, 20 minutes to transport the wheat and another 20 minutes to mill the flour, what time did he finally get the flour? Use a timeline to help you solve the problem.

#### EXTENDING PROMPT

Jack's sister Jill was quicker than Jack at some of the tasks, but slower than Jack at others. Jill was a deft farm-hand and could cut the wheat, transport it, mill the flour, milk the cow and collect the firewood in half the time it took Jack! However, Jill was a bit of a klutz in the kitchen. It took her four times as long



as Jack to churn the butter, fetch the strawberry jam and to cook the pancake. Based on your estimates, who is faster at preparing pancakes Jack or Jill? Compare your results to other students in your class to see whether your classmates agree. For an extra challenge, can you work out how long each activity might take so Jack and Jill finish preparing the pancakes in exactly the same amount of time?

*Pancakes, Pancakes!* is available from the MAVshop, <http://shop.mav.vic.edu.au>.

## SHARE YOUR EXPERIENCE

How did students in your class approach the above investigation? Share your class's experience with the *Prime Number* editorial team ([james.russo@monash.edu](mailto:james.russo@monash.edu)), for the opportunity to have it published in *Prime Number* as a resource to share with other teachers and students. If possible, try and include photographs of work samples, as well as of students engaging in the task.