

# A New Home for Scruffy

*While reading this story use a pencil to underline words that have mathematical meanings.*

Michelle wakes up Saturday morning to the sound of barking. She gets dressed in a hurry and runs excitedly down the stairs to the kitchen, missing the odd step on the way down. As she grabs the banister she remembers how she used to slide on it when she was younger. The banister wobbles as she balances herself on it.



Grandpa is cooking eggs and toast. The butter in the skillet sizzles. The eggs flutter at their perimeters like miniature flying saucers readying for a first flight.

Ever since he retired, Grandpa has been the house cook. It helps him relax, he says. After his heart operation he quit his banking job and he and Grandma bought this house in the country.

The toast springs to attention and Grandpa cuts it diagonally. The morning sun shines through the Venetian blinds drawing shadow slices on the kitchen wall. Michelle momentarily disturbs the pattern of parallel lines as she transverses the sunlight.

Grandma is holding a puppy in her lap. Two acute triangles perk up on its head when Michelle walks in. ‘Good morning, Michelle,’ says Grandma. ‘Come and say hi to Scruffy.’

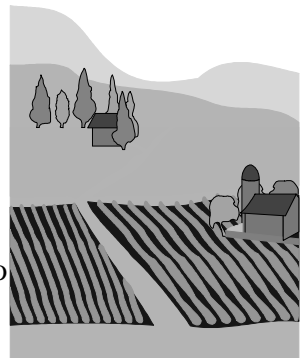
‘He’s so cute! Can I hold him? Where did you get him, Grandma,’ asks Michelle as she scratches the base of the puppy’s neck. Scruffy rotates his head and looks at her and then at Grandma. He seems to have an interest in the answer.

‘Your Grandpa found him at the edge of the driveway, digging in our garbage,’ relates Grandma. ‘He likes our scraps.’ Grandma hands Scruffy to Michelle and she cuddles him affectionately.

‘I think someone abandoned him,’ Grandpa adds. ‘He’s underweight. He must have been on his own

for a while.’

Michelle’s grandparents live in an old farmhouse outside the city. Michelle visits with them every third weekend. The closest neighbours are one kilometre away. That’s where Michelle’s friend Alexander lives. He and Michelle often go horseback riding together.



‘Can we keep him,’ asks Michelle as she rubs noses with Scruffy.

‘He’ll have to be an outdoor dog because I’m allergic to him,’ Grandpa sneezes. ‘We can construct a house for him outside.’

‘I’ll help,’ says Michelle and she gives Scruffy a big hug, ‘you’ll like it here.’ Scruffy licks her chin and wags his tail in agreement.

After breakfast Michelle and Grandpa take Scruffy outside. Grandpa brings his carpentry tools.



‘I think near the maple trees would be a good spot,’ muses Grandpa. ‘There will be some shade to keep him cool in the summer.’

While Grandpa looks for building materials in the barn, Michelle plays with Scruffy. They roll and tumble in the grass. They chase each other in circles around the maples.

When Grandpa calls, Michelle helps him carry a sheet of plywood, some two-by-four spruce, a roll of wire fencing, a gate, and five cedar posts.

‘I think we can use the fence, the gate and the posts to make a rectangular pen for Scruffy,’ says Grandpa. ‘We can put his dog house in the pen so he’s safe from animals that roam at night.’



‘That’s a good idea, Grandpa,’ agrees Michelle cheerfully as Scruffy runs and jumps around their legs.

‘I’ll start making the dog house,’ says Grandpa. ‘Why don’t you roll out the fence and decide how big we can make the pen.’

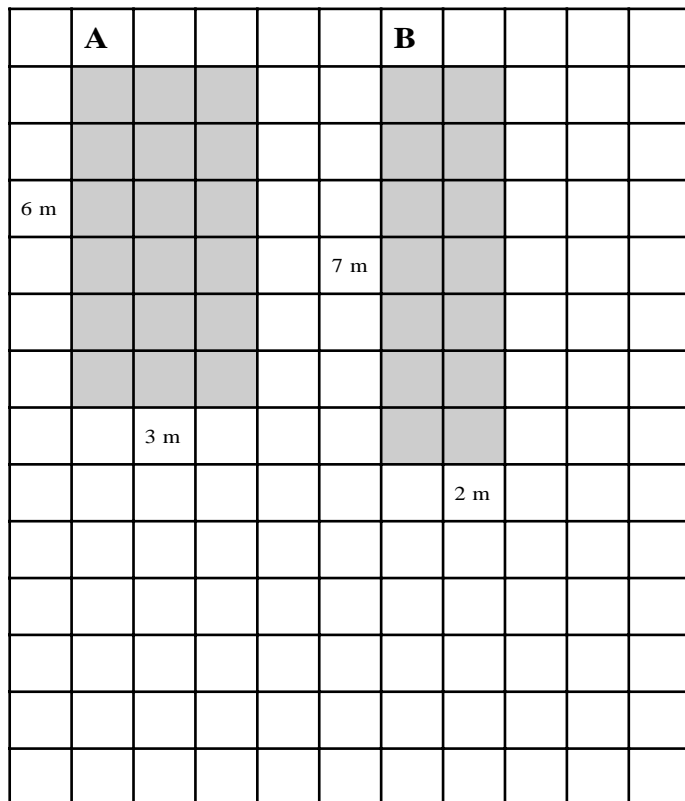


Michelle walks to the toolbox and takes a measuring tape. Scruffy sniffs at the tools then follows her back. The length of the fence is seventeen metres and the width of the gate is one metre. Michelle calculates, ‘the perimeter of your pen will be eighteen metres, Scruffy.’

Michelle runs to the house and comes out with some grid paper and a pencil. She sits between two maple tree roots and makes some sketches. ‘Let’s make the area of your pen as big as possible,’ says Michelle. ‘I wonder what the dimensions should be?’



It has been an eventful morning. Scruffy lays his head on Michelle’s left leg and stretches his gangly legs perpendicular to his body. He sleeps peacefully while Michelle thinks and plans.



- Describe in your own words the problem that Michelle is trying to solve.
- Look at the sketches that Michelle made.
  - Find the perimeter of each of the pens. What do you notice? Why does this make sense?
  - Find the area of each of the pens.
- Sketch two more rectangular pens whose perimeter is 18 metres. Find the area of each.
- Is it possible to make a square pen whose perimeter is 18 metres? What would be the dimensions? What would be the area?
- What should be the dimensions of Scruffy’s pen? Explain your reasoning.
- Suppose a pen had a perimeter of 25 metres. What should be the dimensions for the greatest area?
- Use the math words from the story to solve the crossword puzzle on page 15.