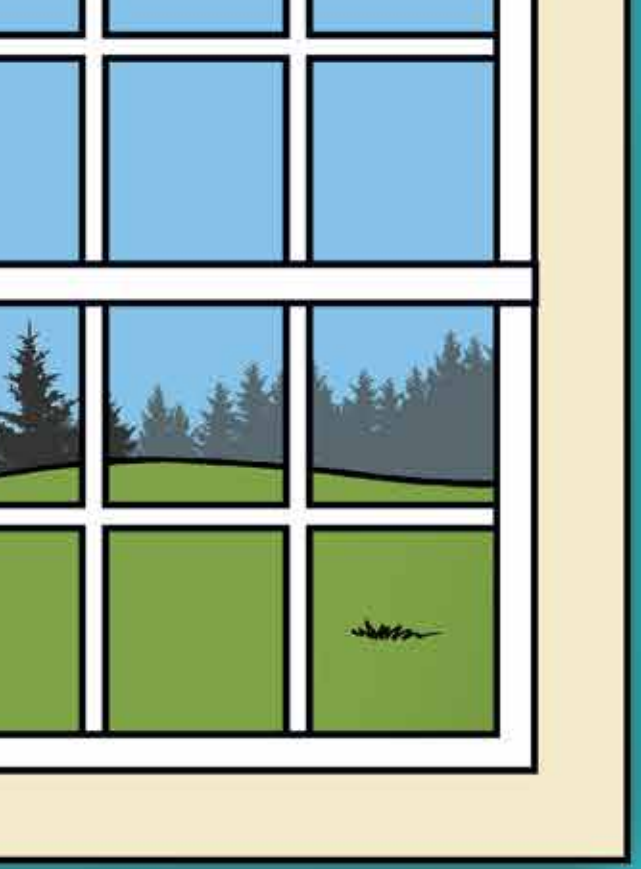
Reggie's Technology Adventure

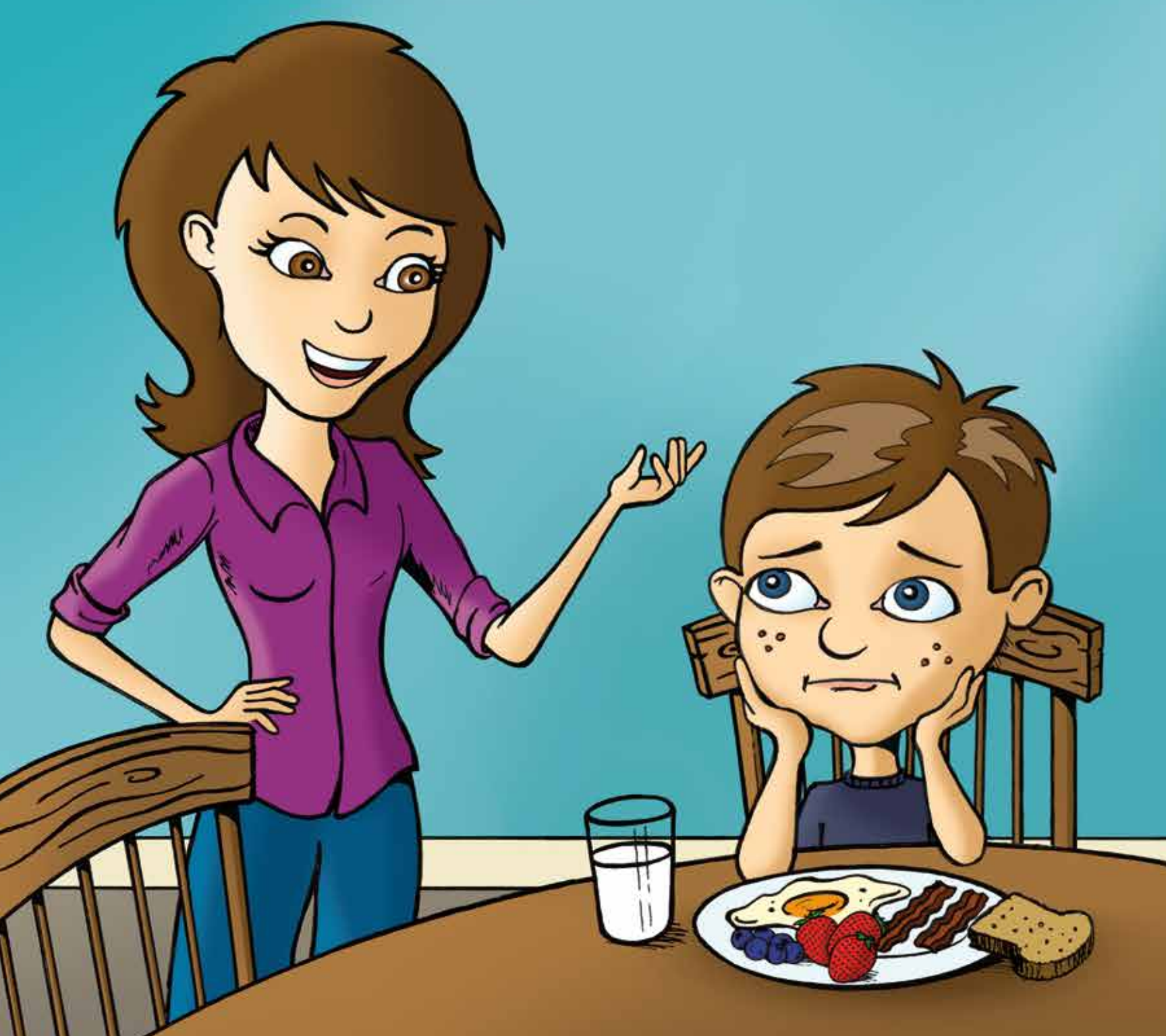


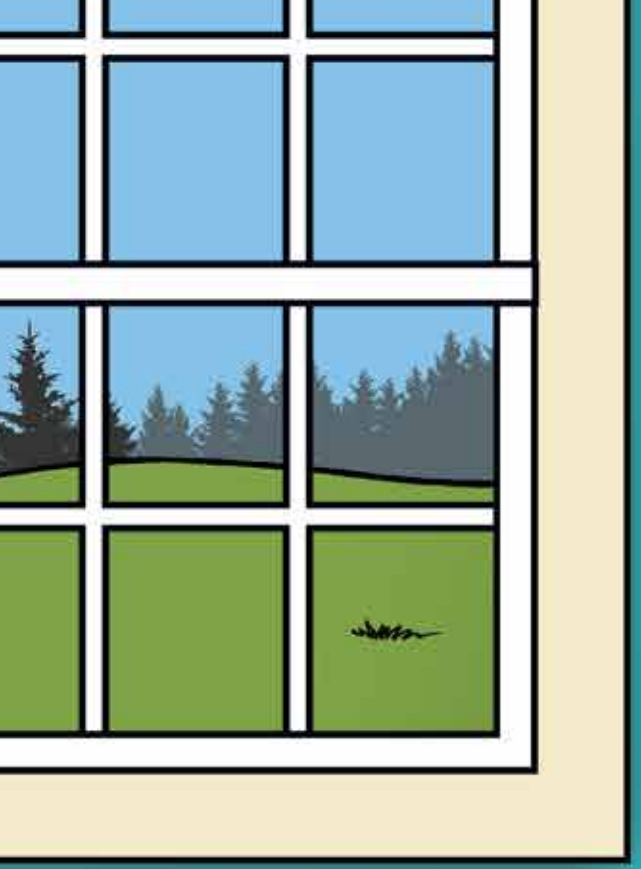
Reggie sat at the breakfast table with his head rested on his hands when his mom entered the kitchen.

"What's the matter Reggie? Is there something bothering you?" she asked.

"I have to do a project for school and I don't want to do it," Reggie said.

"That's not like you, Reggie. Why don't you want to do it?" Mom asked.

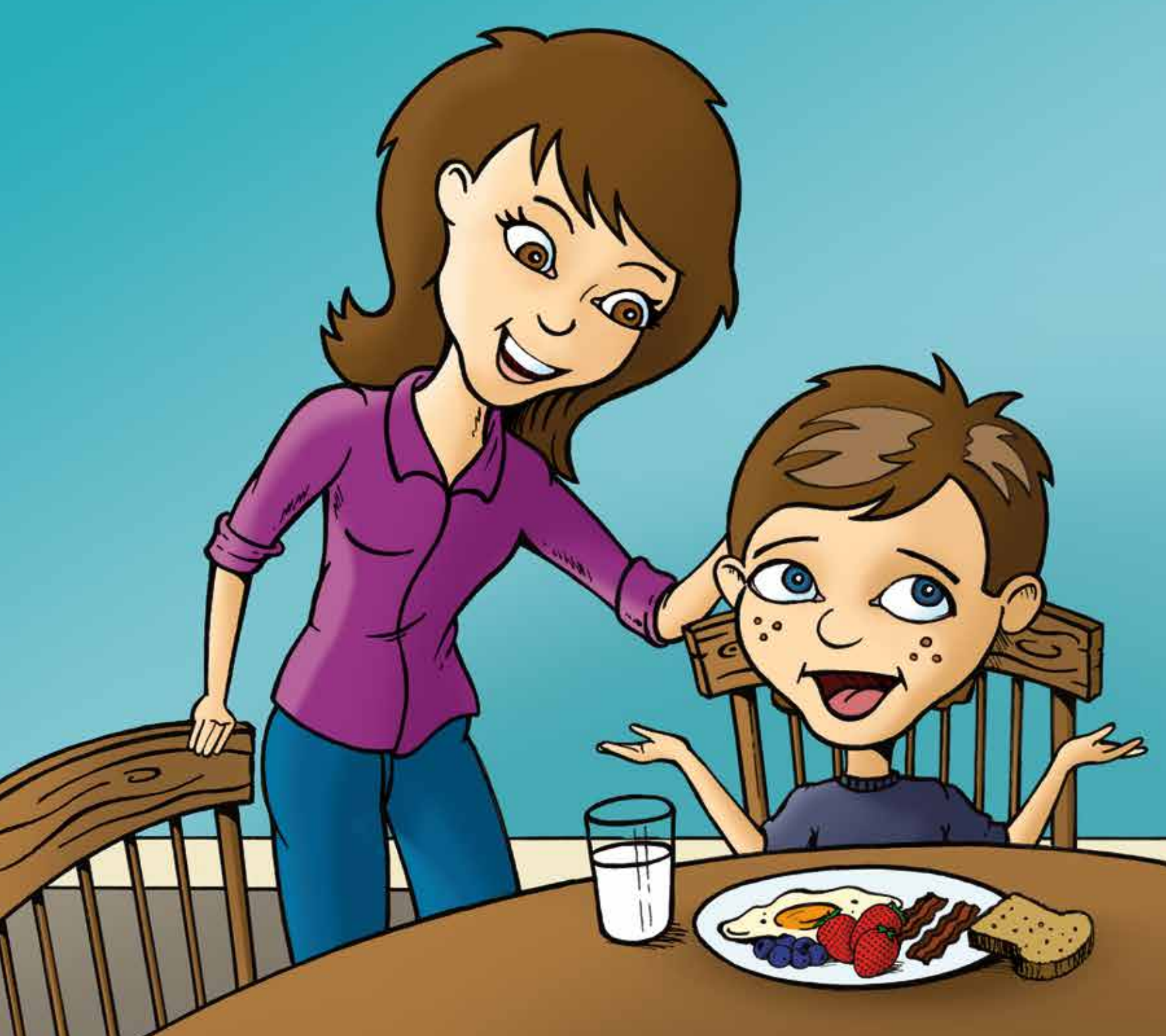




"Ms. Smith put a bunch of different projects in a box for us to pick from and I got the worst one ever!" Reggie exclaimed.

"Tommy picked out dinosaurs, Tyler picked out how volcanoes work, and I got technology in agriculture! Mom, there's no technology in agriculture. You grow fruits and veggies or you milk cows. I want to ask Ms. Smith if I can do something different."

"Reggie, come on and eat your breakfast; your bus will be here soon. Don't ask your teacher for a new project, think about it over the weekend first," Mom said.



Saturday morning, Mom woke Reggie earlier than usual.

"Come on Reggie, time to get up. We have a lot to do today," she said.

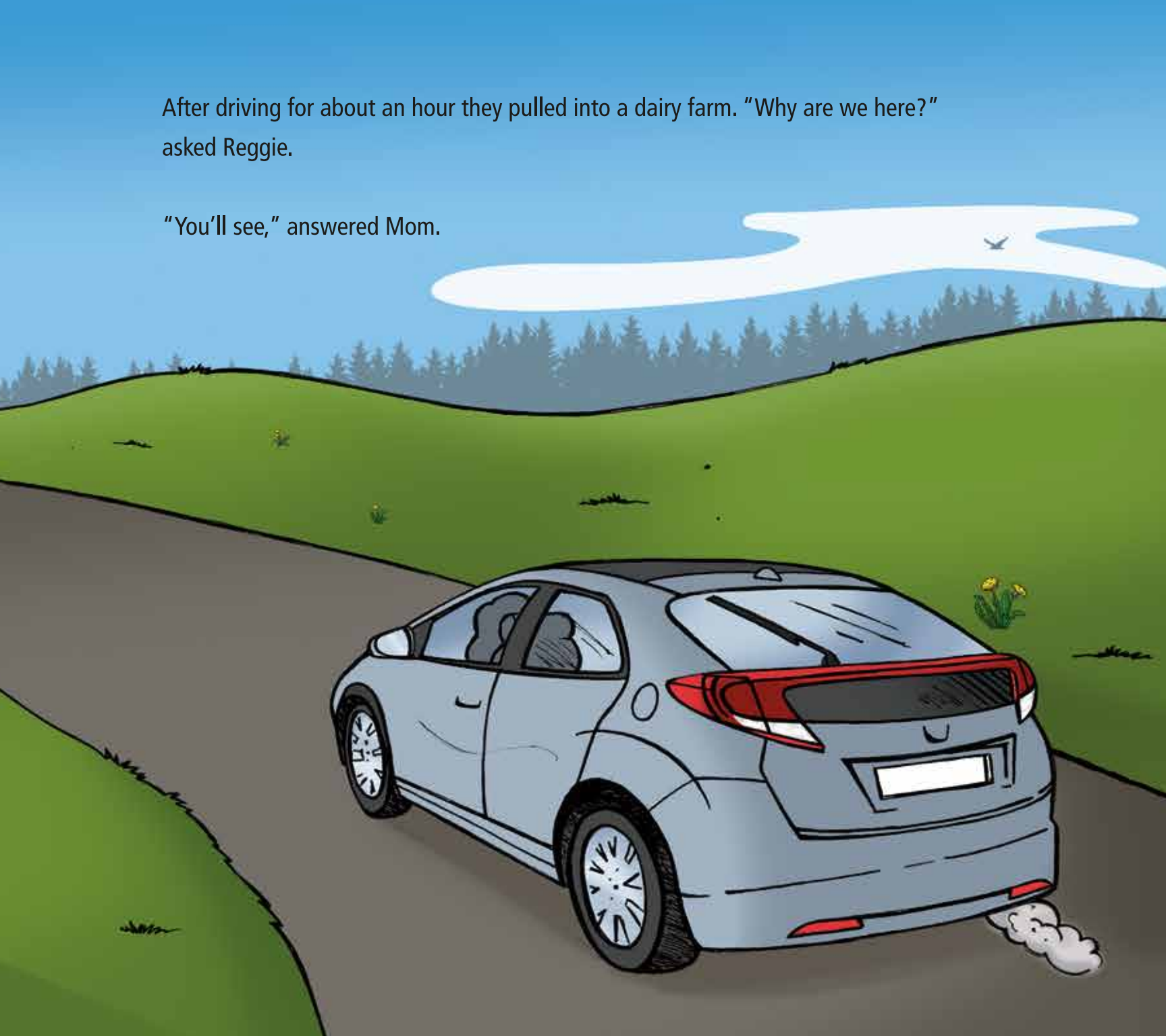
When they got in the car, Reggie asked, "Where are we going and what do you mean we have a lot to do?"

"We're going on an adventure!" answered Mom.

Riverview Dairy Farm
Welcome to
Riverview
Dairy Farm

After driving for about an hour they pulled into a dairy farm. "Why are we here?" asked Reggie.

"You'll see," answered Mom.



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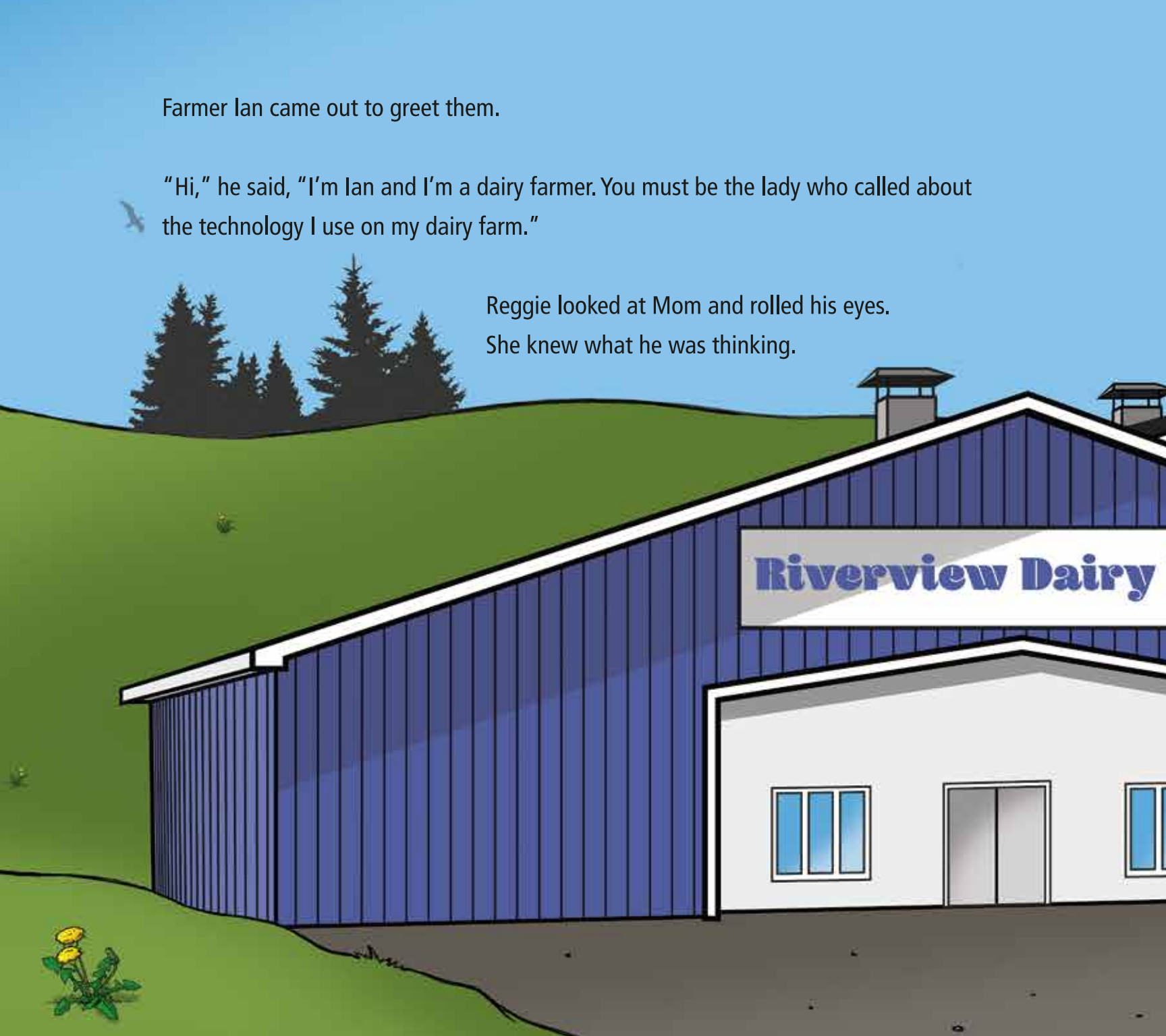
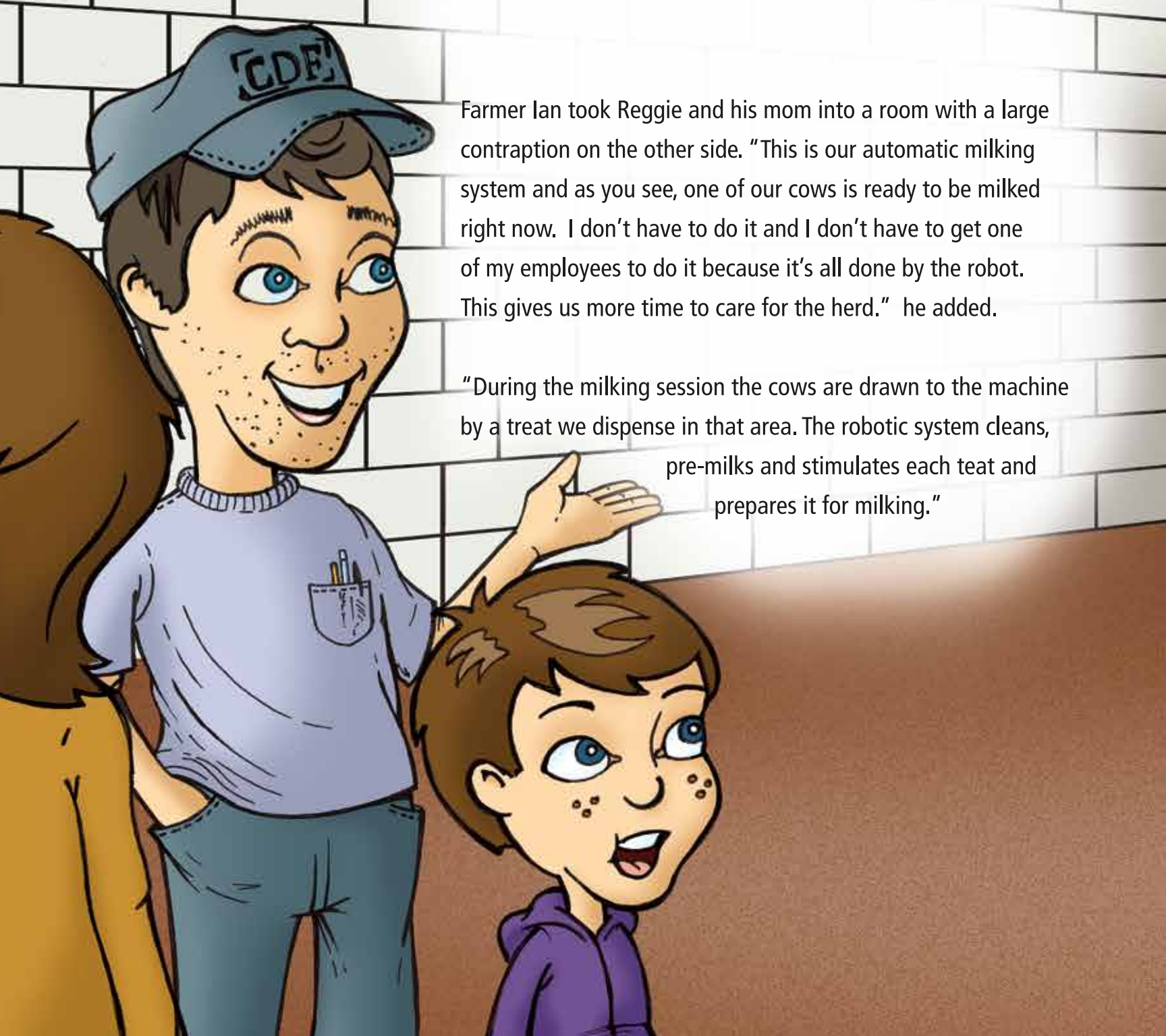
Farmer Ian came out to greet them.

"Hi," he said, "I'm Ian and I'm a dairy farmer. You must be the lady who called about the technology I use on my dairy farm."

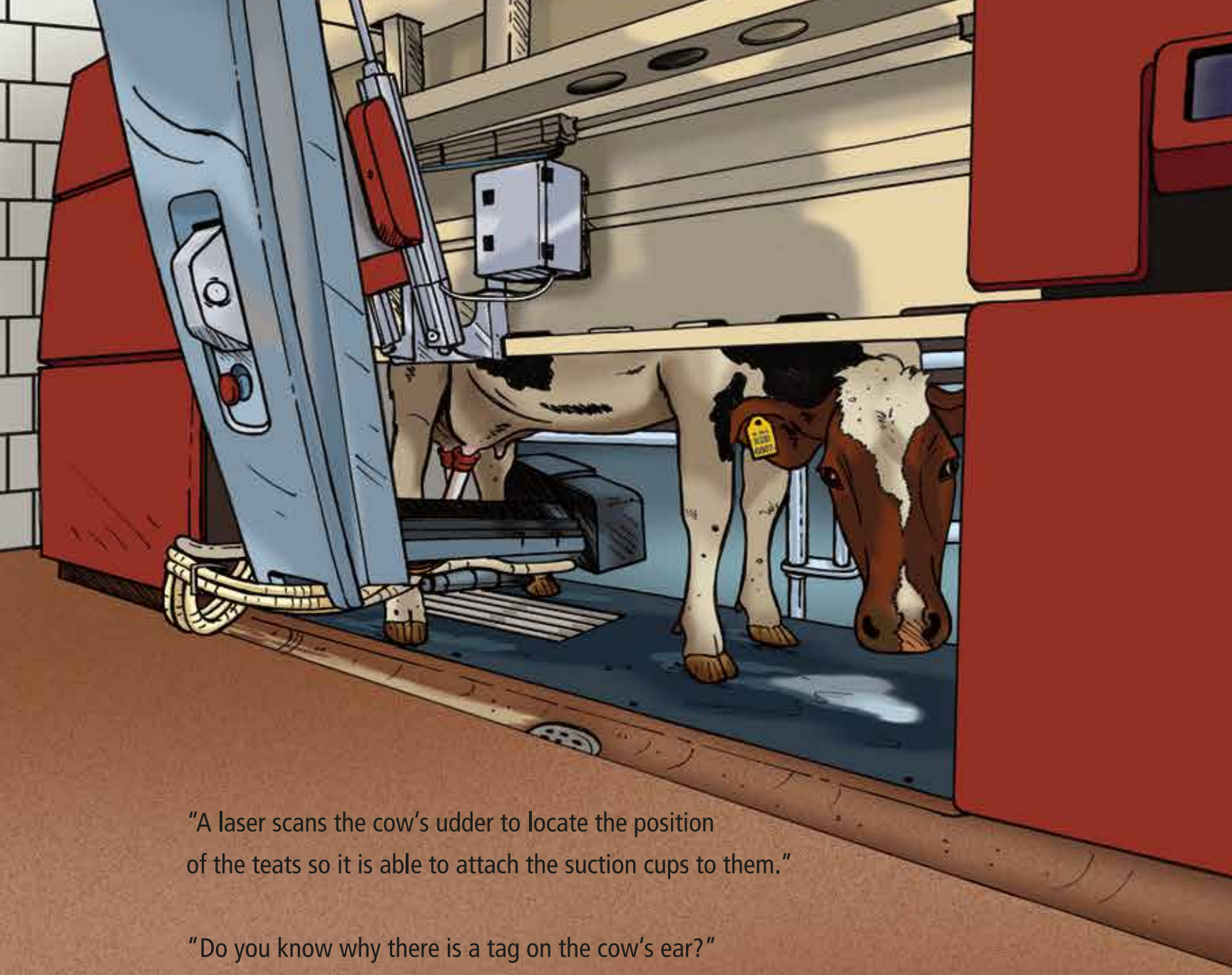
Reggie looked at Mom and rolled his eyes.
She knew what he was thinking.





Farmer Ian took Reggie and his mom into a room with a large contraption on the other side. "This is our automatic milking system and as you see, one of our cows is ready to be milked right now. I don't have to do it and I don't have to get one of my employees to do it because it's all done by the robot. This gives us more time to care for the herd." he added.

"During the milking session the cows are drawn to the machine by a treat we dispense in that area. The robotic system cleans, pre-milks and stimulates each teat and prepares it for milking."



"A laser scans the cow's udder to locate the position of the teats so it is able to attach the suction cups to them."

"Do you know why there is a tag on the cow's ear?" asked Farmer Ian. "No," answered Reggie.

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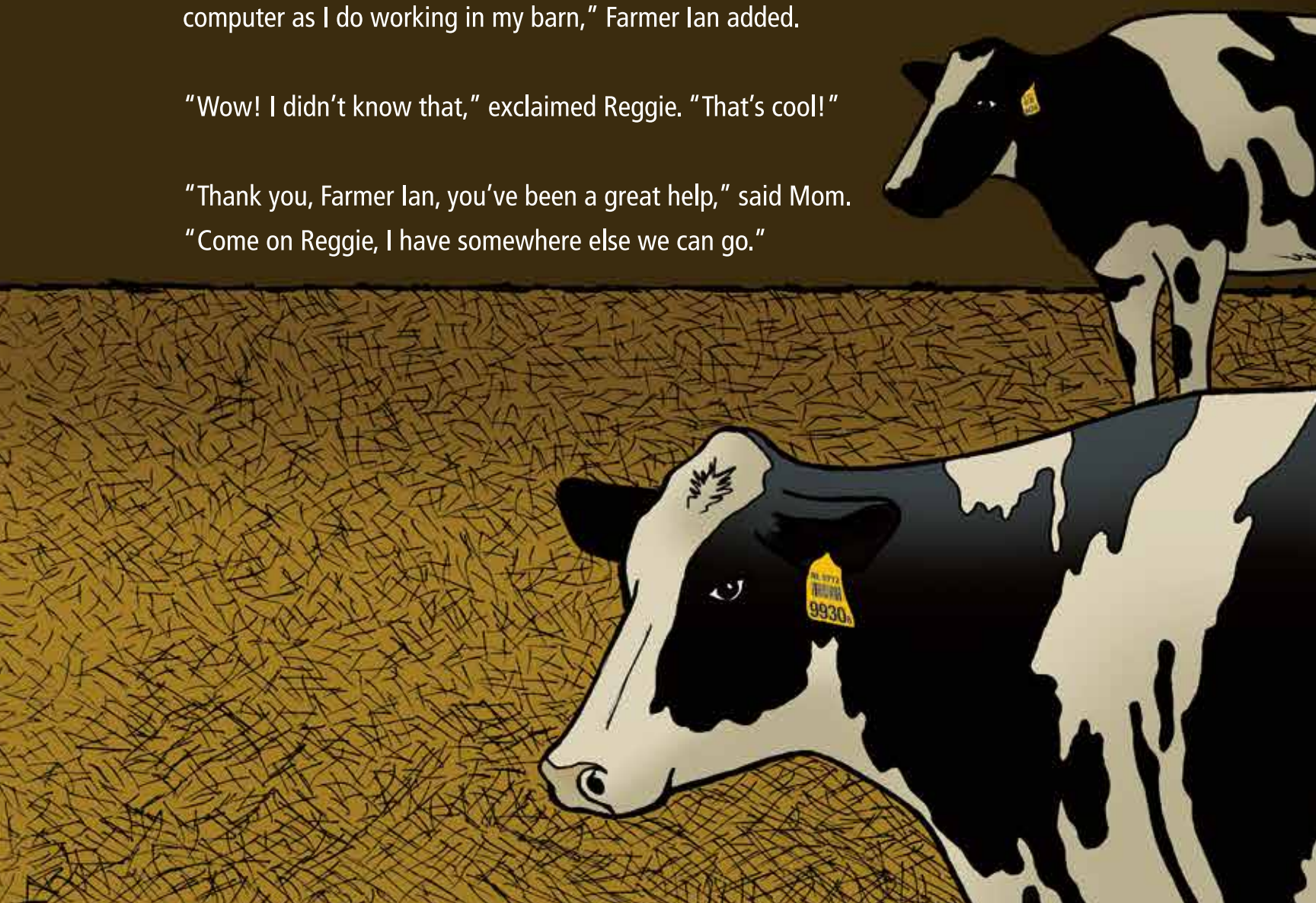
Farmer Ian took Reggie into the barn on the other side where all the cows live. "The computer reads these tags and keeps a record on each cow. I can tell their weight, total litres of milk they produce, how many steps they take a day, their temperature and their overall health. I spend as much time working on my computer as I do working in my barn," Farmer Ian added.

"Wow! I didn't know that," exclaimed Reggie. "That's cool!"

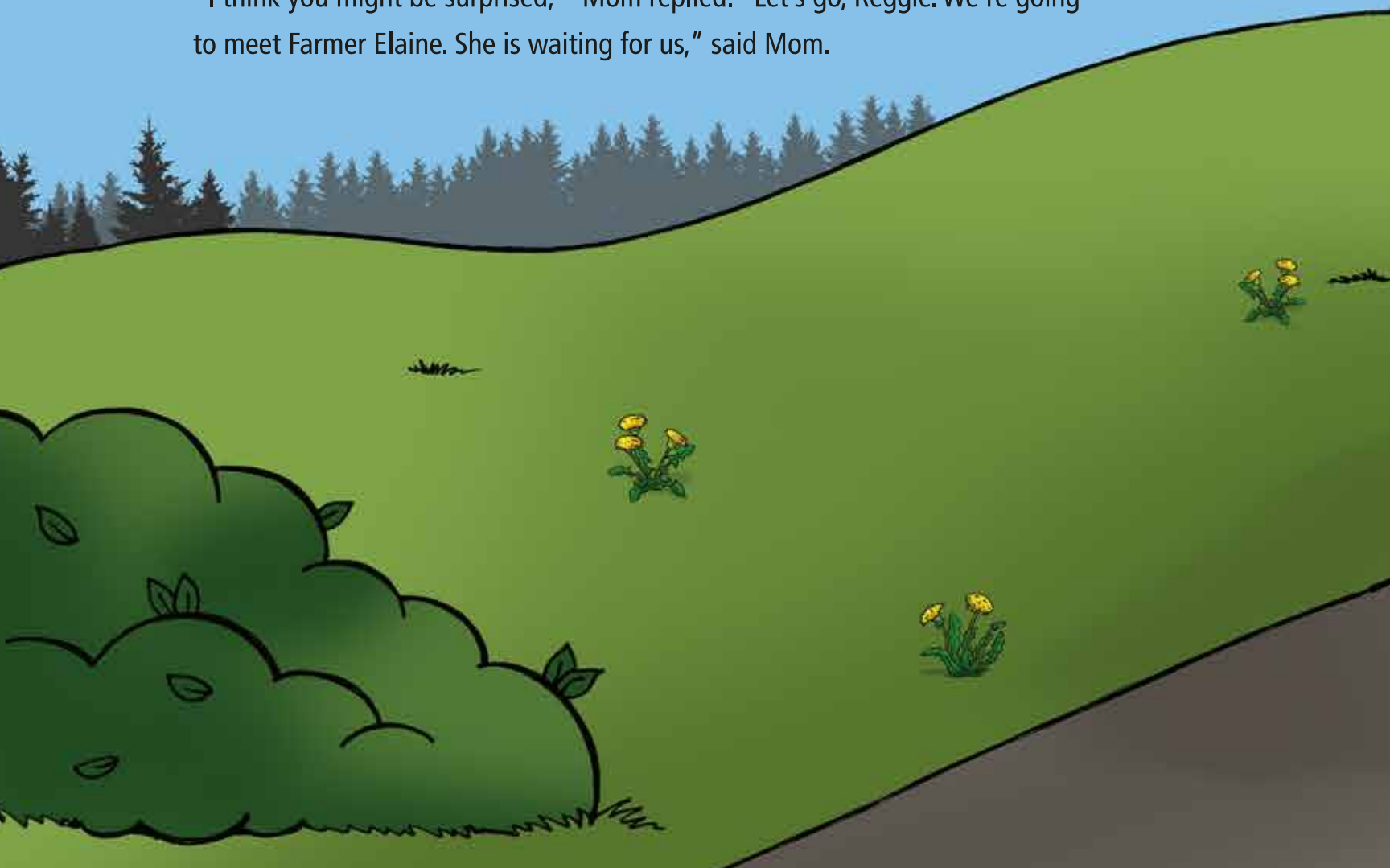
"Thank you, Farmer Ian, you've been a great help," said Mom. "Come on Reggie, I have somewhere else we can go."

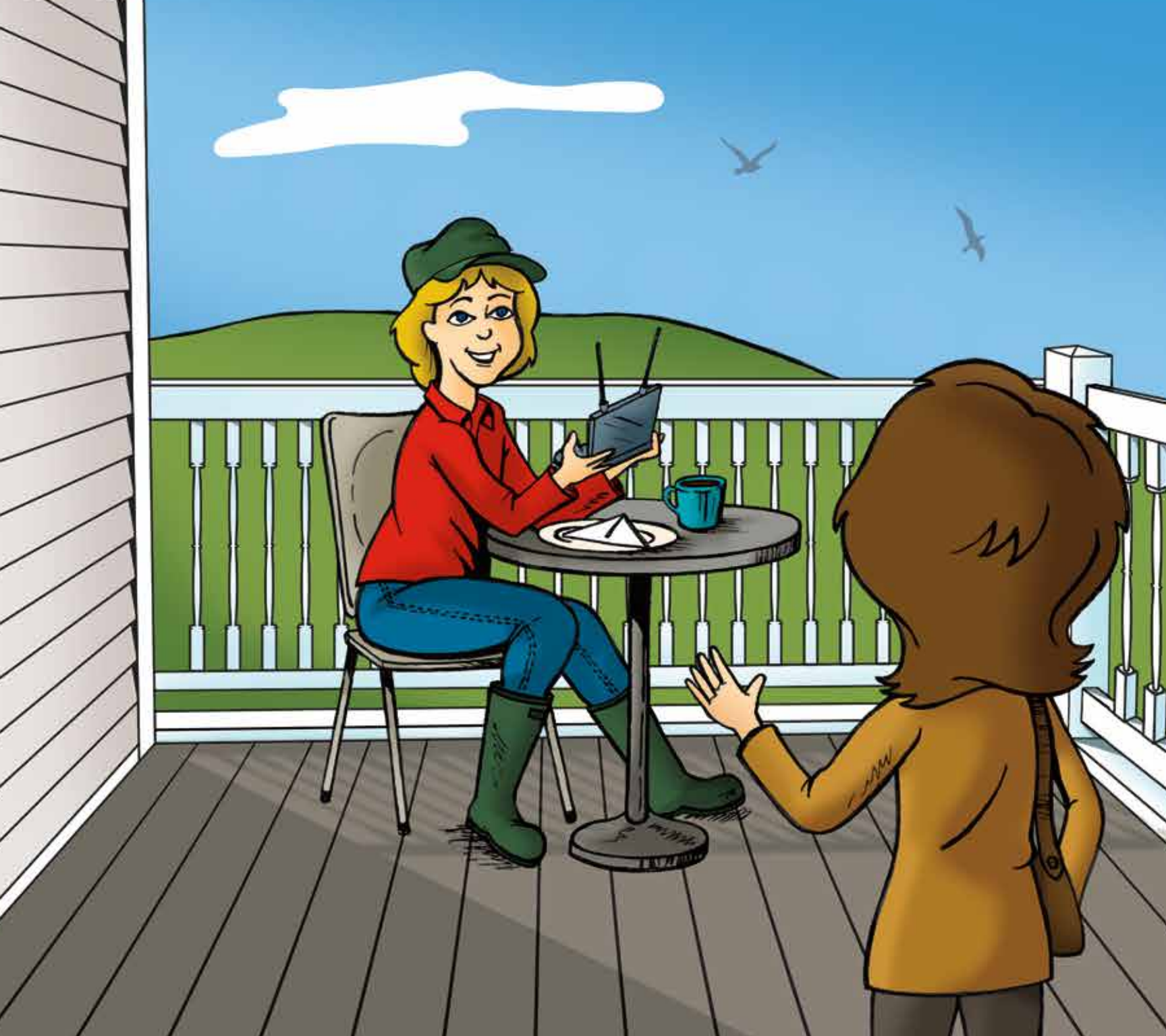


They left Farmer Ian's house and drove down a long road.

Reggie looked at the expanse of green fields all around. "I don't think we'll find any technology here Mom," he said.

"I think you might be surprised, " Mom replied. "Let's go, Reggie. We're going to meet Farmer Elaine. She is waiting for us," said Mom.





Farmer Elaine was sitting on her back patio when Reggie and his Mom got there. Reggie noticed that Farmer Elaine had a device in her hands that looked like a controller and it looked like she was playing a video game.

"Hi," said Farmer Elaine. "Just give me a minute. I'm checking on my forage in my back field," she explained.

Reggie looked at Elaine, puzzled. "You're wondering how I'm checking my back field while I'm sitting here on my patio aren't you?" she laughed. "Come over and look at this," she beckoned to Reggie.

Reggie looked at the device she held in her hand. "This is a controller for my drone," said Elaine. "We use this to check on our fields to make sure there's no damage or flooding to the forage we grow to feed our cows."

"Wow!" he said, "I've always wanted a drone."

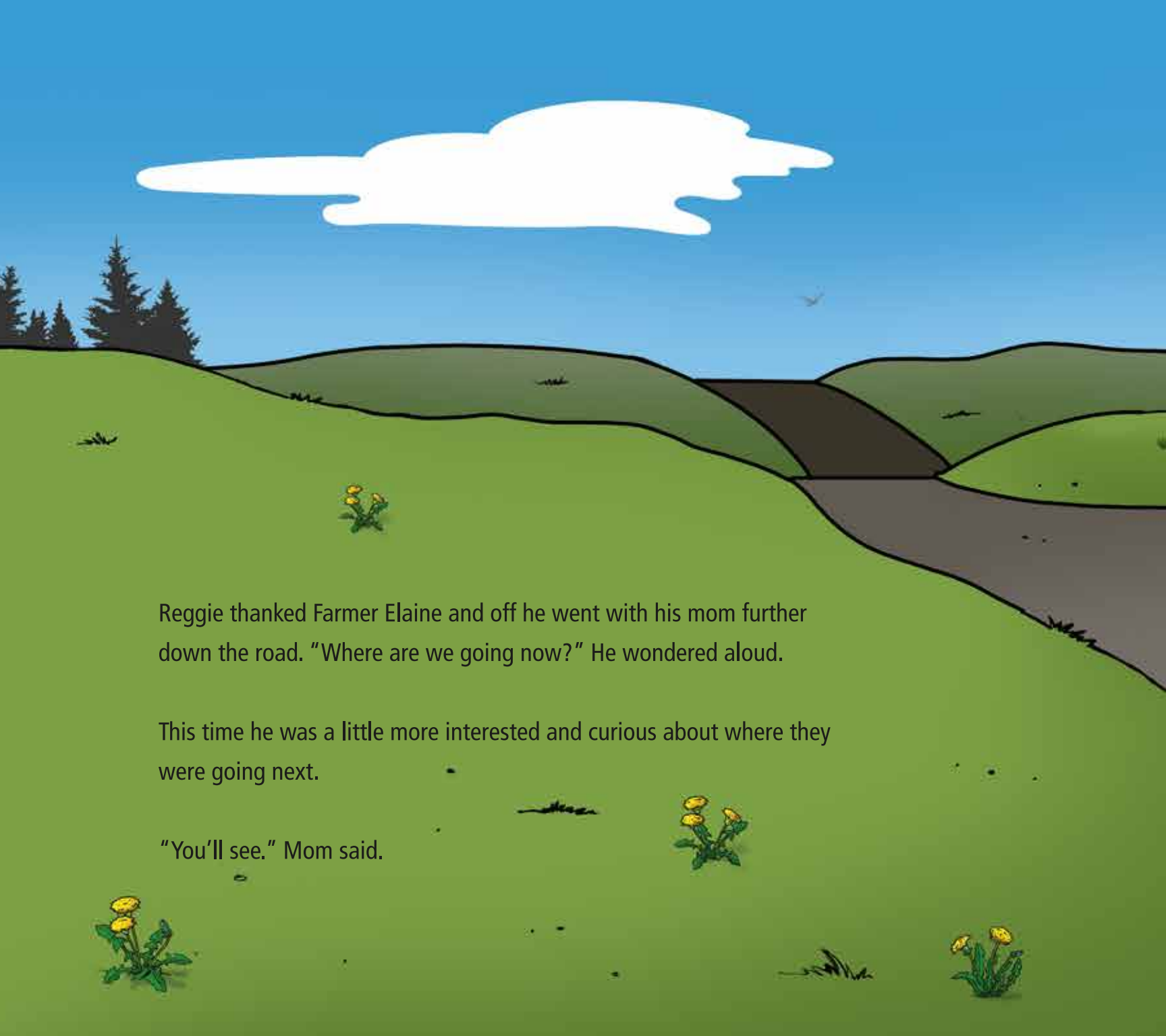
Reggie watched intently as Farmer Elaine brought the drone down to look closely at the baled forage sitting on the field.

"I've been a little worried about this field; there was some flooding there last year and with the rain we had last week I have to keep an eye on it," she explained.

"If I had to travel there to inspect my crops it would take me at least two hours. With my drone, I can sit here on my lunch break and I can check all my fields before I go back to work. I'm lucky I'm not near an airport so I can safely use my drone to check on my crops!" Elaine exclaimed.

"Now Reggie, have a look over there," Elaine added.

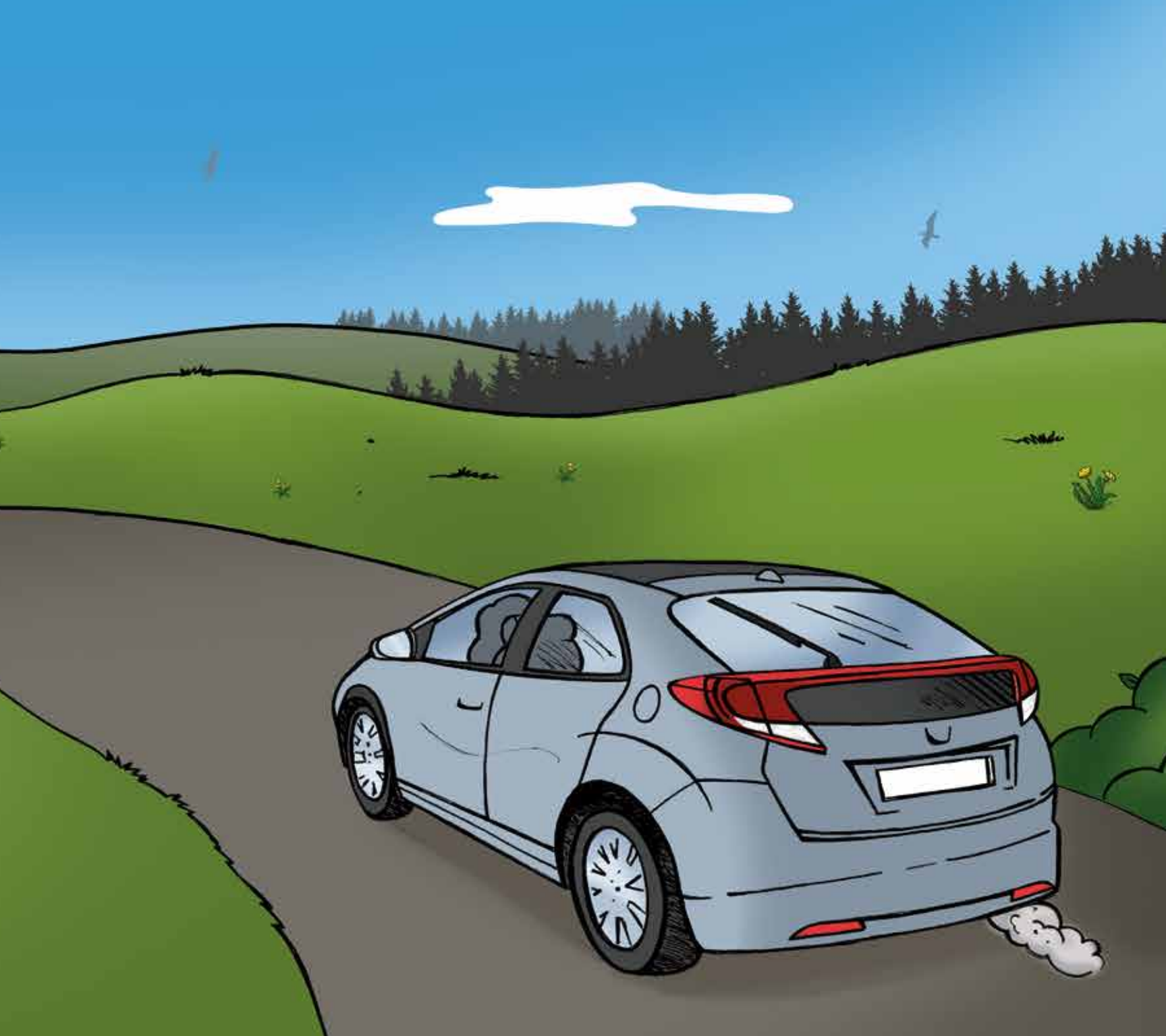
Reggie could see a small object in the distance. He ran down off the deck and watched as Farmer Elaine flew the drone back to the house. "Look mom, that is so cool!" he shouted.

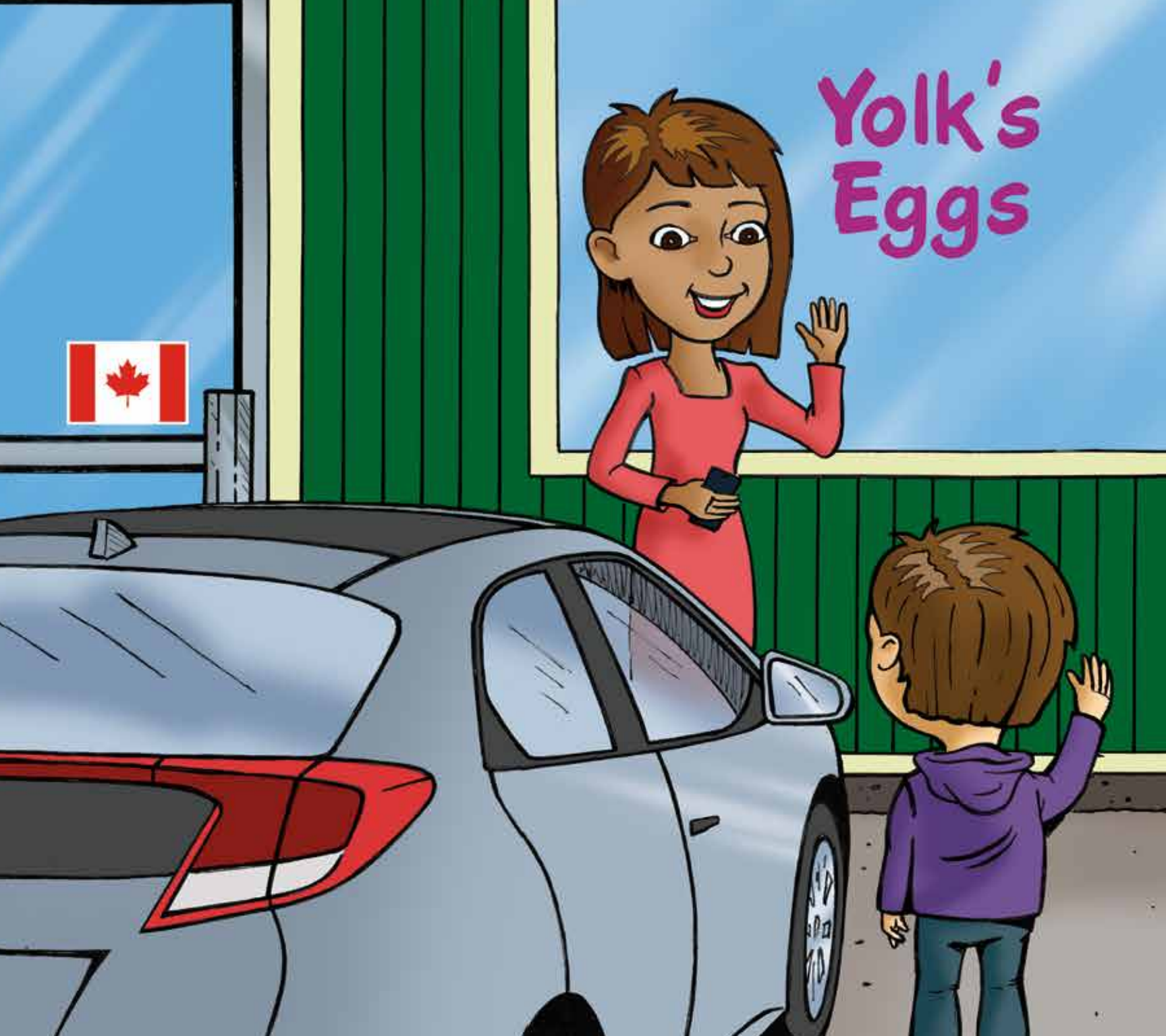


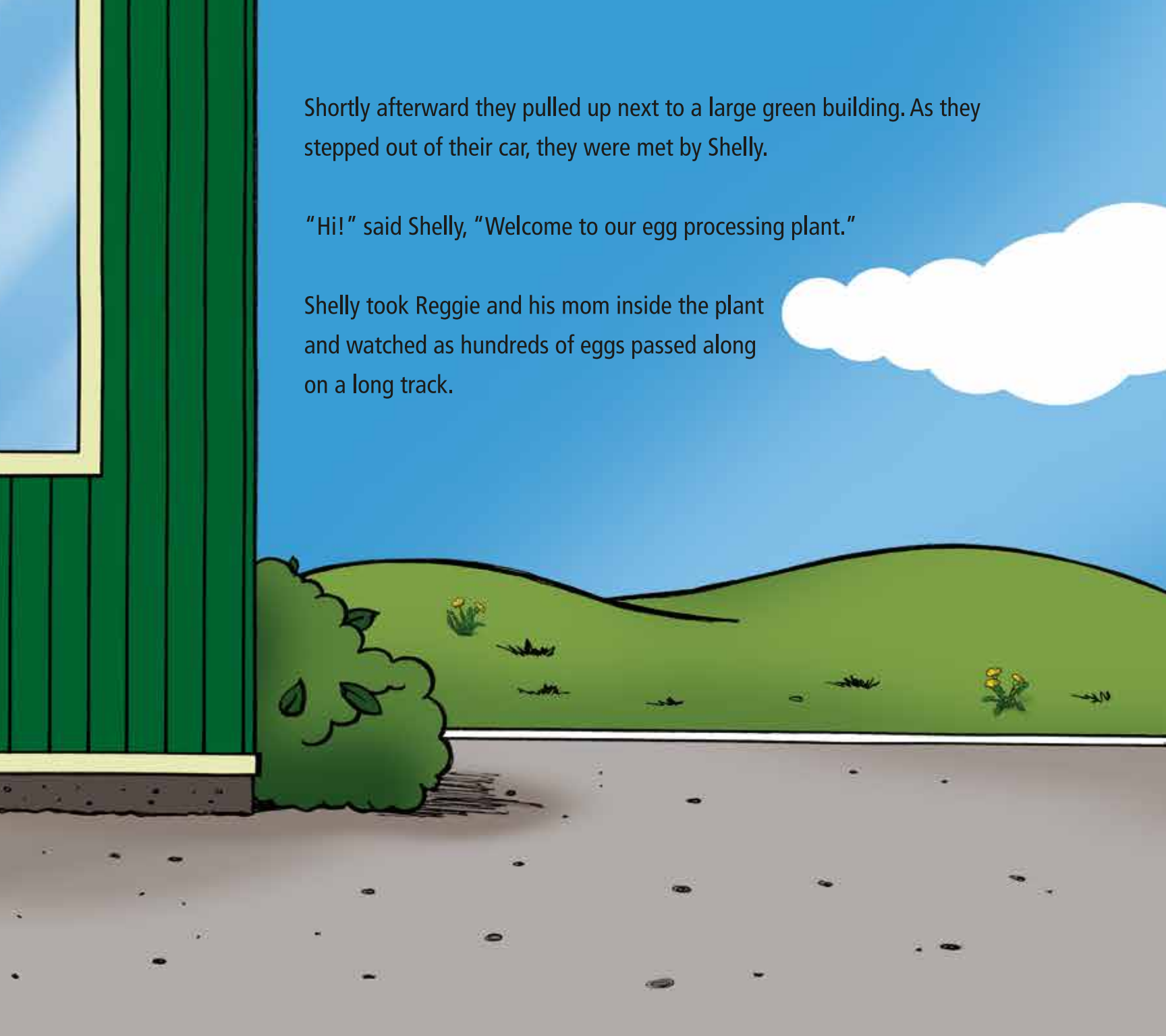
Reggie thanked Farmer Elaine and off he went with his mom further down the road. "Where are we going now?" He wondered aloud.

This time he was a little more interested and curious about where they were going next.

"You'll see." Mom said.



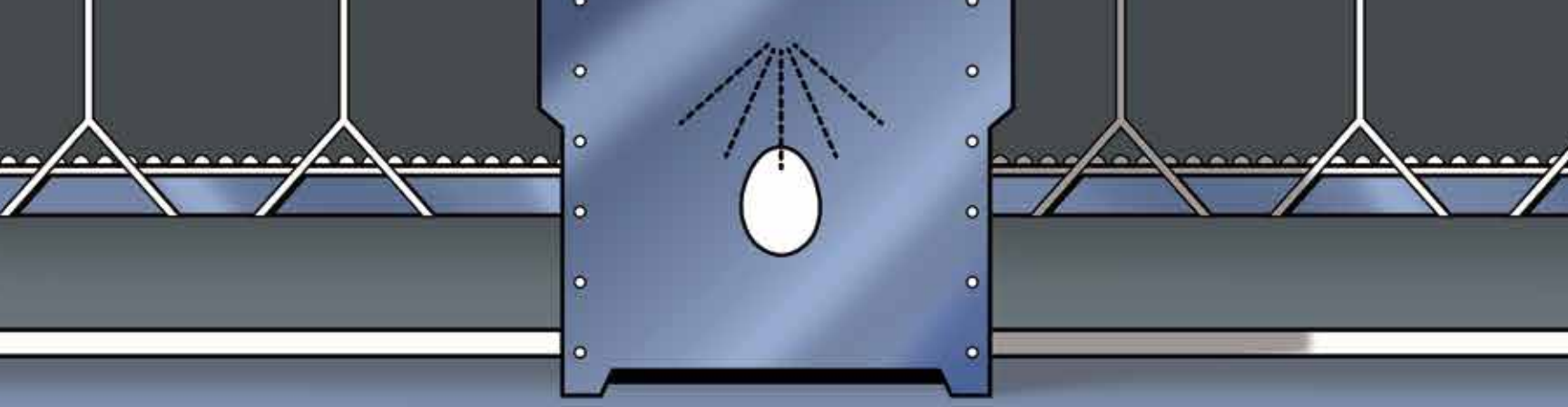

Yolk's
Eggs



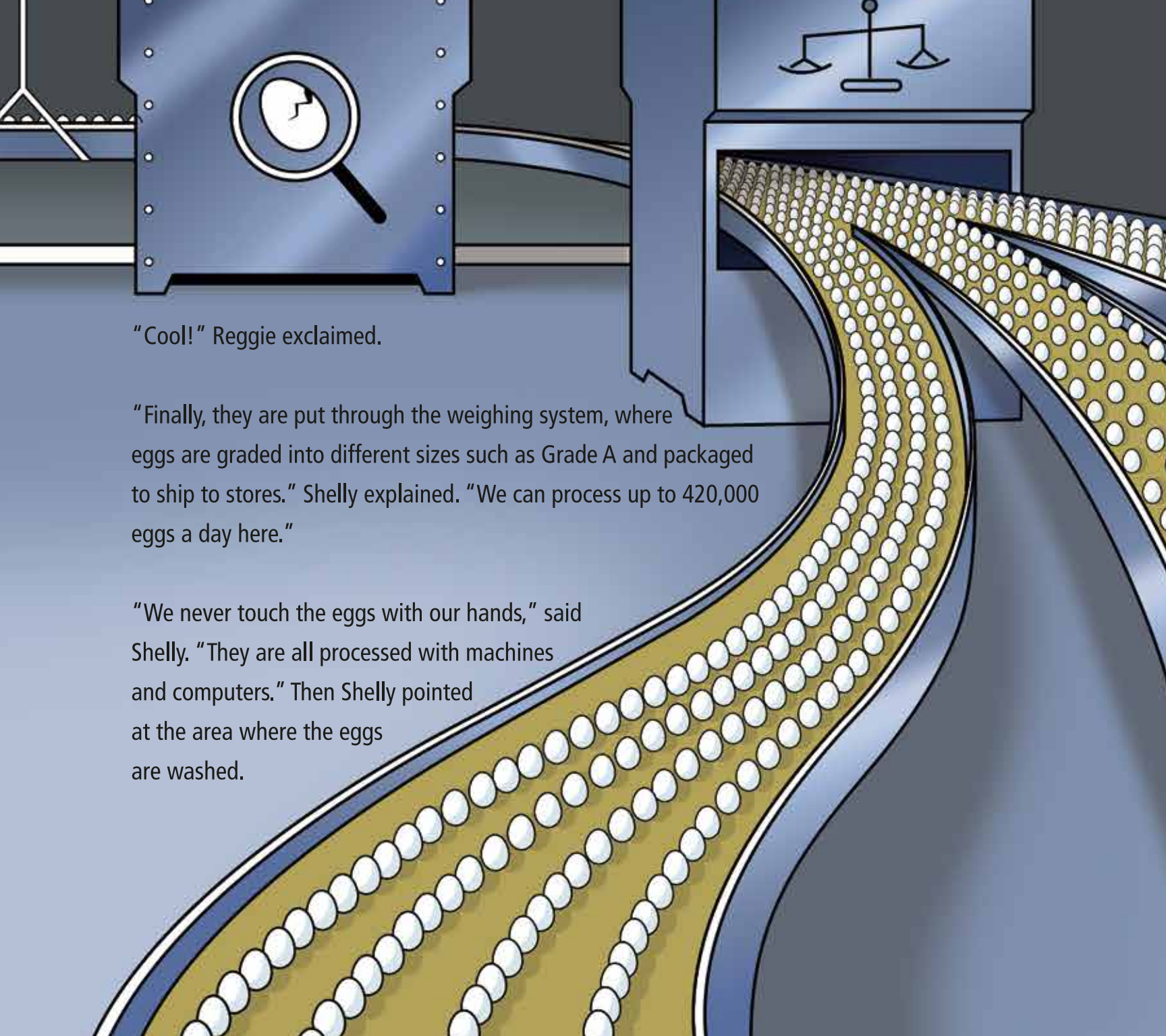
Shortly afterward they pulled up next to a large green building. As they stepped out of their car, they were met by Shelly.

"Hi!" said Shelly, "Welcome to our egg processing plant."

Shelly took Reggie and his mom inside the plant and watched as hundreds of eggs passed along on a long track.



"Eggs are washed and put through the Egg Inspector which checks using lights and cameras to make sure each egg is perfect." Shelly said. "Then, they go through the Crack Detector where microphones inside tiny hammers tap the eggs to detect any cracks. If there is a crack, it will make a different sound and send that information to the Crack Detector."

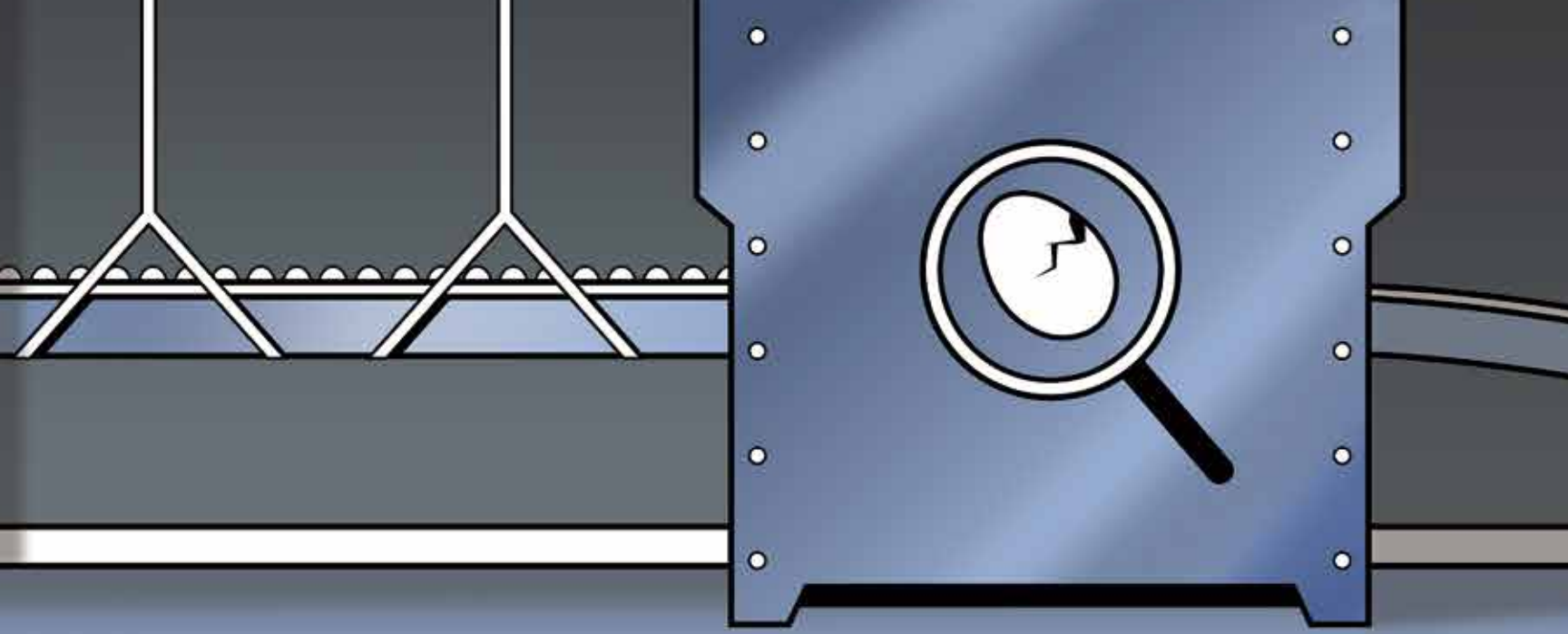


"Cool!" Reggie exclaimed.

"Finally, they are put through the weighing system, where eggs are graded into different sizes such as Grade A and packaged to ship to stores." Shelly explained. "We can process up to 420,000 eggs a day here."

"We never touch the eggs with our hands," said Shelly. "They are all processed with machines and computers." Then Shelly pointed at the area where the eggs are washed.

40° C



"That water has to be a certain temperature and I can control it with my phone." she said. "I don't even need to be here. I just access the main computer and make the change. Everything is controlled by a computer here."

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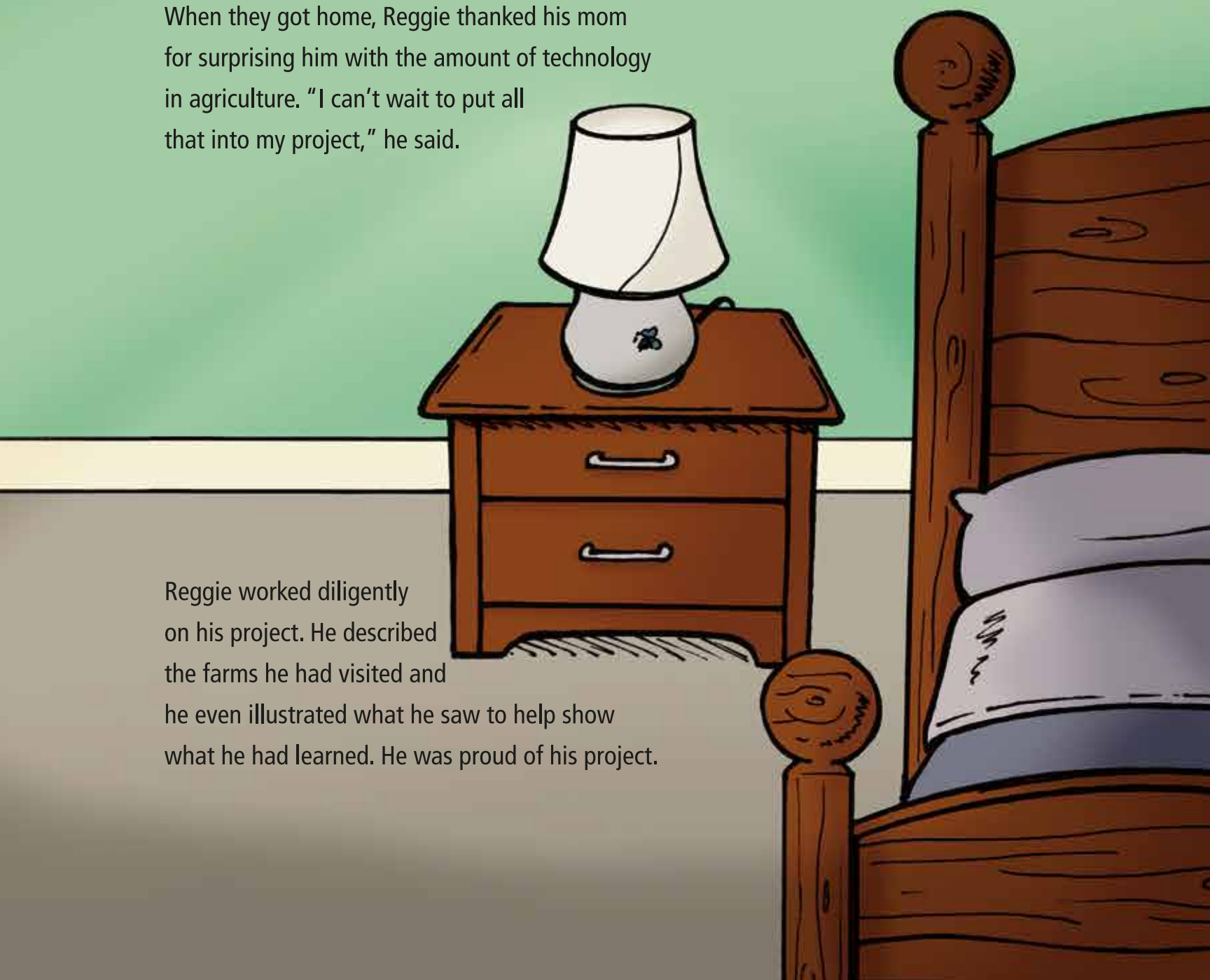
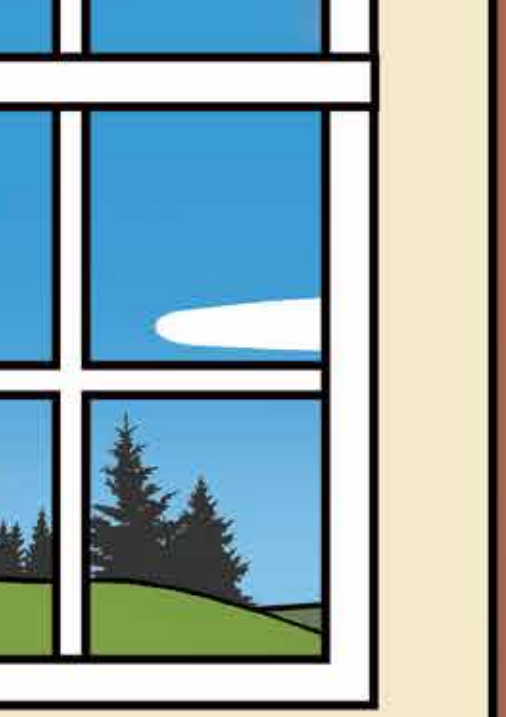
When they got home, Reggie thanked his mom for surprising him with the amount of technology in agriculture. "I can't wait to put all that into my project," he said.



Reggie worked diligently on his project. He described the farms he had visited and he even illustrated what he saw to help show what he had learned. He was proud of his project.



That Friday when Reggie got home, he ran into the house.

"Mom, mom!" he shouted. "Guess what?"

Reggie showed his project grade. He got two gold stars.

"Thanks for all your help, Mom," he said, "I'm so glad I was given this project! I learned a lot! Agriculture really is using modern technology!"

Bytes of Technology!

1. Farmers use technology to climatically control temperature and humidity in greenhouses, vegetable storages and livestock barns. This technology ensures optimal environmental conditions for crops and livestock.
2. Two innovations that have made farming more productive are engines and electricity.
3. **Automated milking systems** are becoming increasingly common in Canada. They reduce the costs of labour, increase herd health, and increase milk production.
4. Tags on the ears of livestock (including cows and sheep) use RFID (Radio Frequency Identification). **RFID tags** use electromagnetic fields to automatically identify and track each animal. This technology allows farmers to track each animal's health, weight, food intake and more.
5. **Round bale silage** is the product of cutting forage crops with conventional hay harvesting equipment, allowing the forage to wilt to 40 and 60 percent dry matter, baling the forage into tight bales and quickly wrapping the bales in plastic so oxygen can't spoil the bales.
6. **GPS** (Global Positioning System) Auto Steer tractors are automatically steered with great precision to help reduce the cost to the farmer and reduce the fatigue to the operator. Once coordinates and layout of the fields are logged in, the only thing the operator has to do is turn around at the end of the field.
7. Data generated by sensors or agricultural drones collected at farms offer a wealth of information about soil, seeds, livestock, crops, costs, farm equipment or the use of water and fertilizer.
8. Advanced analytics help farmers analyze real-time data such as weather, temperature, moisture, prices, or GPS signals and provide insights on how to optimize yield, improve farm planning, make smarter decisions about the level of resources needed, and when and where to distribute them to prevent waste.
9. An **egg washing system** uses removable brushes and spray modules. The high volume low-pressure water supply maximizes cleaning and reduces damage of the eggs. Over 751 million dozen eggs were produced in 2018.

Food for thought: Before your next meal, contemplate where your food on your plate came from and how it got there!

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