

Daphne DRAWS DATA

A storytelling with data adventure



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To my delightful dragons
Eloise, Avery, and Dorian



Daphne was a dragon who loved to draw. She drew everything around her—trees and birds and mountains and rainbows. The more Daphne drew, the happier she felt.

Daphne also enjoyed drawing something a little unusual: *data*. Data is information you can use to understand something better. Daphne liked to turn numbers, her favorite kind of data, into pictures called graphs to answer questions and help others.

"DATA?!" shouted her older brother, Declan, when she showed him her latest masterpiece. "Dragons don't do data! Dragons are fierce. *Everyone* is afraid of them."



But Daphne didn't want to be scary. She wanted to be liked for being smart and kind.

So she left her cave in search of a place where she could be herself.



Daphne started
in the jungle.





"Ooo-ooo eee—eeeeeeek!" yelled a monkey as it climbed up a tree.

"I'm not dangerous!" Daphne shouted back. "Just because I'm a dragon doesn't mean I walk around breathing fire."

The monkey popped out.

"Hi, I'm Daphne, the data-drawing dragon. I'm traveling the world in search of friends to help!"

Suddenly, she was surrounded by monkeys.

"Someone's been eating all of our bananas!"
said one.







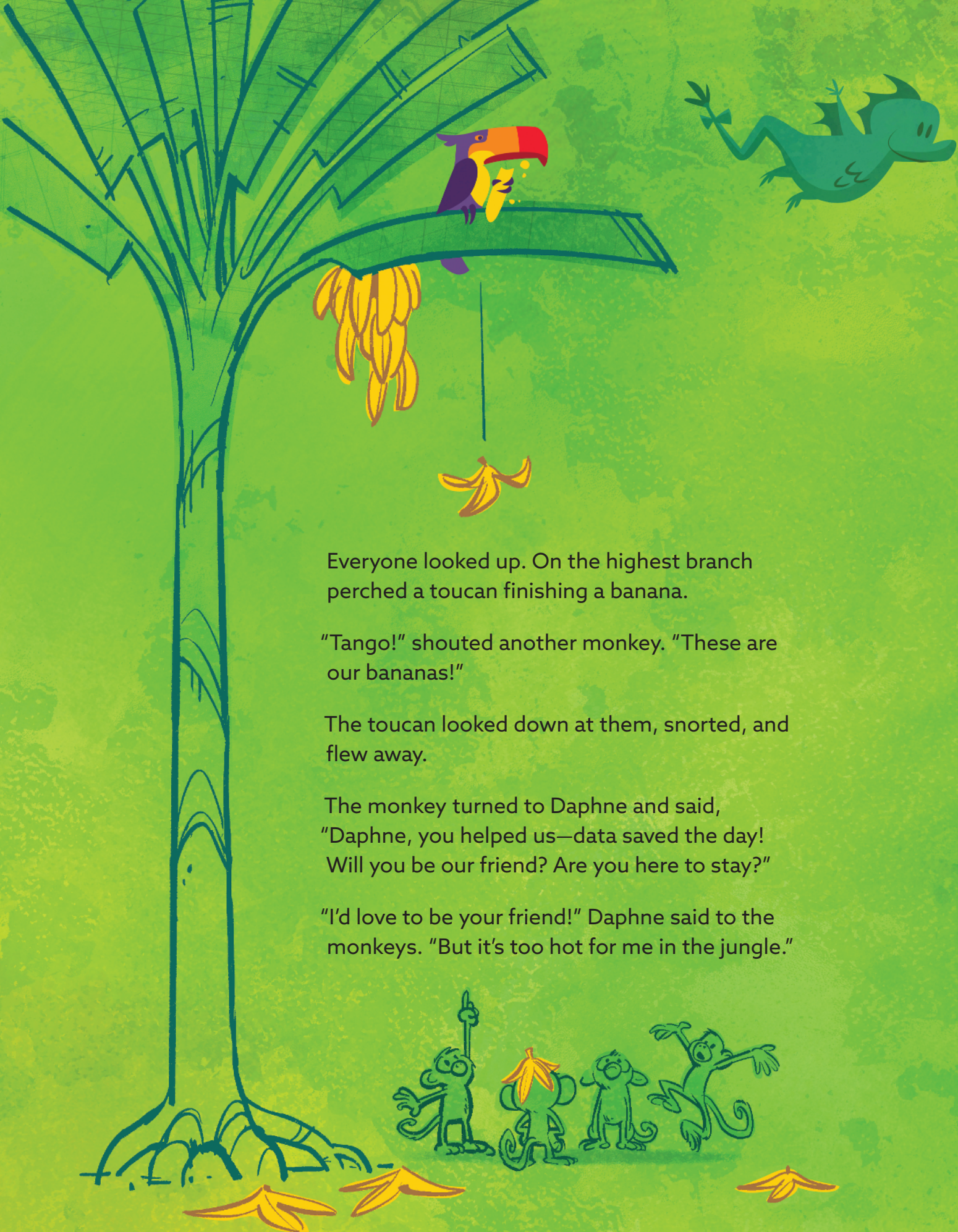
Daphne looked around. Under each tree, there was a pile of banana peels. She counted them and wrote the numbers in her notebook. Then she drew the data.



Where are the most banana peels?



"Aha!" Daphne said. "The culprit has been eating bananas from *this* tree."



Everyone looked up. On the highest branch perched a toucan finishing a banana.

"Tango!" shouted another monkey. "These are our bananas!"

The toucan looked down at them, snorted, and flew away.

The monkey turned to Daphne and said, "Daphne, you helped us—data saved the day! Will you be our friend? Are you here to stay?"

"I'd love to be your friend!" Daphne said to the monkeys. "But it's too hot for me in the jungle."

Next, Daphne journeyed
under the sea.

"Snap!" said a shrimp as it
scampered out of sight.



"I'm not dangerous!" Daphne said. "Plus, I'm
allergic to shellfish."

The shrimp slowly swam closer.

"Hi, I'm Daphne, the data-drawing dragon. I'm
traveling the world in search of friends to help!"



Suddenly, she was surrounded by shrimp.

"The crabs claim they can crawl faster than we can swim," said a shrimp.

A second shrimp agreed, "It's not fair. They're bigger than us!"

Daphne measured each crustacean. She timed the shrimp's swimming and the crabs' curious sideways scuttle. Then she drew the data.

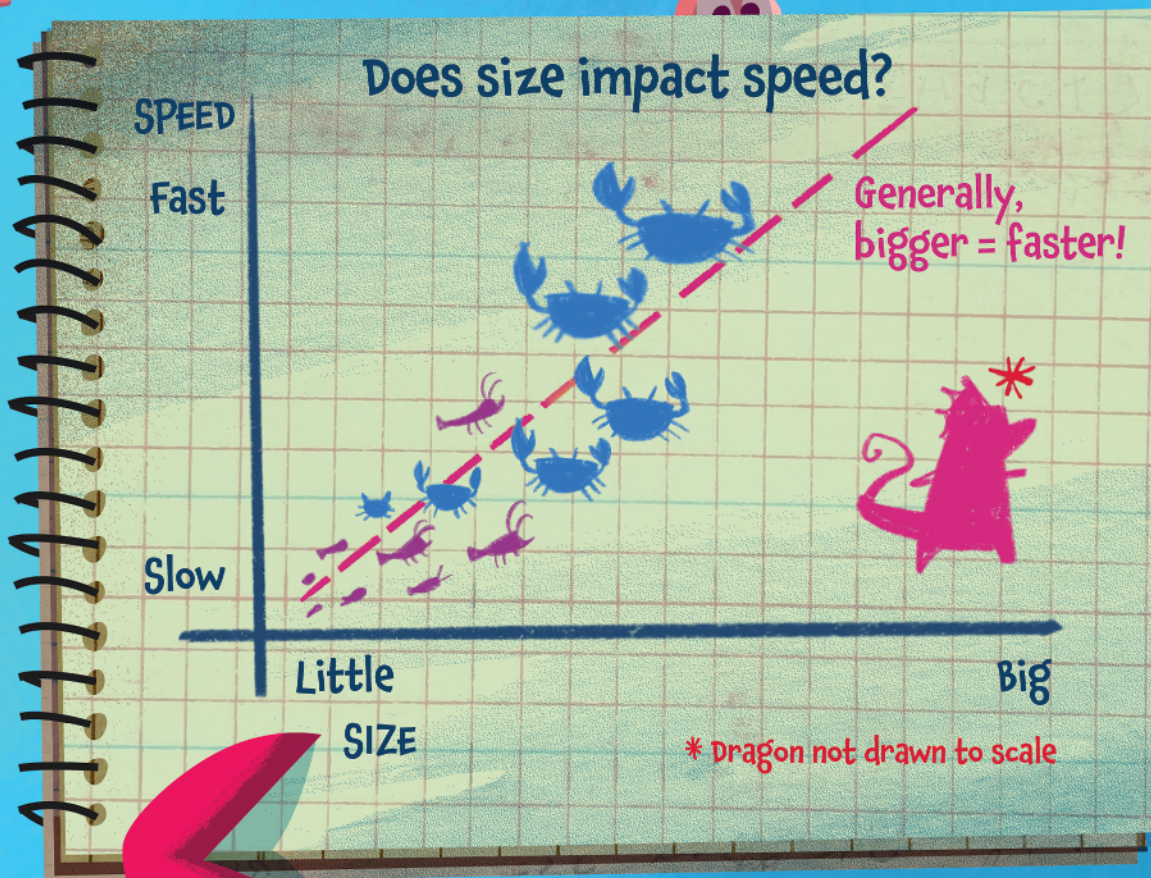


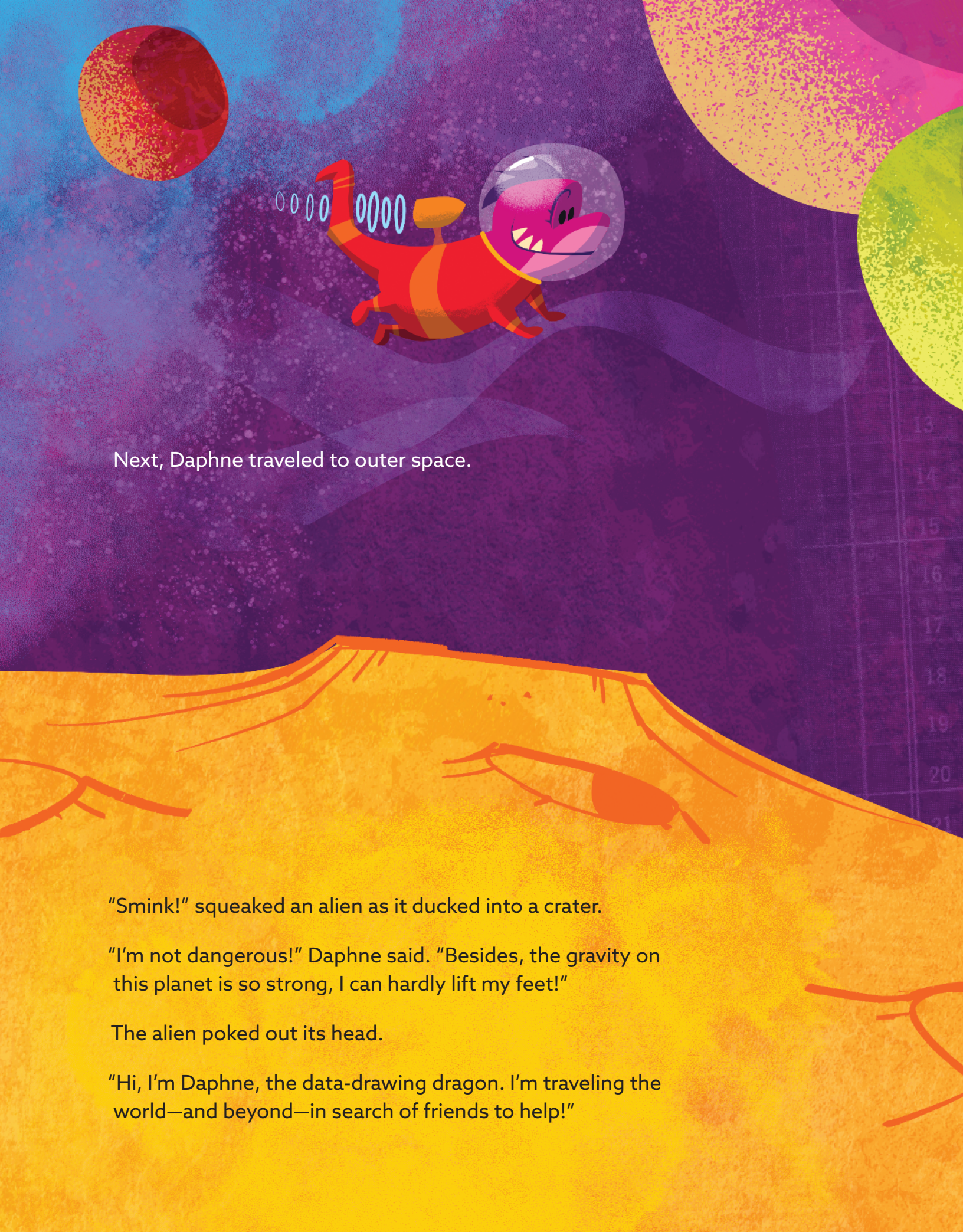
"Aha!" Daphne said. "You're *both* right! The crabs are faster, but size matters. Generally, the bigger the crustacean, the more quickly it moves. This does not appear to hold true for dragons, however!"

A shrimp suggested, "Let's pair those that are similarly sized!"

When a jumbo shrimp beat a compact crab, the shrimp shouted, "Daphne, you helped us—data saved the day! Will you be our friend? Are you here to stay?"

"I'd love to be your friend!" Daphne said. "But dragons are built for the sky, not sea."





Next, Daphne traveled to outer space.

"Smink!" squeaked an alien as it ducked into a crater.

"I'm not dangerous!" Daphne said. "Besides, the gravity on this planet is so strong, I can hardly lift my feet!"

The alien poked out its head.

"Hi, I'm Daphne, the data-drawing dragon. I'm traveling the world—and beyond—in search of friends to help!"



Suddenly, she was surrounded by aliens.

"We've been playing galactic hide-and-seek, and I won!" said an alien.

"Yes," said another. "We finally found Richard, but we aren't sure whether our spaceships have enough fuel to get home."



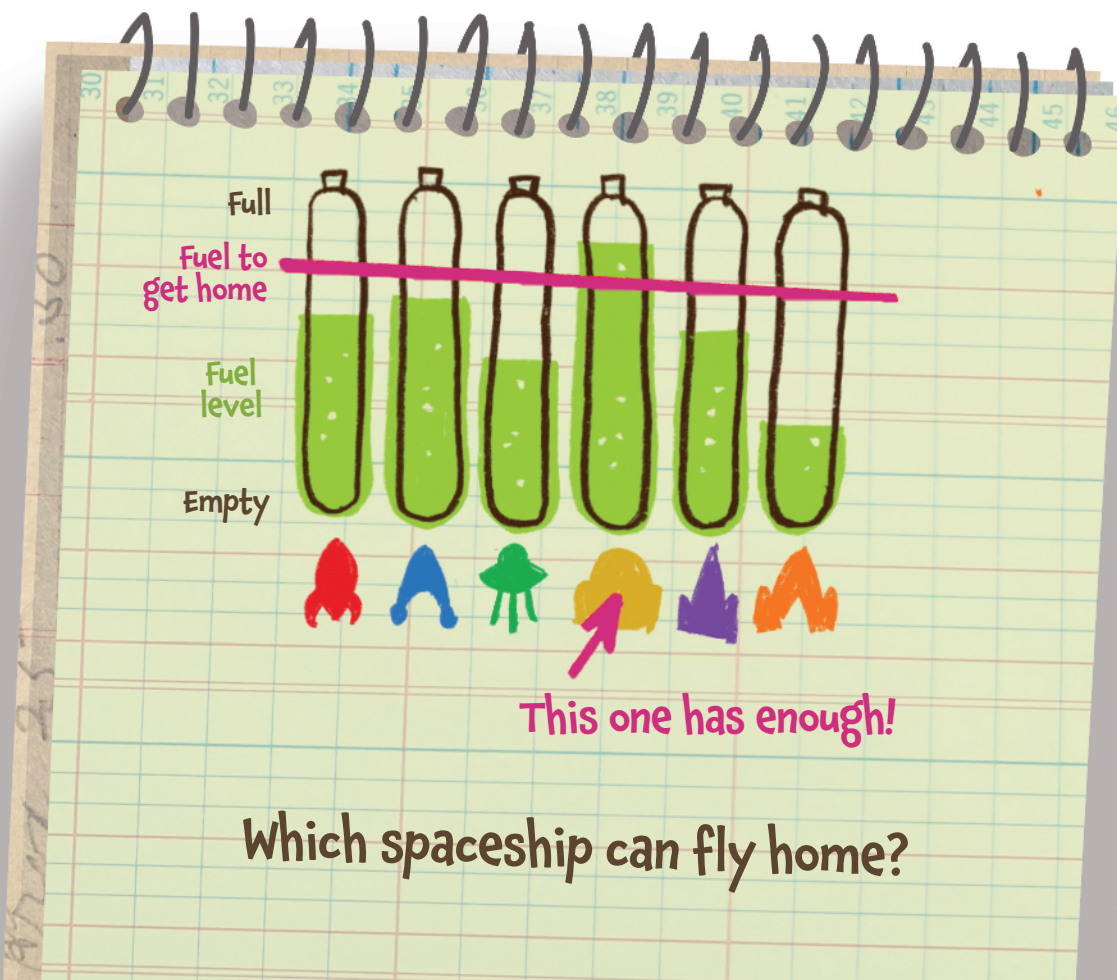


Daphne walked to each spaceship. She measured the fuel and wrote it down. Then she drew the data.

"Aha!" Daphne said. "There is *one* spaceship with enough fuel. You can use it to return to your planet and bring back more."

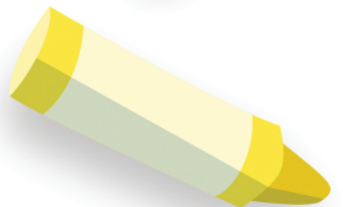
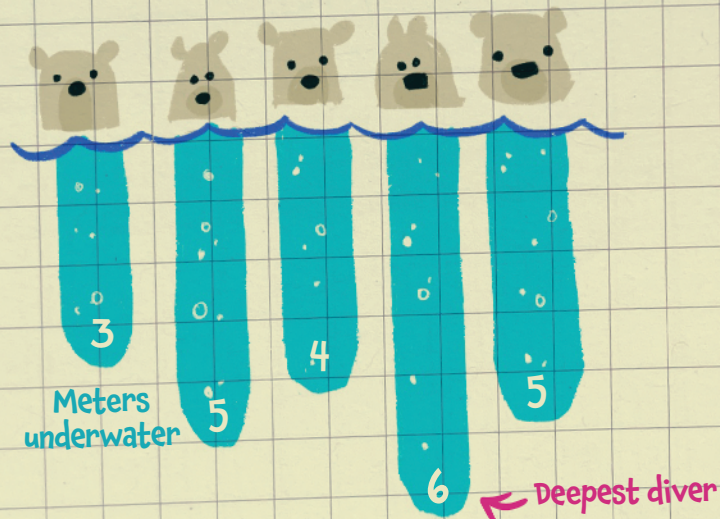
An alien turned to Daphne and said, "Daphne, you helped us— data saved the day! Will you be our friend? Are you here to stay?"

"I'd love to be your friend!" Daphne said to the aliens. "But I can't spread my wings in this spacesuit."

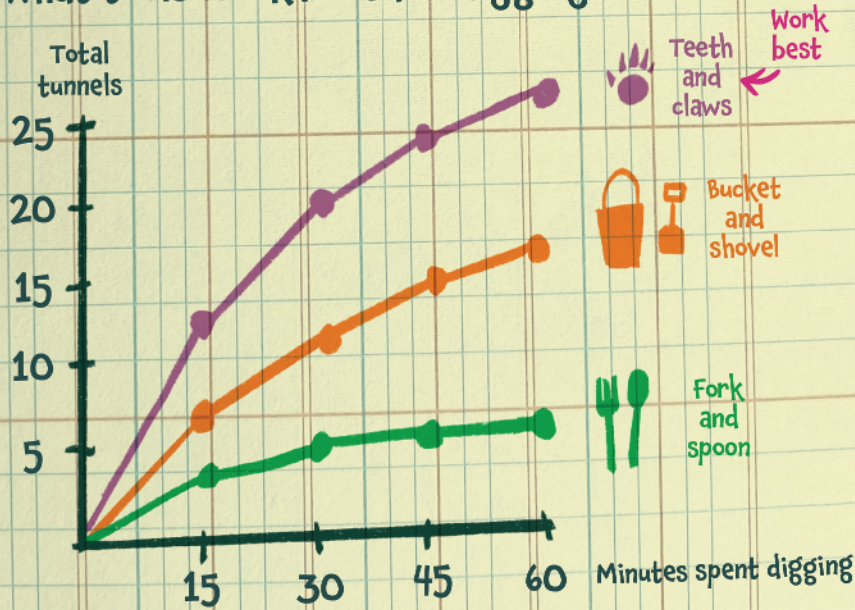


Daphne traveled *everywhere*: she problem-solved with polar bears in the arctic, guided gophers underground, and even helped some human kids!

Which polar bear can dive the deepest?



What tools work best for digging?



Are peacocks the most popular pet in Pinegrove Peaks?



Then she realized—she was making friends by being herself. There was one more place she had to try.

Daphne went back to where she started, to the cave where her adventure began.





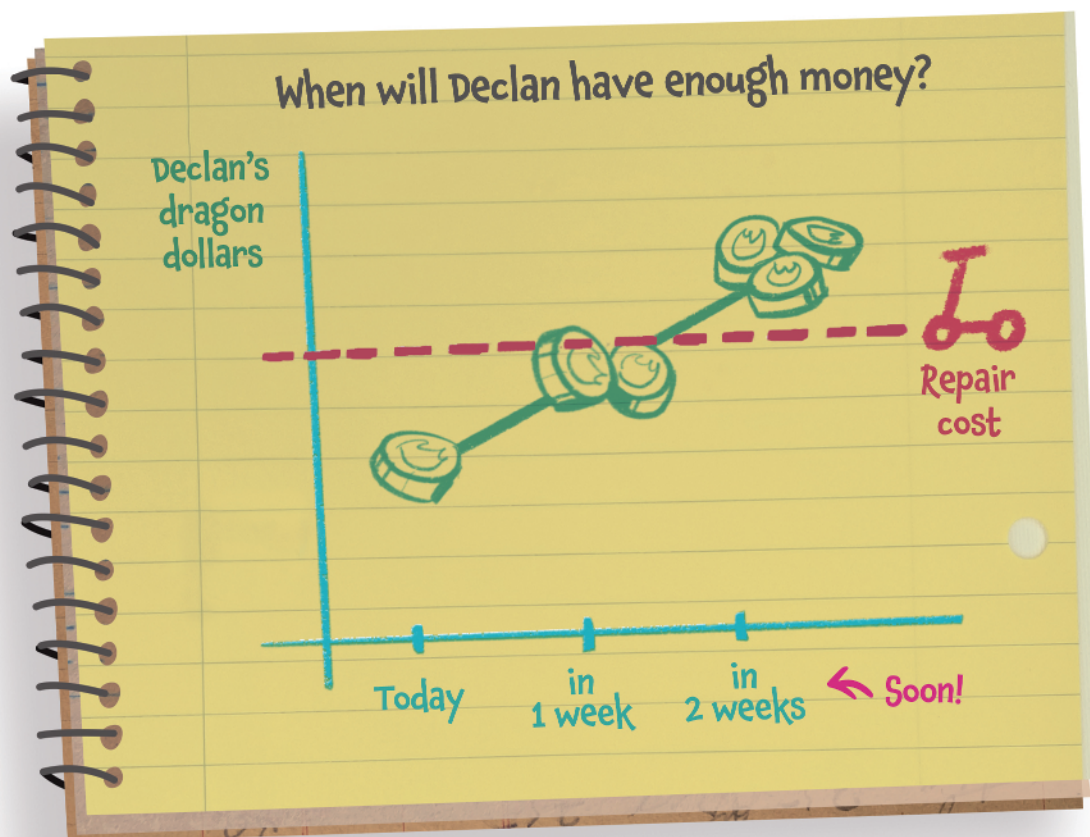
She found Declan, who looked sad. "My scooter is broken," he said. "Dad is making me use my own dragon dollars to fix it, but I don't have enough!"

"I think I can help," said Daphne. "Let me see your piggy bank."



Declan went to his room and returned with it. Daphne counted the coins. Then she drew the data.

"Aha!" she said. "If you keep up with your cave chores, you'll have enough money saved in no time."



"Wow!" Declan exclaimed. "I didn't know drawing data could be so useful. You're the best, Daphne!"



As Daphne told Declan about the places she explored, the problems she solved, and the friends she made—she realized that she was *exactly* where she was meant to be.



Glossary of Graphs

You can draw data just like Daphne!

In this glossary, you'll see a few common ways that numbers can be turned into pictures (also known as charts or graphs). Study these to build your vocabulary of graphs and learn how you can use them to answer your own questions and learn about the world.

Data drawings are much more than pretty pictures—they're stories waiting to be told. What mysteries can you solve by drawing data? Find fun activities on the following pages.

Discover additional activities and share your data drawings at DaphneDrawsData.com.



The bigger the crayon, the more there is left to use

Here are Daphne's favorite crayons—they are different sizes because she uses some colors more than others.

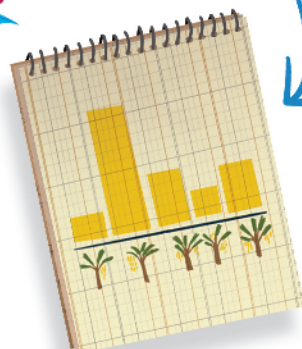
Looking at Daphne's crayons is just like reading a bar chart! The bars can go up, down, or even sideways. A big bar means there is a lot of something. A short bar means there's not that much. You can compare the heights (or lengths) of the bars within a graph, too.

Bar charts

show how much of something there is and make comparisons



In the jungle, the biggest bar helped reveal the banana thief



A stacked bar chart showed the aliens which spaceship had enough fuel to get home

An upside-down bar chart displayed the deepest diver in the polar bear plunge



Your turn: eat a rainbow

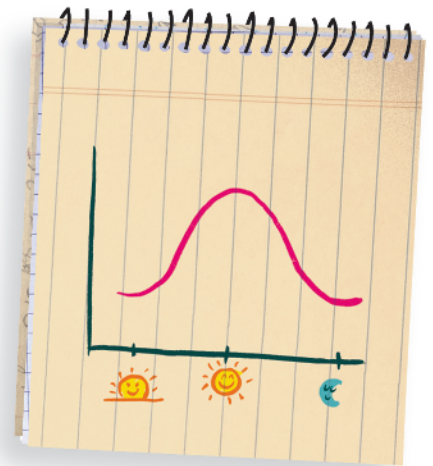
Write down everything you eat in a day, noting its primary color. At the end of the day, tally the foods by category: red, orange, yellow, green, blue/purple, and white/brown. Draw a bar chart to see how many you ate of each. What color did you eat the most? Were any missing from your day?



When Daphne was in the jungle, she was curious how the temperature changed from day to night.

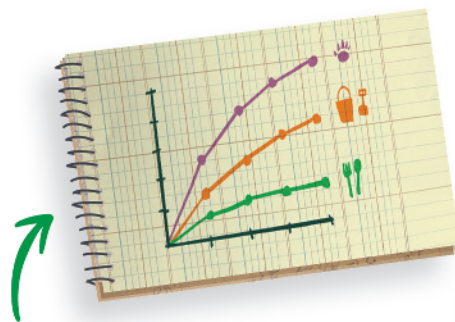
A line graph helped her understand this! The line started low in the morning, increased as it became warmer during the day, and decreased again as it cooled off in the evening.

A line graph tells the story of how things go up and down over hours, days, or even years.



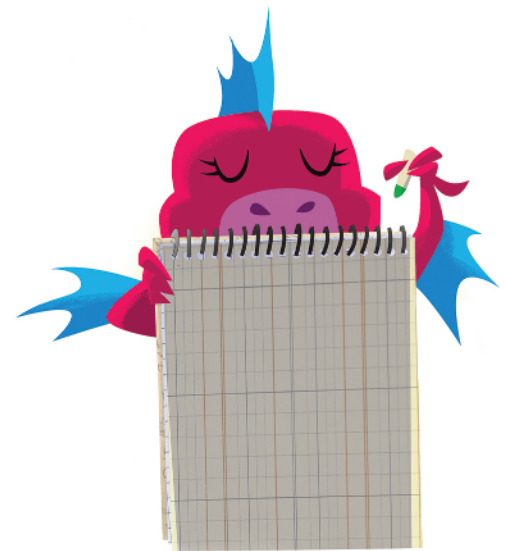
Line graphs

show how things change over time



After digging tunnels with different tools, the gophers discovered that their claws worked best

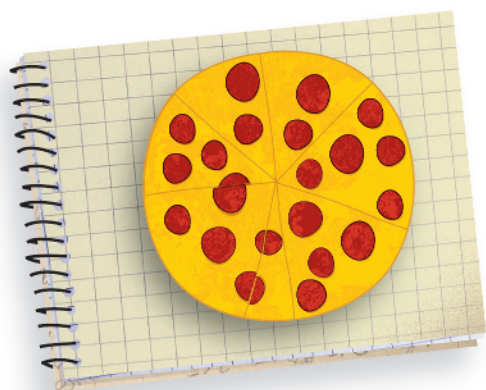
Declan learned it would take two weeks to save enough dragon dollars to repair his scooter



Your turn: reading rhythm

Write down how many minutes you read every day for a week. Draw a dot for each day's total time on a graph and connect them with a line. What do you learn? Bonus: have a friend keep track, too, and then compare your results in one chart! Who read the most each day?





To celebrate Daphne's return, she and Declan ate a delicious pizza together with their parents.

A pie chart is like a pizza: you draw a circle to represent the total of something, and then you cut it into pieces to show the different portions, or amounts.

When you want to see if all of the pieces are about the same size or one slice is a lot bigger or smaller than the others, pie charts work well.

Pie charts

show parts of a whole



A pie chart presented peacocks as the least popular pet in Pinegrove Peaks



Your turn: activity pie

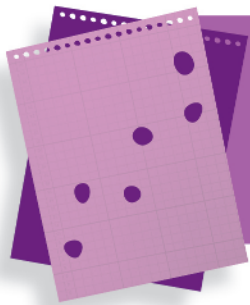
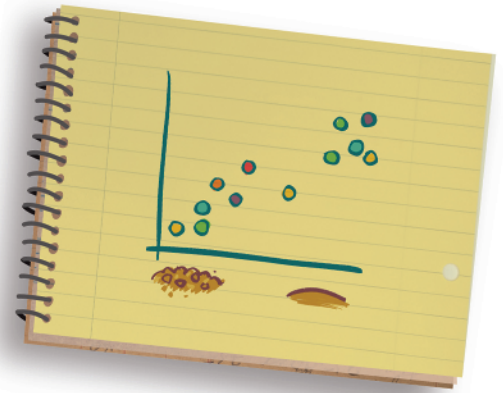
What do you do during a typical day? Estimate how much time you spend on various activities—like sleeping, learning at school, playing, eating, and doing homework—and then draw it in a pie chart! Which slice is the biggest? Smallest? Are there any that you wish were a different size?



While Daphne and the aliens were waiting for more fuel, they played marbles.

After rolling a handful on the planet's bumpy surface, they were everywhere—it looked just like a scatterplot! The rougher the path, the more marbles came to a stop in the same area, while smoother ground meant others rolled far.

Scatterplots are handy when you need to understand two things together and see if they follow a pattern.



Scatterplots

show how two items relate and whether one changes when the other does

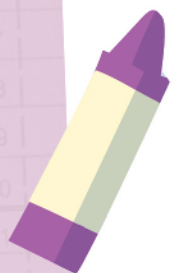


Under the sea, Daphne proved that smaller crustaceans weren't quite as quick as the bigger ones



Your turn: slumber number

Note how many hours you sleep every night for one week. Each morning, write down how you feel on a scale ranging from grumpy to great. Draw a scatterplot with sleep hours on one side and mood on the other. Place a dot for each day where your sleep and mood meet. Can you see a pattern? Is there an ideal amount of sleep that makes you feel your best?



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