"No, not a field trip," Mr. Cantello answered. "October 23rd is a special science holiday. Can anyone guess which one?"

"Is it Astronomy Day?" Fatima asked. "I want to be an astronaut when I grow up."

"Close! Astronomy Day was a couple of weeks ago. Anyone else?"

"I hope it's Earth Day!" Kevin exclaimed. "I love when we plant seeds in the school garden."

"That's not until spring. One more guess."

"Pi Day!" Sanjay shouted. "My family always eats pie on Pi Day."

“Good try, Sanjay, but Pi Day is in March,” Mr. Cantello smiled. “October 23rd is Mole Day, which celebrates a unit of measurement called a mole. What do you think moles measure?”

Before anyone could guess, Kevin called out, “Wait! A mole isn’t used to measure something. A mole is an animal.”

“It’s also a spy who works undercover. I saw it in a movie,” Alejandro added.

“No, a mole is a colored spot on your skin!” Leilani said. “I have one right here.”

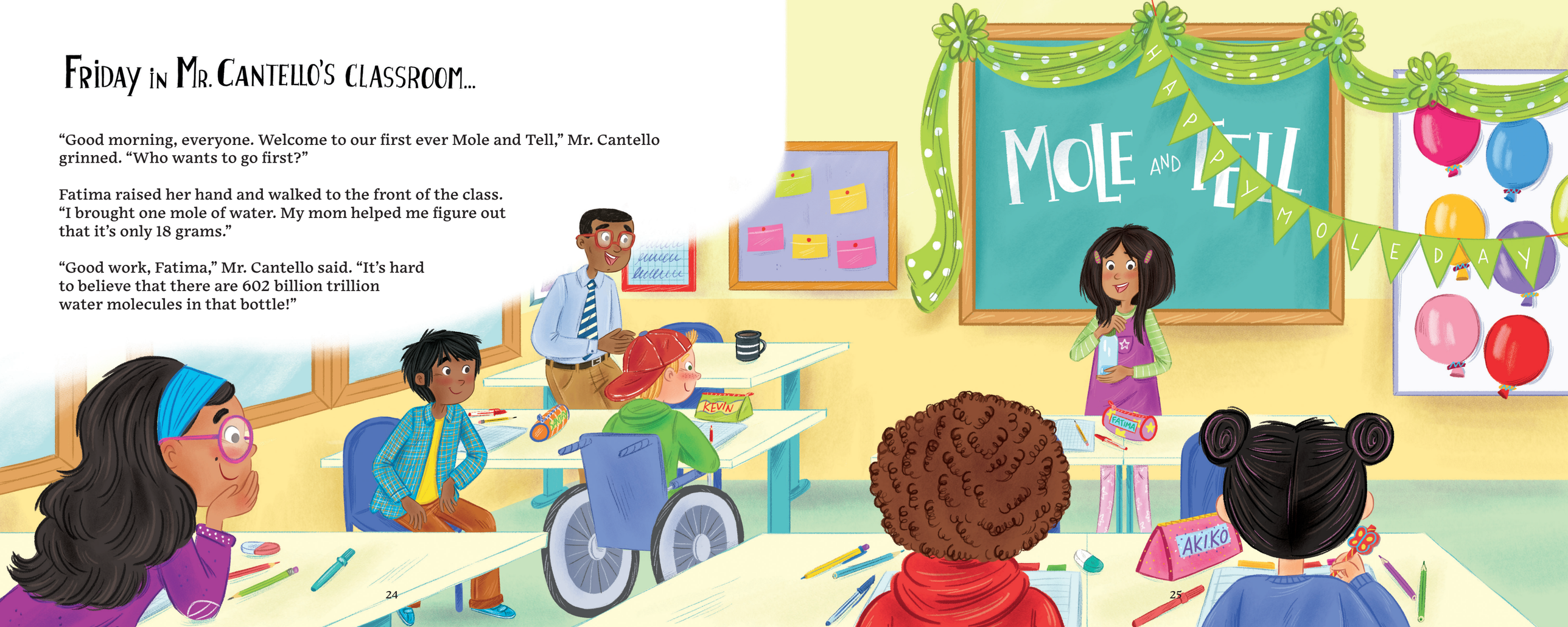
“That’s true, Leilani, a mole is a spot on your skin. It can also be a spy and an animal,” Mr. Cantello said. “The word ‘mole’ is a homonym, which means that it has more than one meaning. Today, we will be learning about the kind of mole that is used by scientists.”

Friday in Mr. Cantello's classroom...

"Good morning, everyone. Welcome to our first ever Mole and Tell," Mr. Cantello grinned. "Who wants to go first?"

Fatima raised her hand and walked to the front of the class. "I brought one mole of water. My mom helped me figure out that it's only 18 grams."

"Good work, Fatima," Mr. Cantello said. "It's hard to believe that there are 602 billion trillion water molecules in that bottle!"



"Hold on..." Kevin said in confusion.
"Why does my mole of sugar look so much
bigger than Fatima's mole of water?"

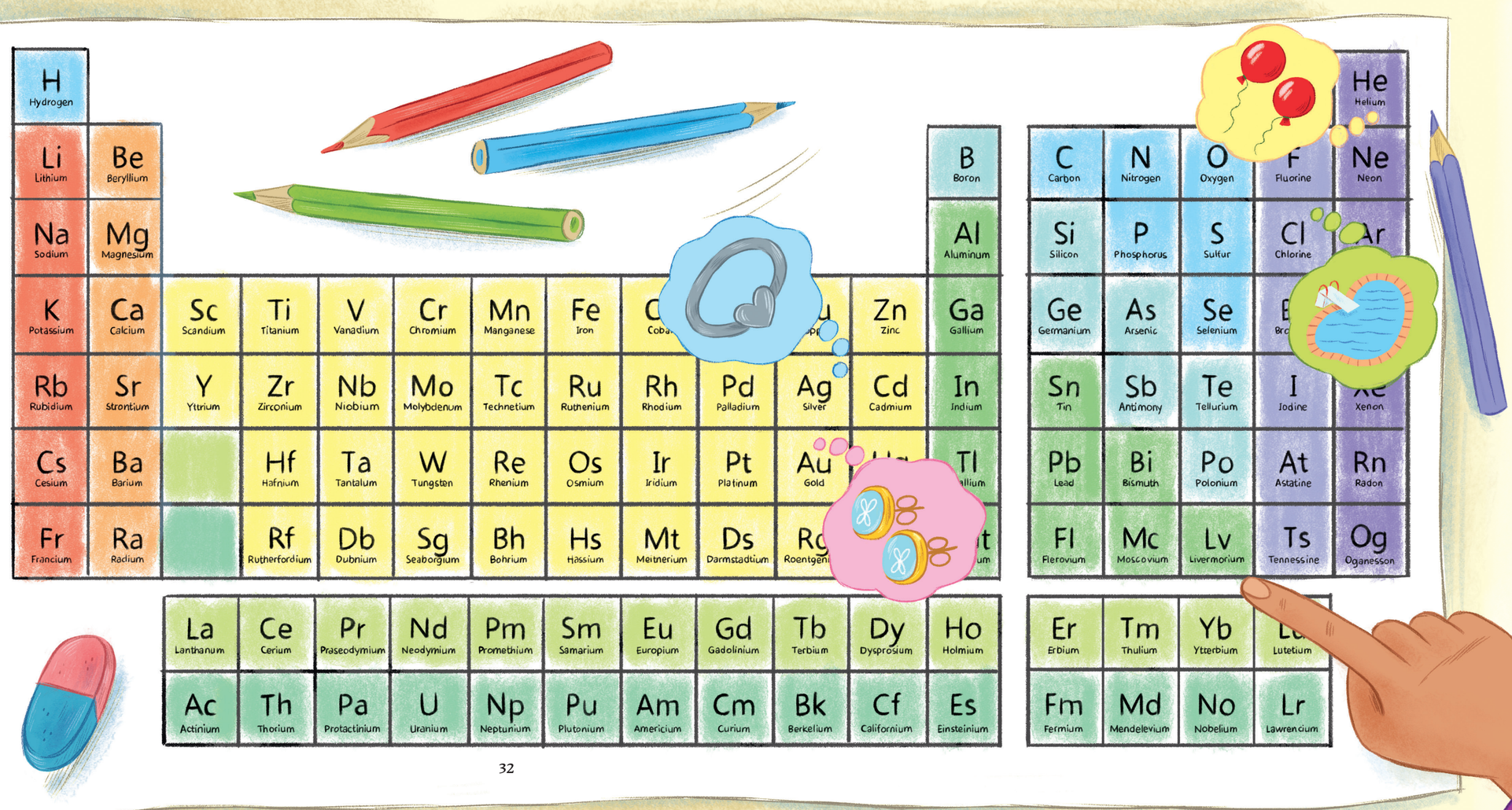
"That's because moles tell you the *number* of molecules you have,
not the *size* of them," Mr. Cantello said.

“Imagine that you have a dozen donuts and a dozen donut holes. Even though there are 12 of each, the donuts are going to take up more space than the donut holes because they’re bigger.

“The same thing is true with moles. One mole of sugar takes up more space than one mole of water because sugar molecules are bigger than water molecules.”

“Ohhh,” Kevin said, “I get it now!”

“Who would like to share next?”
Mr. Cantello asked.



Akiko went next. “Yesterday, my brother was teaching Sanjay and me about the periodic table.

“He told us that it’s a chart that shows every element in the world. He also explained that elements are made up of only one type of atom, and they can’t be broken down into any other substances.”

“That’s correct, Akiko. Does anybody recognize any of the elements?”

“I know gold and silver,” Leilani answered. “They’re in my mom’s jewelry.”

“Chlorine is what we use to clean pools,” Sanjay added.

“And I know helium!” Fatima said. “My dad told me that it makes balloons float.”

Leilani went last. “My mom is a pharmacist. She uses moles at work to measure chemicals for different medicines.”

“A lot of people use moles for their jobs,” Mr. Cantello said. “Scientists who make plastic and batteries have to measure specific amounts of different elements when they create their products. In many cases, they use moles to take these measurements.”

“Wow,” Alejandro said. “Moles are everywhere!”

“They are,” Mr. Cantello said. “That’s why it’s so important for us to learn about them.”