

# CHAPTER 1

**I**ronically, it had all started with a math puzzle. The next thing I knew, the newest member of our math club had disappeared.

After three days without a sign of her, we decided it was time for the Math Kids to do something about it.

But I'm getting ahead of myself, so I'll begin at the beginning...

It was Friday, and we had almost made it through another week with Mrs. Gouche. She was our fourth-grade teacher and wasn't too bad most of the time. I liked that she had separate math groups, so we didn't get stuck doing the easy math with Robbie Colson and Sniffy Brown.

Sniffy's real name is Brian, but everyone calls him Sniffy because he always has a runny nose and sniffs loudly. We never call him Sniffy to his face, of course. He is friends with Robbie, Bill Cape, and Bryce Bookerman, the class bullies.

"Don't forget that we have Math Kids club tomorrow,"

## A SEQUENCE OF EVENTS

I reminded Stephanie on the way into class. I'm the president of the Math Kids club at McNair Elementary School. I hadn't exactly been elected to the position, though. Stephanie Lewis had said I should be president since the club was my idea, and Justin Grant, my best friend since kindergarten, hadn't objected. There was no need for an election because there were only three of us in the club.

I already knew Justin was coming to the meeting because we had talked about possible problems to tackle while we walked to school that morning. Justin had a new book of math puzzles he was planning to bring.

You're probably thinking that all we do in the Math Kids club is sit around and solve math problems. That was how the club had started, but it sure took a few strange turns along the way. Who would have thought we could use math to crack a case the police couldn't solve? Still, the original idea for the club was to solve math problems. And when all the excitement with the burglars was over, trust me, that's all we wanted to do.

"Wouldn't miss it, Jordan!" Stephanie said. "No, wait! I have soccer practice, so it would have to be after that."

I rolled my eyes as I took my seat in class. This would take some finessing on my part. Justin and Stephanie had had more than one blowup over her soccer practices colliding with our math club. But finding a way to avoid another shouting match was a problem I'd face after school.

Mrs. Gouche has been giving our math group

tougher and tougher problems as the school year goes on. She knows that Stephanie, Justin, and I are good at math and really like hard problems, so she has made it her mission to challenge us. This day's problem, for example, was no exception.

"This, my friends, is called The Sixes Problem. Catherine, can you hand this to Jordan?"

The girl who sat in front of me—Catherine... something—handed me the problem sheet. I noticed she took a long look at it before passing it back to me. I smiled, knowing that she probably wouldn't have the first clue about how to solve the kind of problems our teacher had been giving us. Little did I know that she actually knew a lot more than I thought and would end up being right in the middle of our next mystery.



Mrs. Gouche put her dry-erase marker down and returned to her desk. She had an evil glint in her eye and my heart started to beat a little faster.

The problem *looked* simple enough when I first scanned it. We had to use three of the same number,

## A SEQUENCE OF EVENTS

like 2, 2, 2 or 5, 5, 5, and any mathematical operations, like multiplication, division, or addition, to make 6. For example, to solve for the number 2 we could use  $2 \times 2 + 2 = 6$ . It didn't look difficult, but it turned out to be much tougher than we thought!

WAIT! DO YOU WANT TO TRY TO SOLVE THIS PUZZLE BEFORE SEEING IF THE MATH KIDS CAN DO IT? FOR EACH NUMBER FROM 0 TO 9, USE THREE OF THE SAME NUMBER AND ANY MATHEMATICAL OPERATIONS TO MAKE THE NUMBER 6. FOR EXAMPLE, FOR THE NUMBER 2, ANOTHER POSSIBLE SOLUTION IS  $2 + 2 + 2 = 6$ . GOOD LUCK!

We went to the whiteboard and started working. We easily came up with answers for the numbers 2 and 6:

$$2 \times 2 + 2 = 6$$

$$6 + 6 - 6 = 6$$

The problem was that we had to do the same thing with all the numbers from 0 to 9.

While the rest of the class was working on their social studies homework, the three of us stood at the whiteboard, dry-erase markers in our hands, as we tried to solve for all the numbers.

Justin got us the next two answers when he remembered that any number divided by itself is just one.

That means that  $5 \div 5$  is just 1 so we could use  $5 + 5 \div 5 = 6$ . We used the same trick to solve for the number 7.

That meant we had four down and six to go:

- 0)
- 1)
- 2)  $2 + 2 + 2 = 6$
- 3)
- 4)
- 5)  $5 + (5 \div 5) = 6$
- 6)  $6 + (6 - 6) = 6$
- 7)  $7 - (7 \div 7) = 6$
- 8)
- 9)

Zero and one looked impossible. We thought they might really be impossible, too. We had lost a class pizza party when Stephanie bet Mrs. Gouche that we would solve a problem called the Bridges of Königsberg. It turned out that the problem didn't have an answer. Score one for Mrs. Gouche!

"I don't think there are answers for zero and one," Justin complained.

"Me neither," I added. "Let's work on three and four. I'm sure we can get those."

Three turned out to be pretty easy:  $(3 \times 3) - 3 = 6$ . We were halfway there!

And halfway there was as far as we got. We stared at the board and made some attempts at new ideas, but the last five answers remained out of our reach.

## A SEQUENCE OF EVENTS

The three o'clock dismissal bell rang while we were still staring at the board.

"We did pretty well, Mrs. Gouche," I announced. "We've only got three more to go."

She glanced up at the board.

"It looks like five more to go, Mr. Waters. Did you forget about zero and one?" she asked, turning her focus back to the papers she was grading.

"But those are impossible," I protested. "You were trying to trick us again."

"No tricks this time," she said. "There are answers for every number from zero to nine."

We stared at the remaining problems on the board. There was no way we could do anything to get three 1s to somehow equal 6. And the 0s? Forget about it.

The class started to gather up their papers and books and stuff them into backpacks. Robbie and his buddies pushed each other as they rushed to get out of the room. None of the bullies had detention for a change, so they were anxious to get out to the playground for a game of soccer.

We were on temporary good terms with the bullies. I wasn't sure how long it would last, but at least, for the moment, I didn't have to worry about them knocking my backpack to the floor, or tripping me as I walked past them, or threatening to rearrange my face at recess. We had Stephanie to thank for that. It had been her idea to have Robbie's dad help us catch the burglars. Mr. Colson is a police officer, but usually doesn't do anything more exciting than writing parking tickets. When we used our math skills to figure out when and where the burglars were going to hit next,

Stephanie had found a way for Mr. Colson to get credit for cracking the case. Robbie's dad was happy, which meant we were on Robbie's good side—temporarily anyway.

"Well, I guess I know what we'll be working on in the Math Kids club tomorrow," I said with a frown. Normally, I would have been happy to work on a tough math problem, but I knew there was no way we were going to be able to solve this one.

"Let's start early tomorrow," Justin said. "We could meet at—"

"I've got soccer practice," Stephanie interrupted.

"Of course you do," Justin replied sarcastically. "The sun is up, so you must have soccer practice."

Stephanie gave him an irritated look as she tugged on her ponytail. Wanting to avoid an argument, I jumped in quickly.

"How about Justin and I get started and you come over after practice?" I asked.

"Yeah, that would work," she said.

"It doesn't really matter," Justin sulked. "We're never going to get answers for zero and one anyway."

"Factorials," said a small voice near the door.

"What did you say?" asked Justin.

"Factorials," repeated the small voice, which we could now see had come out of the mouth of the girl who sat in front of me, Catherine...Duchesne. I knew I'd remember her last name eventually. "You need to use factorials to solve for zero and one."

"How is a factory going to help us solve a math problem?" I asked.

"Not a factory," she said, laughing. "Factorials."

## *A SEQUENCE OF EVENTS*

And with that, she was out of the room and disappeared into the crowd of students headed down the hallway to the exits.