

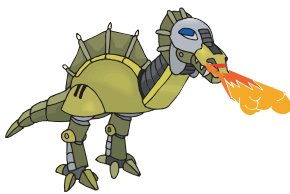
Sam Finnigan's Big Secret

by Jacinta Behne

Here in our neighborhood, the other kids run when they see Sam Finnigan coming up the street. Well, some of them. Not me. I've just heard that he has a big secret and I plan to get in on it, somehow, some way, some day.



Sam isn't like the other boys. And even if they had the courage to tease him, they wouldn't dare. He is quiet and always thinking. It feels like he is forever planning something, mostly because he is. And he has the bolts from the blue to show for it—really and truly—like the school picnic last month. Mr. Wagner (we call him Wags) couldn't kick Sam out of the picnic for bringing his flying dragon Gizmo, 'cause he didn't even know that whirring robot was in Sam's pocket in the first place. It sat in there most of the day, quiet, just like Sam. Hiding. Watching. Waiting. It was MooMoo (no one but Sam could call her that...well, and her baby brother who couldn't say Mary Margaret) who talked the dragon out of that pocket that day. We still think she was in on it.



Hot flames that licked the air and a thunderous roar came out of that buzzing dragon. He was the scariest, pint-sized flying creature that any of us had ever seen. And, he was handmade. Gizmo was a flying dragon robot that Sam built out of scraps of metal and old computers. Wags tried to catch it, but the faster he ran, the trickier Gizmo got, sending Wags under the tables, over the platform, and right into the duck pond. That's when we all fell down laughing.

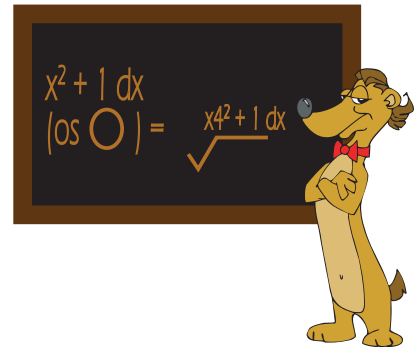


That's the day that we all really knew what Sam could do. I didn't care if MooMoo was his girlfriend; I was going

to get to know Sam and what made his machines tick.

Sam's dog Muggins sure looked real, but some said that no dog could ever be that smart. He and Sam went everywhere together—except to school.

Muggins got there early, at 6:30, to teach his morning class on advanced mathematics.



This morning, he had a particularly difficult problem on the board, and I solved it in just a few minutes. Yes!!! I love math almost as much as science, where things are always changing.

Walking home that day, someone poked me from behind, "You had a cheat sheet, right?"

I swung around with my fists up, ready to throw a hard punch. It was Sam, walking home with Muggins. "Never! And anyone who calls me a cheater again is gon'na get it!"

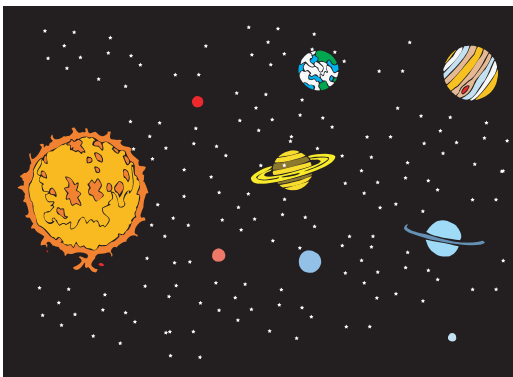
"Okay, okay! Back off! Muggins said that he worked all night on that problem and you solved it in a wink. You know him. He's suspicious by nature."

"And you aren't?" I snapped back.

That's when everything about Sam changed.

He looked at me, smiled, and asked me to come over to his garage to see what he was working on. That's the day that changed my life as a girl in the fifth grade in Jefferson Elementary School. I was in! Had I known then what I know now....

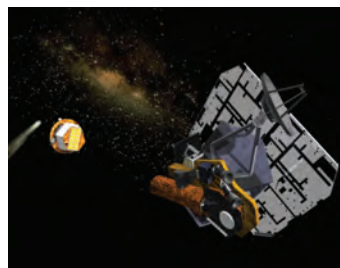
The door on the garage swung wide open just as we came up the walk. No padlocks. No keys. It was a marvel to me and I glanced at Sam with big eyes, but he just smiled and walked right into the blackness. No. Not black



...completely. Stars twinkled in a night sky. Oh! There was Mars! And over there Venus! Jupiter is huge! And the rings of Saturn...wow! Amazing! **Asteroids** really do look like a belt of enormous rocks, save for **Vesta**, **Ceres** and **Pallas**; they look almost like the planets! I felt an icy sting on my nose as a **comet** whizzed by. So this is Sam's big secret. Sweet!

"Duck! Here comes a mini **EPOXI** spacecraft!" yelled MooMoo.

I felt a swoosh of air and a tickle on my cheeks just as the spacecraft whizzed by on its way to the **comet Hartley 2**. Wow!



Is that what the **Deep Impact** spacecraft looks like after punching a hole in comet Tempel 1?

And it has a hole of its own...right where its **impactor** used to be.

Muggins sprinted into the back room.

I could see low glow lights and hear the tap-tap-tapping of paws on computer keys.



"Ali, meet Xtreme, the love of my life," Sam said. I turned and saw her, standing there in the middle of the garage-turned-mini solar system. She was an odd-looking robot that seemed to have eyes that stared back at me and arms that reached out, hoping to grab hold.



"Hello Xtreme. Pleased to meet'cha."
"You too Alexandra! Call me 'X'"
"You know my name?" I asked.

"Why yes, Muggins just added you to the team. It's in my data bank."

I looked over at Sam who just smiled. "The team?"

"Yes. You're going to help us launch X into space to learn more about comets--lots of them--the REAL family of slushy, shiny tailed rocks that are



out there, circling through our solar system, holding treasures of history for us to study. And **EPOXI** is going to help us learn.”

“Is that all?” I winked.

“No, there’s more. There’s a critical need for our mission. Gizmo is going along to fine tune the camera.”

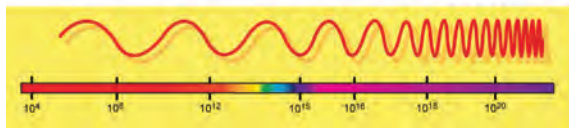
“Gizmo, the flying dragon?” I was shocked.

“Yes. He will install a new **camera lens**, just like putting a sharp pair of glasses on EPOXI, to create a crystal clear vision in space. That’s where we all come in.”

I gulped. “And who is ‘we’?”

“Muggins, MooMoo, you, and me.”

“You can’t be serious. You, Muggins, MooMoo and me are going to launch X, the robotic spacecraft, and chase her around the sky after EPOXI and a bunch of comets? And we’re going to help her measure **light waves**? ...



Stars? Planets? Uh... exactly when are we going to do this?”

“Saturday.”

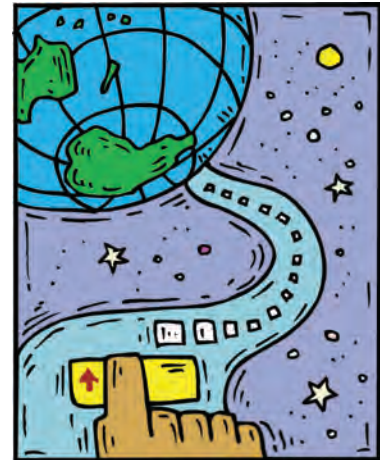
“Saturday? Which Saturday? Tomorrow Saturday?”

“Yep. I just need you to check my **calculations**. Look at this.” Sam had rolled out a small computer on wheels. It was tied to X with electrical cables. “Here’s the **flight path** that we think will work to reach EPOXI and our

comets...and we will look at a few stars along the way. Here’s where X will enter the upper atmosphere. Can you run the numbers? Tell me what you think?”

Part of me was so excited that I wanted to pinch myself. Was I dreaming? Part of me wanted to run. ...I stayed.

I stepped up to the computer and hit several keys. Wow! The spacecraft’s flight path! All the numbers and calculations appeared on the screen.



That’s when I got all excited and sat down to crunch some numbers.

When I looked up, Sam was standing there with a chicken sandwich in one hand and a phone in the other.

“It’s getting late. You need to call home and tell your parents what you are doing...but don’t tell them what you are doing, if you know what I mean.”

I looked at my watch. 6:30! Time had flown by! I was in trouble. I didn’t have to fib. I was “working with Sam on an advanced math problem and I would be home in an hour.” It totally worked and I got back to my math. The calculations were correct, but there were some pretty important things to think about, all having to do with objects **along the way**, and potentially **in the way**, like our Earth and Mars, for instance.

I didn't sleep much that night. I still couldn't believe what I saw in Sam's garage! I got to meet X and calculate flight paths and measure **thrust** and spacecraft **mass**. And this wasn't his first comet chase...there had been others. This one was just his biggest yet.

Early the next morning I finished my Saturday chores and bolted straight for Sam's garage. I felt a blast of cold air as the doors swung wide open. A cold, white cloud swirled around my ankles. I waited for it to clear and found Sam and MooMoo folding up Gizmo, and then Xtreme and packing them into a hole in the floor. I walked over and couldn't believe my eyes!

There was a roiling rocket buried in the ground, and X was getting tucked right into its nose. Sam didn't look up. He was pretty focused on his work.

Muggins just gave me a nod and got back to the computer.



MooMoo smiled and kept working. All at once I heard a grinding sound and looked up to find the garage roof sliding open. Wow! This was going to be a good day.

Just then, I turned and ... *(finish the story and have some fun!)*

By Jacinta Behne © 2009 for NASA