

# Otto's Tales



*Let's Meet*

*an*

**ENGINEER**

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**BANG! BANG!**

Smidge wrinkled her whiskers as she hammered a loose board into place. "I need more nails!" The kitten was determined to finish her project.



**“Ruff Ruff!”**

Otto the bulldog peered up nervously. “It’s going to take more than a few more nails to keep this treehouse together.”



Smidge climbed down and joined Otto on the grass. "What's wrong? I think it looks purr-fect!"

The bulldog tilted his head. "It looks wobbly."

Dennis opened the back door. "I heard hammering. What are you two up to out here?" The boy noticed the treehouse. "Is that finished?"

As the three stood there, a wooden board went **CRACK** and fell to the ground.

“Almost.” Smidge looked at Otto. “We just needed a few more nails.”



Dennis picked up the broken board. “Where’s your plan? Did you follow the design correctly?”

“Plan?” Otto shrugged. “We didn’t have one. We started making this from the wood and tools we found in the garage.”



“The design is in here!” Smidge pointed to her head.

“I see,” Dennis replied. “Why don’t you two take a break and come inside to tell me about your plan?”

**SLURP!** The kitten drank milk from the bowl Dennis offered her. “We thought a treehouse would be fun to play in together, but once we started building, it didn’t turn out the way I pictured,” Smidge explained.



The boy nodded. “That’s because building something takes more than an idea in your head. You have to draw it out in detail, measure it, and calculate to figure out how much weight it can hold—”

“Wait a second,” Otto chimed in. “We have to do math to build a treehouse?”

The kitten sighed. “I’m not good at math. Numbers are confusing.”







Dennis smiled.  
“That’s a different type of engineer. I’m talking about engineers who help design the things we use, like roads, buildings, computers, and more!”

Dennis continued, “Why don’t I call one of my camp mentors and ask if she can help you with your treehouse?”

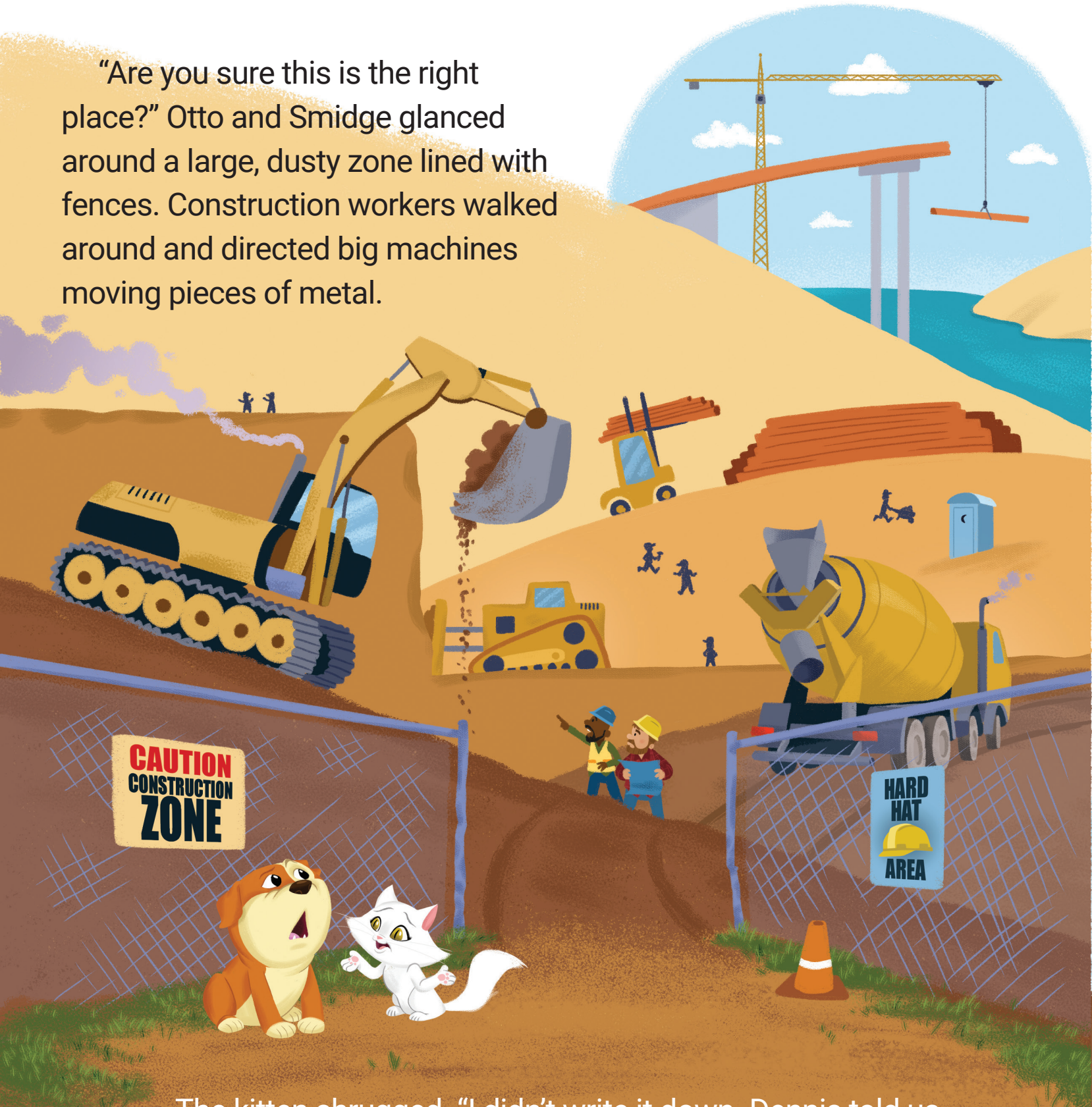
“I don’t know.” Smidge was skeptical. “It’s just a treehouse. People build them all the time. Why do we need an engineer?”

“To help you make sure your project is safe and won’t break. It doesn’t hurt to have someone else look over your work,” Dennis encouraged.

“Alright.” The kitten agreed.



“Are you sure this is the right place?” Otto and Smidge glanced around a large, dusty zone lined with fences. Construction workers walked around and directed big machines moving pieces of metal.



The kitten shrugged. “I didn’t write it down. Dennis told us the engineer would meet us at the bridge worksite on...hmm, was it 10th or 12th Avenue?”

“This is why you need to write things down,” Otto pointed out. “Details are important.”

“Excuse me?” A young woman approached them. “Are you Otto and Smidge?”

“That’s us!” Otto waved.

“Nice to meet you.” She had a kind face. “I’m Ms. Medina. I work as a **civil engineer**. Welcome to the Blue River Bridge Project.”



“What does a civil engineer do?” the kitten asked.

Ms. Medina gestured to the bustle happening behind her. “Civil engineers develop plans and **oversee** construction of the **infrastructure** you see all around us, like bridges, roads, airports, and more.”





“Those are really important structures,” Otto noted. “They must be hard to build. How did you come up with your plan for this bridge?”

“Follow me,” Ms. Medina instructed. “And please wear these to keep yourselves safe while we walk through the site.”

Otto and Smidge put on the hard hats and beamed at how official they looked!



Ms. Medina led the duo through the dust and noise to a trailer in the middle of the site.

When they entered the trailer, Otto and Smidge were surprised to see it was an office. Along one wall, every inch of space was filled with blueprints, sketches, and calculations.

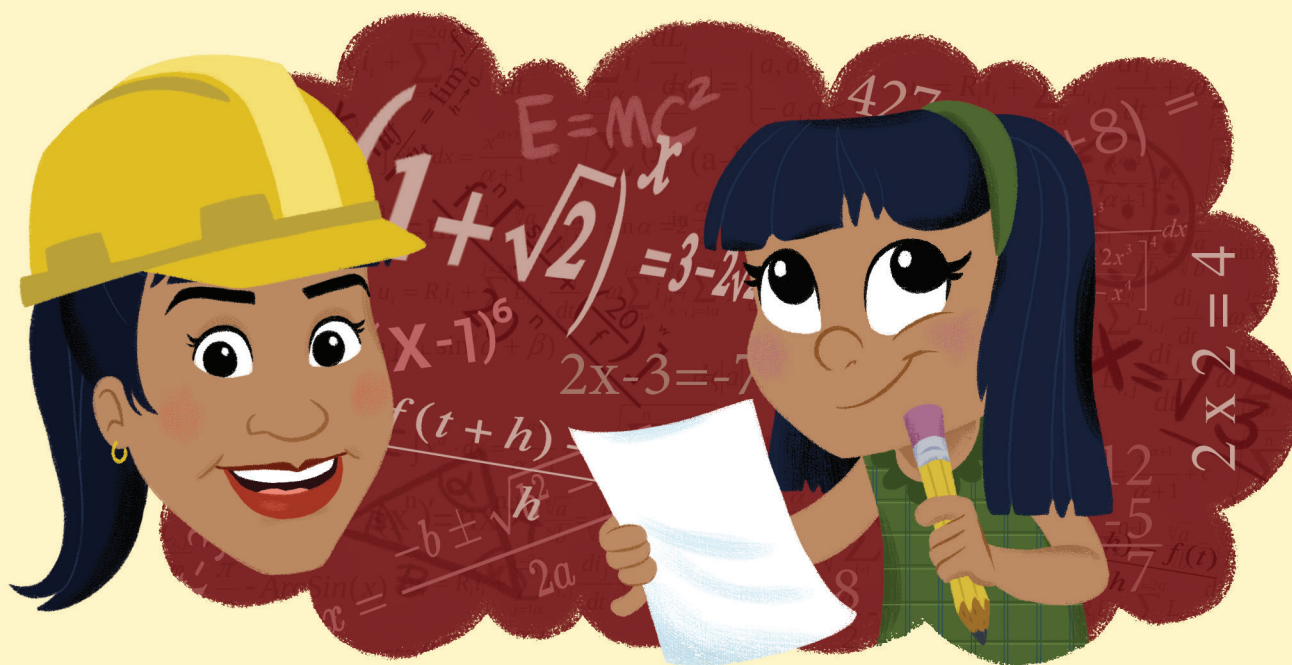


“That looks complicated!” The kitten inspected each document closely. “You must be a genius to make sense of any of this!”

“Wow!” Otto turned to Ms. Medina. “Is this stuff easy for you?”



The engineer chuckled. “No, this wasn’t easy for me to learn, and I’m definitely not a genius. When I was a young girl, my dream was to build things, and I studied and practiced my math problems over and over. Math used to be very hard for me, but my parents often reminded me that I could do anything I set my mind to. Whenever I got scared or felt like I was going to fail, I would remember their encouragement.”



Smidge was inspired. “I haven’t worked that hard for anything like that before!” the kitten confessed. “You must be really excited about what you do.”

Ms. Medina nodded. “I am. I’m also **tenacious**. I won’t stop until I make sure every detail is correct. I do it again and again until it’s right. After all, people’s lives are at stake.”




“Wow, you never give up?” Otto asked.

“No, I don't give up! That's how we avoid mistakes. **Attention to detail** matters! Every detail is important in the final outcome.” Ms. Medina rolled up her plans.



“What are you doing?”  
Smidge asked.

The engineer smiled.  
“Taking these with me on  
my next inspection. Would  
you two like to join?”



The friends eagerly followed Ms. Medina outside to see the bridge. It was so much bigger up close!

“What do you check first?” Otto asked.

“The **foundation**. Without a solid support system for the bridge, it could collapse,” Ms. Medina explained. “Let’s take a look.”

They walked down a slope to the river, and the engineer opened her plans.

“Looks sturdy to me!” Smidge announced.

“Not so fast.” Ms. Medina paused. “I think we have a problem.”



She pointed to a large column supporting the bridge. "Look! Do you see that?"

"A crack!" Otto exclaimed.

"How did that happen?"

"It wasn't there yesterday when I checked. It must be a bad part." Ms. Medina pulled out a walkie-talkie and spoke into it. "All workers, stop immediately!"



She turned to the friends. "We have to fix the problem before continuing. This is why I always double-check my work. We must be **efficient** and safe. Thousands of people will drive over this bridge, so we have to pay attention to every detail."



A construction worker ran over. “Is there a problem, Ms. Medina?”

“Yes, there’s a crack on that column. Please redirect your workers to fix this,” she instructed.

“On it,” the man replied, returning to his group.

“Can’t you just fix the problem later?” Smidge brought up. “If the rest of the bridge is strong, does this one spot really matter?”

“It matters,” Ms. Medina emphasized. “One weak spot puts the whole bridge at risk. With the weight of cars and other wear and tear, it’s better to be **precise** than fast.”





Smidge considered her words. “I didn’t realize that small problems can have such a big impact. I want to build our treehouse the right way, so we can enjoy it without worrying about getting hurt. Could you help us?”

Ms. Medina nodded. “I’d be happy to! Let me finish up here, and we can go.”

The kitten and bulldog grinned. “Great!”

In the backyard, Ms. Medina studied their treehouse. “Well, it—”  
“Hold on, I forgot to replace the board we lost earlier.” Smidge scrambled up the tree.

“Be careful!” The engineer called.



**BANG BANG!** The kitten hammered away, and the treehouse gave a sudden groan.

“Smidge!” Otto barked, but it was too late. Their project collapsed, burying the kitten in a pile of wood on the grass.

Ms. Medina and the bulldog quickly pulled Smidge from the wreckage. “Are you okay?” The kitten held her paw. “I got a splinter.” “Let’s get you patched up,” Ms. Medina offered.





After getting a bandage and a bowl of milk, Smidge was ready to try again. “I think this needs a stronger foundation!” the kitten declared, picking up wood from their collapsed treehouse.

“I agree,” Ms. Medina said.

“Hey! Some of these boards have cracks—just like the bridge,” Otto noticed.

“Good catch!” Ms. Medina encouraged. “You need stronger materials. Your house is only as strong as your foundation.”

With the engineer’s help, the friends got to work drawing out a detailed plan. She helped them find good materials and measure the correct size for each board. She even showed them safety features to add, like a railing and ladder. Smidge and Otto scribbled everything down carefully, double-checking every detail.



The kitten wiped the sweat from her face and noticed the sun going down. “Wow, we spent all day just planning—we didn’t even build anything yet.”


Ms. Medina smiled. “These things take time.”



The kitten sighed. “Isn’t there a **shortcut**, especially for something small like a treehouse?”




The engineer shook her head. “No shortcuts, and no cutting corners. Trust me. Stick to your plan carefully, work hard at it with tenacity, and you will build an **excellent** house for you and your friends to play in.”



As Ms. Medina left, the friends waved goodbye. "Good luck!" she called.

The kitten and bulldog beamed. They knew what they needed to do now that they had a plan.



Days and weeks passed, and Smidge and Otto toiled away on their plan every day. With each completed step, they became determined to build a solid treehouse.



Finally, they had everything done but the railings.

“Good enough!” The kitten collapsed. “I’m tired, and we’ve been working on this for so long.”

“Not so fast,” Otto instructed. “The railings will keep us safe. Remember, no shortcuts.”

Smidge gathered her strength and climbed up the ladder. Otto helped her hammer in the safety rails.



“This looks great!”  
Dennis brought the hard-working duo some cold, sweet lemonade.



“I’m impressed. You two have been working hard on this and haven’t given up. Did Ms. Medina give you good advice?”

“Yes!” Otto replied. “She’s very smart and worked really hard to become an engineer. She taught us why a plan is important when building something.”

“Details matter,” Smidge chimed in. “Otherwise, people could get hurt. Ms. Medina taught us that to create something excellent, we can’t take shortcuts.”

“That was my favorite adventure yet!” the bulldog howled.

“You say that every time, Otto,” Smidge giggled.



Dennis hoisted himself up into the new treehouse. “Don’t forget to write Ms. Medina a thank-you letter for all her help.”

The kitten nodded. “Of course—after my paws get some rest!”



“This sure is a great view,” Dennis admired. “I can’t wait to do my math homework up here.”



Smidge and Otto looked at each other and winked.

**“Ruff Ruff!”**





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**Engineering:** The practice of using math and science to solve problems or improve things. It involves designing, building, and analyzing machines, structures, and systems. Many of history's greatest inventions (the light bulb, the steam engine, the computer, or construction projects such as the pyramids, the Eiffel Tower, and the Panama Canal) were the result of engineering.

**Civil Engineer:** A person who designs, oversees, and maintains the physical structures that support our society, such as bridges, roads, canals, buildings, etc.

**Oversee:** To direct or supervise the work of a group of people to make sure it's being done correctly.

**Infrastructure:** The basic systems, facilities, or services that allow a society to function, such as transportation, buildings, power, etc.

**Tenacious:** A trait that involves holding to something firmly: being persistent or refusing to give up, particularly when things are difficult.

**Attention to Detail:** The ability to focus on the small aspects that make up a larger task, project, or situation. This skill involves noticing, understanding, and remembering things that might easily be overlooked but are crucial for the success or completeness of the task at hand.

**Foundation:** The lowest part of a structure, usually connected to the ground, upon which everything else rests. The foundation helps spread the weight of the entire structure over a large area.

**Efficient:** The ability to complete a task successfully without wasting resources, time, or money.

**Precise:** The quality of being very exact and accurate in what you do, especially when you're measuring or building something.

**Shortcut:** A quicker or shorter method of achieving something. If used to avoid important steps, it could lead to mistakes.

**Excellence:** The quality of being the very best: achieving greatness.



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**See you in  
our *next* adventure!**

- Dennis, Otto,  
*and* Smidge

**ABOUT**

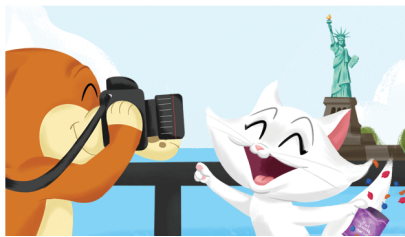
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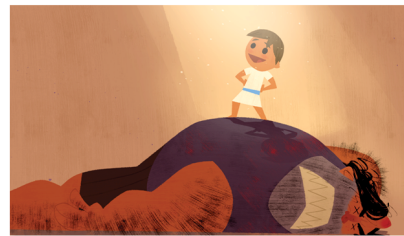
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