

Inside Dad's Test Lab:

What Does an Automotive Engineer Do?



AND
Discover Precision

By A&D Technology
www.aanddtech.com

“Dad, my friends think it’s so cool that you’re an automotive engineer. I can’t wait to watch you make cars!”

“Well Cadence, I don’t exactly make cars. Today, I’ll show you what I really do—and why it’s just as important.”

“Cool! I bet we’ll see robots building cars!”

“That’s in the factory. Here, we design and test cars to make sure they’ll be safe and drive smoothly before they’re made.”

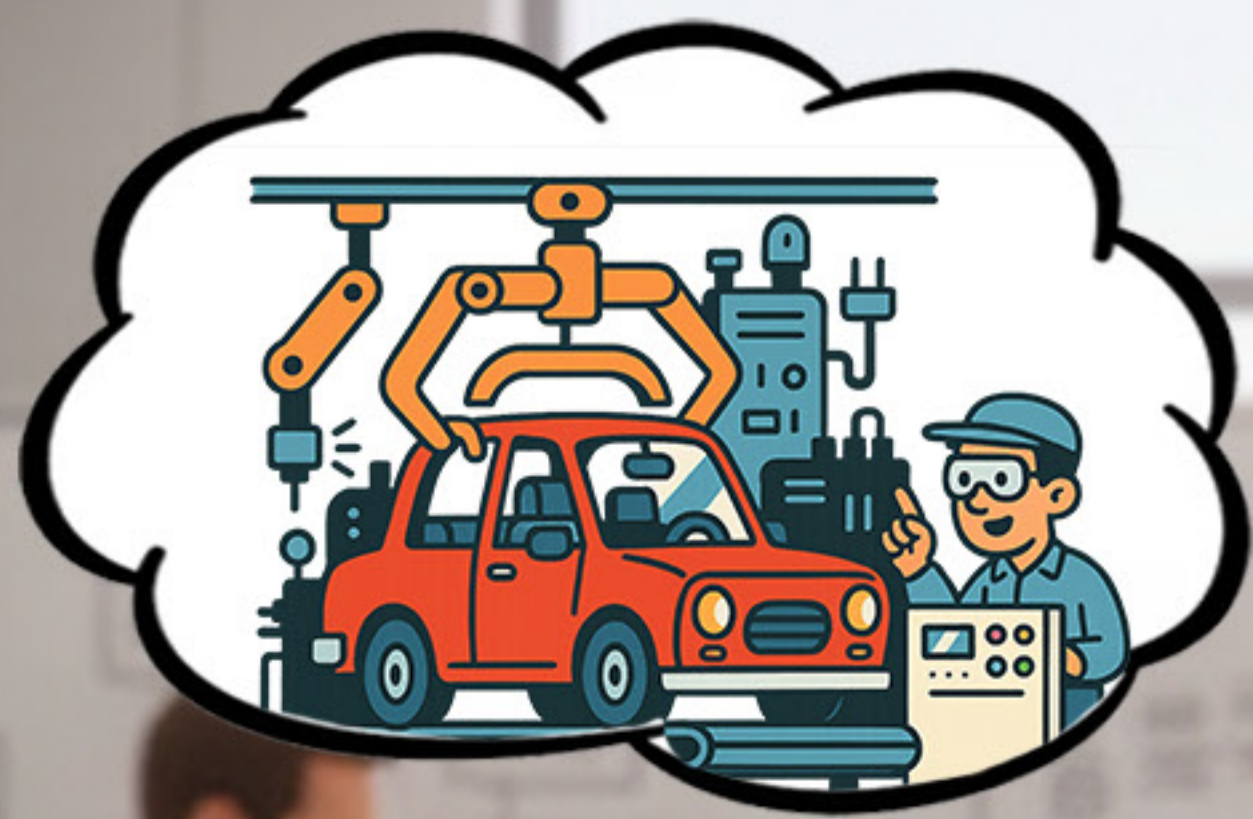


“Dad, where are the cars?”

“These engineers work with numbers and data. They figure out how cars should work before we even build them.”

“So they don’t even touch cars?”

“Not as often as you’d think. They mostly use computer models and simulations to predict how cars will behave.”



“Whoa! Dad, what is that car sitting on top of?”

“That’s called a dyno.”

“Like a dinosaur?”

“Not quite Cadence! It’s short for dynamometer. It’s like a treadmill for cars. We use it to test how the car performs without driving it on the road. See all those wires and sensors? They measure things like speed, power, and fuel used, and then it sends the information to the engineers to evaluate.”



“What’s this place? What do they test here Dad?”

“This is emissions testing. Emissions are the gases that come out of the car’s exhaust. We test them to make sure they’re safe for the environment.”

“Oh, so it’s like checking the car’s breath to make sure it smells normal?”

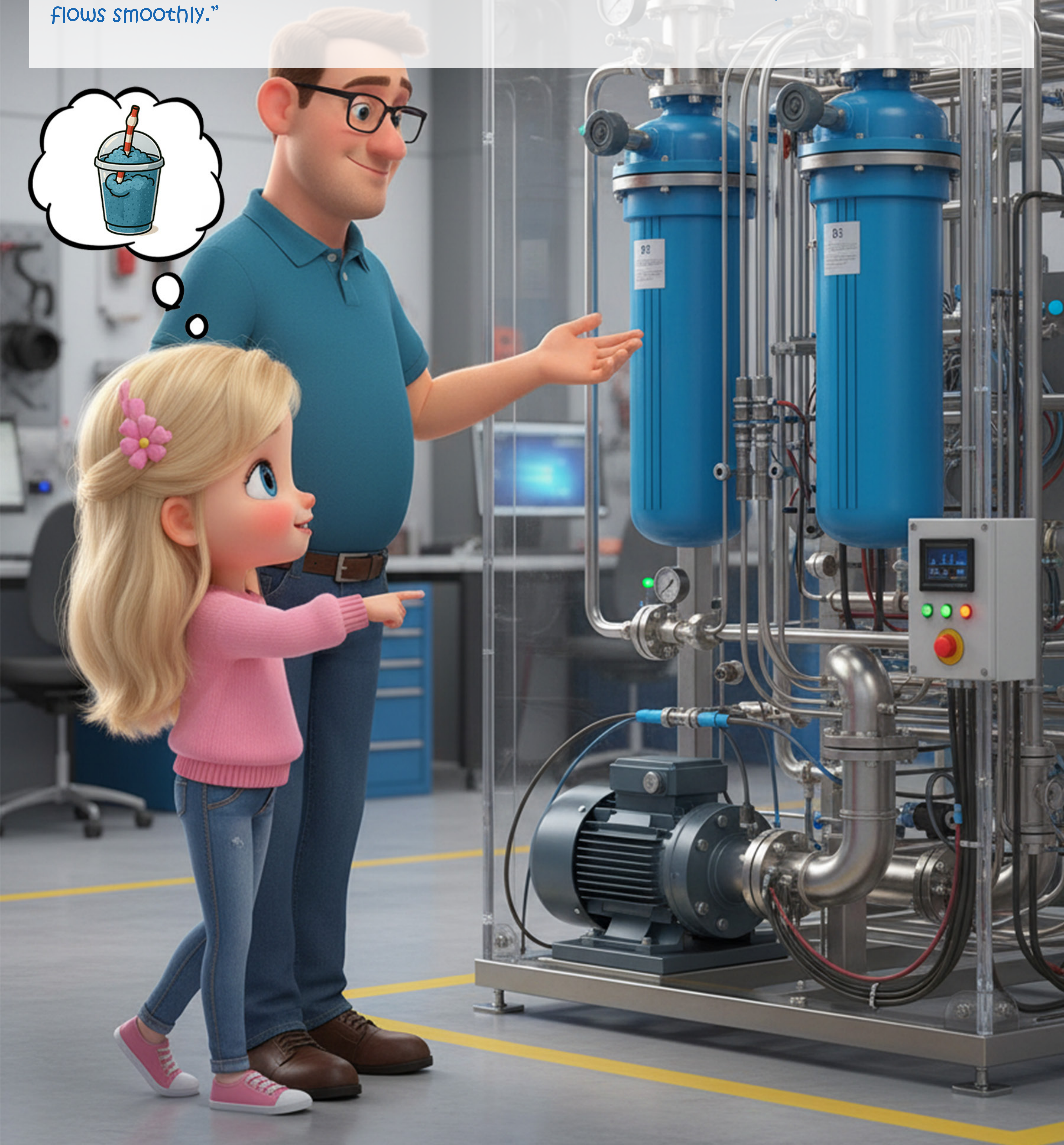
“Exactly! We want clean air, so we make sure cars don’t pollute too much.”



“Cadence, this automotive lab is testing fuel injection. We test how fuel gets delivered from the tank to the engine. If fuel doesn’t flow right, the car won’t run well. So we check everything to make sure it’s efficient and safe.”

“Oh! Like when I drink a slushy, sometimes it’s so icy that it won’t suck up through the straw? I have to let it melt or stir it so it flows better!”

“Exactly! If fuel gets stuck like that, the engine can’t ‘drink’ properly. So we make sure it flows smoothly.”

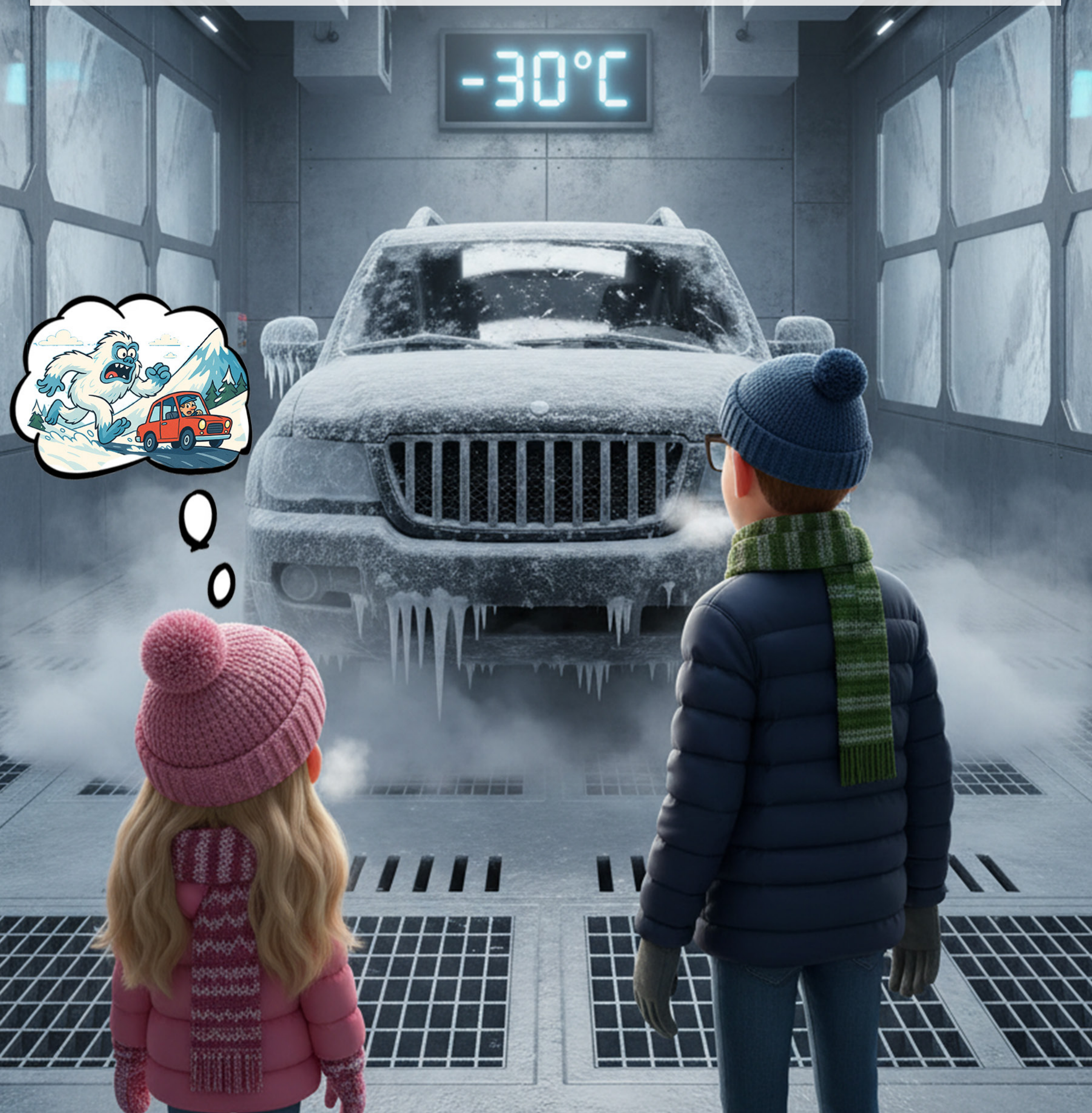


“Why is this room so cold Dad?”

“This is a thermal chamber. We put cars inside and make it super hot or super cold—like desert heat or winter snow—to see if they still work like they’re supposed to. We also do testing in wind tunnels to make sure the cars won’t blow away!”

“Wow! So cars have to survive all kinds of weather?”

“Yep! People drive in different places and situations, so cars need to work properly everywhere.”



“What’s with all those antennas Dad?”

“That’s for electromagnetic testing. Cars have lots of electronics—radios, sensors, computers. We make sure they don’t interfere with each other or with signals outside.”

“Like, so the car doesn’t mess up your phone?”

“Exactly right! Great example Cadence!”



“Whoa... are those cars crashing into walls on purpose?!”

“Yes, Cadence. We crash test to make sure cars will keep people safe if the cars run into something. Those crash-test dummies are full of sensors that tell us what would happen in a real accident.”

“So the dummies take the crash for us?”

“Exactly — they help us engineer every car to be safer and stronger.”



“We also do durability testing and NVH testing.”

“What’s that mean Dad?”

“Durability testing means we run cars for thousands and thousands of miles—sometimes on special machines—just to make sure nothing breaks and the car lasts a long time.
NVH testing stands for Noise, Vibration, and Harshness. It checks the noises and vibrations a car makes.”

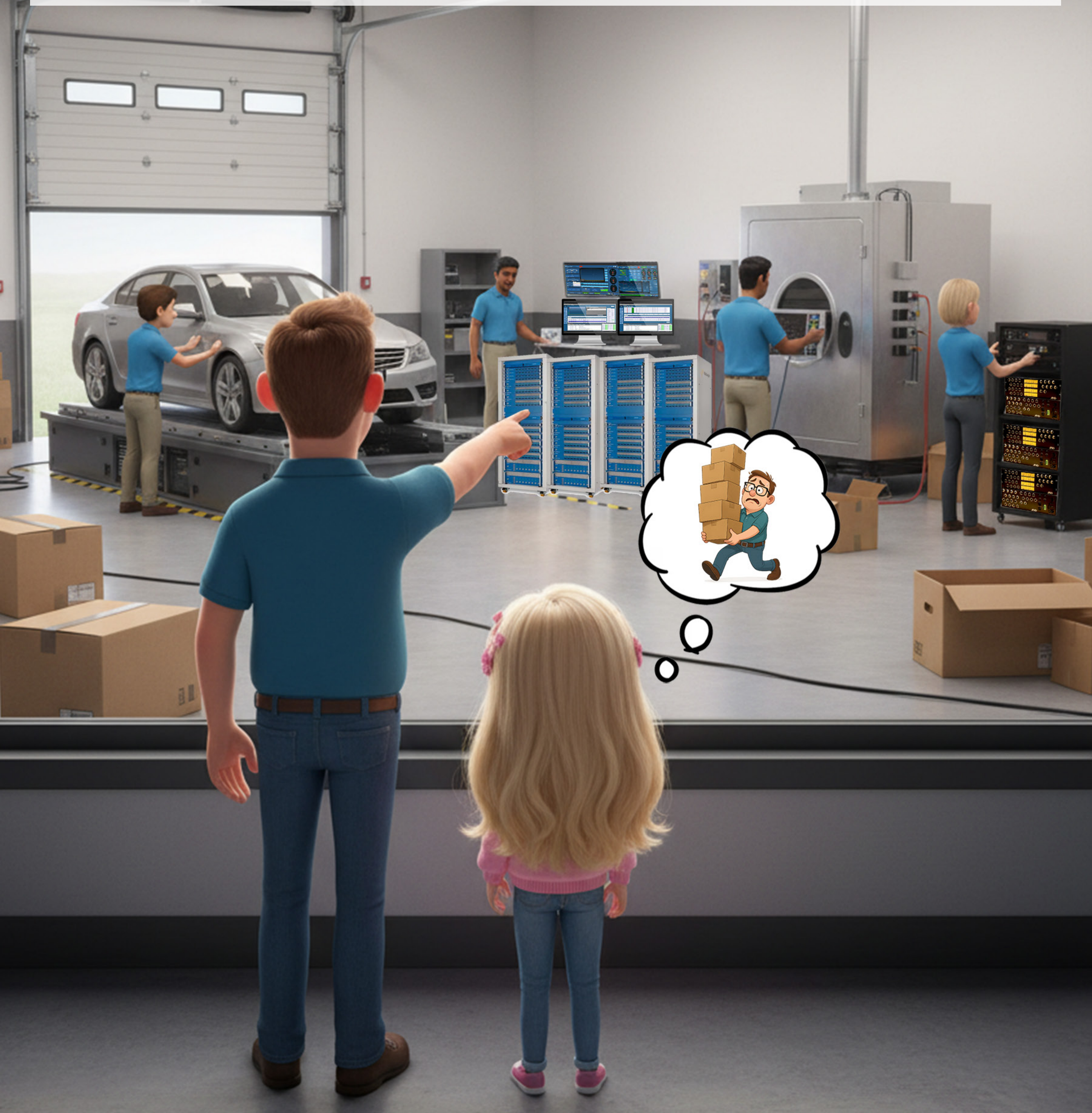
“Oh, so cars run smoothly and quietly and not all loud and bumpy!”



“So, Dad. Does your company make all this test stuff?”

“Well, not exactly. We design and make the cars, but the test equipment and software come from experts in testing. Companies like A&D Technology help us. They figure out what equipment and software we need, program it so everything works together, set it up, and make sure the tests run like they’re supposed to. Then, my engineering team can run the tests and use the data we collect to engineer the cars!”

“That’s good. Figuring out all the test stuff you need and how to put it together would be too much work for you to do. This way, you can just focus on making awesome cars!”



“Dad, I’m glad this car was tested to make sure it’s safe—and it looks cool too!”

“That’s the goal Cadence!”

“Thanks for taking me to work, Daddy. I can’t wait to tell my Class that you and your company do way more than just build cars. Now I have a better understanding of what an Automotive Engineer does! Maybe someday, I can be an Engineer too!”

“Of course! If you put your mind to it, you can do anything!”

