It all started with a duck.

It was spring, and I was sitting in 6th grade science class. We had a guest speaker that day from the local wildlife rehabilitation center who had brought in a feral Muscovy duck to show us. The duck looked funny. It was big and white and its face looked like a truck had run over it. I thought that’s why it needed rehabilitation, but the wildlife specialist explained a fleshy red face was normal for a Muscovy duck. It was at the rehab center because it had a hurt wing. What most caught my attention about the duck’s wing, though, was that it had a little claw on it!

The wildlife specialist explained some birds have small wing claws that may be left over from when their dinosaur ancestors had clawed hands. The babies of one bird species, called a hoatzin, even uses its wing claws to climb up trees, just like its dinosaur ancestors did. Even the wings of chickens, he said, can sometimes have small claws on them!

You can imagine how much this interested me, especially since Jose Velador had beaten me in the school science fair every year since the fourth grade. But today’s class gave me an idea for the science fair Jose couldn’t beat! I just needed to get help from my best friend, Adam.

When the school bus dropped me off at home, I headed to a small farm three blocks away where Adam lived. When I saw him, I immediately told him my idea for next year’s science fair: I was going to make a dinosaur!

“All birds, including chickens, evolved from dinosaurs, right? What if I could somehow reverse that evolution, and turn a chicken *back* into a dinosaur?”

Adam looked skeptical, so I tried to explain.

“A chicken’s wing claw is a trait left over from dinosaur ancestors. If they have babies, the babies may have wing claws, too. I could breed chickens with wing claws so their wings slowly turn back into clawed hands. If enough time passes, I could end up with a dinosaur for the science fair next year!”

Adam looked unconvinced.

“Lucy, what do you need me for?” he asked suspiciously.

“Your farm has chickens. Can we check their wings, and see if any of them have wing claws?”

Adam agreed, and we spent a long afternoon getting very dirty and tired from what I can only call “chicken wrangling”. But we found a chicken named Clementine with wing claws!

Adam pointed out the claws were tiny, but I said it didn’t matter. I explained we just needed Clementine’s eggs to be fertilized by a rooster, and when they hatched, we would look through the chicks and choose the one with the biggest wing claws and breed that one next, and so on.

“If you have a rooster with dinosaur characteristics, like fierceness, a long tail, or big feet claws, that rooster should be the daddy.”

“But, Lucy, that means I’d have to catch Hercules! He’s the biggest, meanest rooster around!”

“He sounds *perfect*,” I said excitedly.

“But he’s sure to attack me!” complained Adam. “If I do this, what’s in it for *me*?”

I reluctantly agreed to let Adam be my teammate for the science fair and get half the credit. Later that week, when I saw the scratches on Adam’s arms from wrestling Hercules into a barn with Clementine, I decided he was earning it.

A few days later, Adam ran up to me in the hall before class and told me Clementine’s eggs were laid.

I went straight to Adam’s house after school. Clementine was inside the chicken coop laying on top of the eggs when I got there, so Adam and I had to peek under her to glimpse them. They weren’t white like the eggs I saw in grocery stores, but large and brown.

Clementine wasn’t pleased with us poking our fingers under her to look at the eggs and pecked at us with her beak, causing us to nurse bleeding fingers. I was disappointed

she wasn’t more aggressive and attacking us outright, though, as I felt a savage hen would hatch savage chicks.

“Not all dinosaurs were savage,” Adam pointed out. “Some were vegetarians and ate plants.”

“But chickens walk on two legs, like T-Rex. And I think a meat-eating dinosaur would be more impressive at the science fair than a vegetarian dinosaur.”

Adam agreed, and I asked when the eggs would hatch. “Probably three weeks.”

“That long?! When does a baby chick become a full-grown chicken who can lay its own eggs?”

Adam wasn’t sure, but a quick internet search revealed it would take over four months for one of Clementine’s babies to be able to lay eggs.

I did some quick math. The school science fair was in the fall. If we considered the eggs Clementine just laid to be the first generation of dinosaur-chickens, then we’d only have a second-generation chick in time for the fair.

“I don’t think we can reverse evolve a dinosaur in just two generations, do you?” Adam asked.

“No, but we have to go ahead with the project,” I said glumly. “I told Jose today we were going to kick his butt at the science fair next year when we showed up with a dinosaur.”

“Why would you do that?” asked Adam.

“I couldn’t help it!” I cried. “I was excited about the eggs when I ran into him so I bragged a bit. We *have* to do our best to reverse evolve a dinosaur!”

It was difficult waiting the next few weeks for those eggs to hatch, and when they did, there were three chicks with tiny wing claws. Once school ended, we spent most of our summer vacation with those three chicks. As they slowly turned from chicks into chickens, we agreed the chicken named Eleanor should be bred next. She had

excellent hunting skills (I watched her chase down a grasshopper in mid-air), was larger than the other two, and liked to bite.

When it came time for Eleanor to lay her eggs, Adam found a rooster at another farm who was not only very large and aggressive, but had wing claws, too! We knew he’d be the perfect daddy for Eleanor’s chicks.

When Eleanor’s eggs hatched, I immediately knew which chick we were presenting at the science fair. Her wing claws were the largest, though still small. But she didn’t *look* like a dinosaur. School had started and we only had a couple of weeks until the science fair, so I convinced Adam to let me take the chick to my house where I could make her as ready as possible.

I named the chick Birdzilla, to make her clear of my expectations. At night, we watched Jurassic Park movies together (I explained to her the creators hadn’t known most of the dinosaurs should have feathers). During the day, I taught her to hunt insects. I tied a plastic toy triceratops to a string and got her to chase after it. Whenever she caught it, I rewarded her with a treat.

Yet, as the days wore on, I knew our project was a failure. In the end, Birdzilla was still just a fluffy yellow chick, and I dreaded facing Jose at the science fair.

I was sitting in class a few days before the fair when my science teacher, Mrs. Evans, asked to see me after class. She noticed something was bothering me. I explained how Adam and I had failed our project. She listened intently, then asked why I thought we had failed to produce a dinosaur.

“We didn’t have enough time,” I said. “We should have researched how long it takes for chickens to grow up and lay eggs. Reverse evolution probably takes a lot of time to work.”

Mrs. Evans smiled. “Even if you had had years, you still wouldn’t have turned a chicken into a dinosaur. Evolution doesn’t run in reverse. It always runs forward. If someone had many years, they may be able to make something which looked more like a dinosaur

than a chicken, but it wouldn’t be a dinosaur. It would be something new. A T-Rex never

had a chicken ancestor, because chickens didn’t exist back then. But your attempted “dinosaur” would have chicken ancestors, which would affect what kind of animal it became.”

“So, we were never going to be able to evolve a chicken into a dinosaur?”

“I’m afraid not,” said Mrs. Evans kindly. “What you and Adam did isn’t evolution, but selective breeding. When forces in nature, like weather or predation, cause changes in animals, it’s evolution. But when people breed animals on purpose, selecting what characteristics they want passed on to the next generation, it’s selective breeding. Do you understand the difference?”

“Yes,” I admitted. I felt like crying. “Now we won’t have a project for the science fair!”

“Nonsense!” said Mrs. Evans. “You had an idea, you tested it, and it failed. But failures are just as much a part of science as successes are. I suggest you and Adam present your failed project at the fair, explain why it failed, and what you’ve learned.”

Adam and I did just that, and our project was a big hit! Everyone loved hearing about our theory of reverse evolution, even if it wasn’t actually possible. Most of all, everyone loved meeting Birdzilla. My mom had knitted a tiny dinosaur costume for her to wear at our booth, and she hissed fiercely at anyone who tried to pet her (except me). Most people agreed Birdzilla was the most dinosaur-like chicken they’d ever met. I guess all of those dinosaur movies really motivated her. Jose even came over and congratulated us, and although he won first place *again*, I felt like I learned a lot.

But the best part of the science fair was my parents letting me keep Birdzilla! I see us watching a lot of dinosaur movies in our future. I may write to Mr. Speilberg and ask him to make a more accurate movie where the dinosaurs have feathers. It may motivate chickens everywhere to be more dinosaur and less chicken.