Grades K-5
Mini-Lesson: “How do you become a great inventor?”

VIDEO TRANSCRIPT

VIDEO 1

Hi, it's Doug! When you think of new inventions, what kinds of things do you think of? Virtual reality headsets that let you explore anywhere in the world? Cars that can drive on water? Pet robots that can pick up your toys?

Well, someone named Max has a question about the inventors who create all of these cool new inventions. Let's give Max a call now.

[Video Call]
- Hi, Doug!
- Hi, Max!
- I have a question for you. How do you become a great inventor?
- That's a great question.

It's so fun for me, as a grown-up, to look back on the things that seemed futuristic to me as a kid. I'd watch shows like "Star Trek" and see things like cool, futuristic doors that automatically opened whenever you got close to them. Hey, we've got that today, someone invented it. Or computers that respond to voice commands.

[Video Clip]

- Tell me the location of Commander Data.

What? When I was growing up, you couldn't talk to a computer, but look, we've got this now too.

- Okay Google, beam me up.
- Okay, energize.

Other things I saw in movies and shows are things that haven't been invented, at least not yet. Things like flying cars. What kinds of inventions do you think we might have once you've grown up?

VIDEO 2

You can probably come up with lots of ideas. Who knows what we'll have? Some amazing things are already being worked on: a robotic arm that does your dishes, cars that drive themselves, jet packs that allow you to fly from one place to another. Still, we don't have any of these things yet. Who will invent those and how? How do you become a great inventor? To figure that out, it's helpful to look at inventions and inventors of the past. Inventors like Katharina Paulus, the inventor of the modern parachute. Or Josephine Cochrane, the inventor of the dishwasher. Or all of the scientists and engineers at NASA who worked together to invent the Saturn Five Rocket—a rocket powerful enough to send people all the way to the Moon. First, any of these inventors have to come up with the idea. While that might seem easy, keep in mind that some of the greatest ideas are sometimes things that no one even thought was possible. Imagine what it was like to be Katharina Paulus. You're going to jump out of a plane or a hot air balloon and land on the ground with your feet? "Yes, we can do it," she thought. But it's one thing to come up with an idea, it's another thing to actually build something that works. How do

inventors do that? If you've not thought much about this before, it can be tempting to think, "Well, people who invent things are just geniuses. They wake up one morning with a brilliant idea in their head and then they build the thing and presto, it works!" Now we have a new invention. Nothing could be further from the truth. The story of almost every invention is filled with what looks like trying and failing—again and again and again. The scientists and engineers who invented rockets weren't trying to get these rockets to blow up, but they knew that building a huge rocket wasn't something that had ever been done before. And rocket fuel—it's really explosive. Figuring out how to control the amount of rocket fuel getting burned, that's something that NASA could only learn by trying. Each time one of these tests failed, they carefully figured out why and made improvements to their design. By being willing to try again and again, and each time carefully observing and learning from their mistakes, eventually, they figured it out. And we've got rockets that have taken people all the way to the Moon. The history of inventions is full of stories just like this. People coming up with new ideas for things and building something, trying and failing, but each time, learning from their mistakes so that they can get it right. Not every idea makes it to the finish line. The idea of rocket-powered ice skating might be a good example. Or this automatic ketchup dispenser. But one thing is for sure. If we're going to have new inventions in the future, it'll only be possible if there are inventors who dare to dream big and aren't afraid of trying again and again and again. Each time, learning from their mistakes. In fact, many of these inventions of the future will be made by one of you watching this.

That's all for this week's question, thanks Max for asking it.