



Rocket Challenge

How to think like an engineer

Video transcript

Hi! I'm Athul, a Transportation Engineer from Stantec.

As part of the Wonder Project Rocket Challenge, you'll need to think like an engineer. But what does that mean exactly?

Engineers are ordinary people, like you and me, right? But it's how they think that makes them special. And today we're going to learn how to think like them!

Title card: How to think like an engineer

What do engineers do?

Engineers come up with solutions that solve problems. We're talking big problems and small.

Picture this – a beautiful town on one side of a river. And on the other side, there's another town. The problem is that people who live in one town need to cross the river to get to the other town.

Who can fix this problem? An engineer can!

An engineer will come up with the idea of designing a bridge. But that's not all. The bridge has to be really strong, so it can hold people and vehicles. Sounds easy, right? No!

When engineers try to find a solution to a problem, they don't just throw around ideas.

The process is:

- Ask,
- Imagine,
- Create,
- and Improve.

ASK

Engineers ask a lot of questions because they love to solve problems. They're curious about figuring out why things work and why they don't. To do this, they'll have to ask a lot of questions like:

I wonder what I can I do to solve the problem?

I wonder how I'll I know when I've solved the problem?

Don't be afraid to ask questions. Be curious! Be as curious as an engineer.

IMAGINE

After they've asked a bunch of questions, engineers begin to imagine.

Engineers have huge imaginations. They're constantly wondering how to make things better for people all around the world. They use their imaginations to come up with heaps of solutions to a problem.

An engineer might list these solutions or draw a picture of each idea to help them imagine how it would work. They brainstorm with their crew and then they pick the best idea.

CREATE

After they've wondered and wondered and wondered even more, engineers start to create.

They start by creating a prototype of what their idea would look like in real life.

Wait, what's a prototype?!

A prototype is a test model that we can use to test the design of something before we create the real thing. They take a lot less time and money to create.

Remember that time you made a bridge out of LEGO? Or a house out of cardboard boxes? That was you building a prototype and thinking like an engineer!

But even if the idea does work in the prototype phase, engineers aren't done yet!

IMPROVE

They've asked, they've imagined, and they've created. Now engineers look at their prototype very closely to see how they can improve it. If it's a bridge, they might try to make it stronger and safer.

For the rocket challenge, you'll develop your prototype in Test Flight 2 – right after you've designed your rocket on paper.

Then you'll work to improve your prototype for your final test flights.

What if it doesn't work? A real engineer will keep modifying their prototype until it does. Sometimes they'll have to use part of their original idea to create a new prototype or start over from scratch.

And that's how you think like an engineer! Use the process of:

- Ask
- Imagine
- Create

- And improve.

Are you ready to start your engineering career? Here's the first question for you:

I wonder how rockets fly?