



Transcript: How To Do a Science Fair Project: Step 1

Ota Lutz: The first step is coming up with a unique idea. It may seem like a daunting task, but it's really not. All you need to do is take a look around and ask questions about what you see.

To help us today, I have Arby, who is an engineer here at JPL, and Serina, who is a scientist. When scientists and engineers look at the world, sometimes they ask different types of questions. So, Arby, when you look at the world, what sort of things do you ask questions about?

Arby Argueta: As an engineer, I look at the technology around and I try to think of ways to make things better make them faster, make them smaller, and so forth.

Ota: So improving on design?

Arby: Yes, correct.

Ota: Alright, and Serina, what sort of questions do you ask?

Serina Diniega: When I look around me, I see certain patterns, certain shapes, certain types of behavior and I want to know why do I see what I see. What is causing that particular shape, that particular pattern, that type of behavior?

Ota: Alright, so the 'why' questions come from the scientist. So you see that their questions are very similar but somewhat different. So that's what we want you to do is look at your world and ask those sorts of questions. Arby, take a look at this image and tell me one thing you might ask a question about.

Arby: Just looking at it, I'm immediately attracted to the airplane in the sky, the car in the driveway and the basketball hoop on the building. I think of what makes a car go, what gives it its propulsion? By what means does it go forward? The airplane in the same way. It's going through a different medium, so how does it achieve that. The basketball hoop, one thing that would be pretty neat is to make all your shots, every time. Well, why not build a robot to do the job for you? There's a lot of ways to improve things. You can make a car go faster, a plane fly farther, and make every free throw.

Ota: OK, so you have several ideas we could then perhaps develop into a question. Serina, do you see anything you could ask a science question about?

Serina Diniega: I see the plant growing out of the drain and it leads to questions about how do plants grow? What sort conditions do they grow best under? For instance, how much soil do they need or different types of fertilizer? I see the person running and I'm a runner myself and there are a lot of experiments I do just on my own in terms of how much water do I need? How much rest do I need? What's the best way to recover after a run? That leads to possible scientific experiments. And then, finally, I look at the windows and I wonder what are the best types of covers for keeping a house cool?



Ota: Alright, so you both gave me about three ideas just glancing at this image. If I gave you more time, do you think there are more things you could see or come up with from this image?

Arby: Infinitely many.

Serina: Absolutely.

Ota: OK, I'm going to prod you to give me one or two more that you have an idea with.

Arby: If I was a little kid instead of a big kid, I'd be really curious to see what those things on the roof of my family's house are. How do they work? You're turning sunlight into energy so there must be some interesting things going on in there.

Serina: Someone who likes sports, you've got different ball shapes, maybe they all move differently through the air when you throw them. You can look at different designs there. There's a cat. You can ask questions about animals. The bugs: What type of food do ants prefer? There are lots of things in this picture.

Ota: Ask questions about whatever you can see. Look around, open your eyes and view things in a different way than you ever have before. Up next we will help you develop your observations into testable questions.