

Engineer Inside

Expert Creation

Power a Vehicle Challenge

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This is the vehicle that I made and I tried to make it look like a Dragster. At the front we do have the tops of mustard jars. That seems to have worked and at the back I had to use some of the tins that we use for cat food for our cat, Oscar. It makes it look like it has big fat tyres at the back like sports cars and dragsters have.

It's built from bits of spare wood that I had lying around in my shed. I was able to use those.

I've also put a spoiler on that back of it because it goes super fast and needs some aerodynamics to make sure it doesn't fly off into the sunset.

It works with the elastic band there's a screw here on the bottom where you can tie on the elastic band and it hooks onto the axle at the back. Then you wind it backwards and the elastic band goes around the axle. Then when you let it go it goes super fast along your bedroom floor.

The cat food tin for the wheels at the back for the big fat sports wheels at the back I've put elastic bands around the back because there's not much grip with the metal tin on the floor.

That's why cars have rubber around their rims. I didn't have any rubber apart from rubber bands. So this works quite well at gripping on the floor and give grip. I didn't put elastic bands at the front because we don't need any grip at the front there's no power. All the power goes to the back of the dragster. Like a sports car.

I had a little bit of paint left over, some spray paint - only red and blue - so I spray painted the car red because red cars go faster as we all know: that's why Ferraris are red. I made the wheels and the spoiler blue so it would look cool.

For the axles I didn't use the kebab sticks for the barbecue because they weren't strong enough. What I did is I used a bit of metal from our drier. We put our clothes to hang out on a clothes drier and Sophie's a little bit annoyed because now one of the sticks is missing from there because it's been cut to make the axles for the car. Totally worth it because the car goes super fast.

In terms of testing the vehicle the way I tested it was to hook on the elastic band and clip it to the rear axle put it on the floor and wound it back and then I let go of it!

The first the time it didn't work very well. It's quite a heavy car with all the wood and one elastic band isn't that powerful. It also got caught up in the mechanism here that I put to hook the elastic band on. I actually put.. it was actually a little hook before which was the wrong way round so the car was going to go backwards instead of forwards which is a bit embarrassing.

I managed to fix that and overcome that by tying up more elastic bands so it would go super fast because the first time I let go of it it just only moved it a little bit. It wasn't very exciting. At least it moved! It worked, so I was really pleased with that.

So here's a little demonstration of how the dragster works. You hook the elastic band on the rear axle and wind it back and then.. let go! The dragster whizzes along the table.

One of the improvements that could be made it doesn't actually go straight, which is the axles aren't actually that well aligned. So the dragster veers off to the left, which obviously it has no steering. I think an improvement would be to either be able to adjust the steering, or, to make it go straight in the first place.

In terms of links to the real world there's obviously a few links to how it was built using rubber for tyres, wider tyres at the back for more grip and things that we've already discussed. But also, the link really is storing energy. Obviously, real cars aren't going to store energy in elastic bands. They store energy in either fuel or batteries and there's other things as well that store energy in car.

The dual-mass flywheel, for example, that evens out the vibrations from the engine. It smooths it out. The flywheel is just a heavy wheel that actually keeps spinning and it's got some inertia from its spinning. There are lots of types of energy storage in a car, not just in the battery, but obviously not using elastic bands, using different technologies.