

Engineer Inside

Hints and Tips

Power a Vehicle Challenge

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Hi, my name's Tom. I'm a researcher at WMG at the University of Warwick. My research is in lithium ion batteries for low-carbon transport. My background is in engineering. Engineering is all about how things work and I got into how things work because when I was young I always used to break things so I had to work out how they worked so I would be able to fix them.

When I was young I was really into cars and engines because they're really fast and loud.

It's exciting for me now to work on the cars of the future. They are going to be electric with lithium ion batteries in them. That's because we're moving away from internal combustion engines which pollute the environment. They have carbon emissions and also particulates which are bad for air quality.

It's really important that we move away from those because we only have one planet to live on so we have to look after it.

My inspiration for powering a vehicle came from the toys I used to play with as a child. I had little pull-back cars. Little cars that you pull back and let go and they whizz along your bedroom floor. I used to play with them all the time they were really good fun. I think that those cars are powered by springs but I don't have any springs in my house apart from the springs in the mattress I sleep on and I asked Sophie, my partner, if we could take the mattress apart and use those springs but she said "No." Which is a bit sad. But then I did remember that we've got elastic bands!

I thought I could try and power the vehicle with elastic bands. So here we have the elastic band pinned on one point of the car and then we can have it winding around the axle and then when we let go the elastic band will pull the axle forwards and make the car whizz forwards, hopefully super fast. That would be really exciting.

I think the challenge is going to be with the axle, and the wheels. I don't have any wheels to build a car with. I'm going to have to get creative about the wheels.

I thought about maybe the lids off mustard jars or things like that might make wheels but they are a bit thin. The axle I've got here is a stick to put kebabs on the barbecue, but it's made of out wood and isn't very strong. With the elastic band pulling on it, it might deform and not work very well. I think it's going to be the challenge of building the car, and putting it together.