

3D Modeling with Tinkercad - Basic Balloon Car

Reflection

The tutorial on making my balloon car went pretty well. After all the training modules we went through with Tinkercad, the controls came pretty easily to me. Throughout the tutorials, there really wasn't any parts I got stuck on until the end with aligning the axles into the chassis of the vehicle, which I figured out with some tinkering of numbers. Thinking about the design of the car itself, the body is definitely too large. We worked with just a simple, thin rectangle of cardboard on 8/25, so going from that to something so big is just unnecessary. Along with that, the axles and wheels are just as gigantic. The first change I would make is downsizing for sure. I was able to finish the car tutorial in its entirety, shown by the screenshots found below.

Refinement

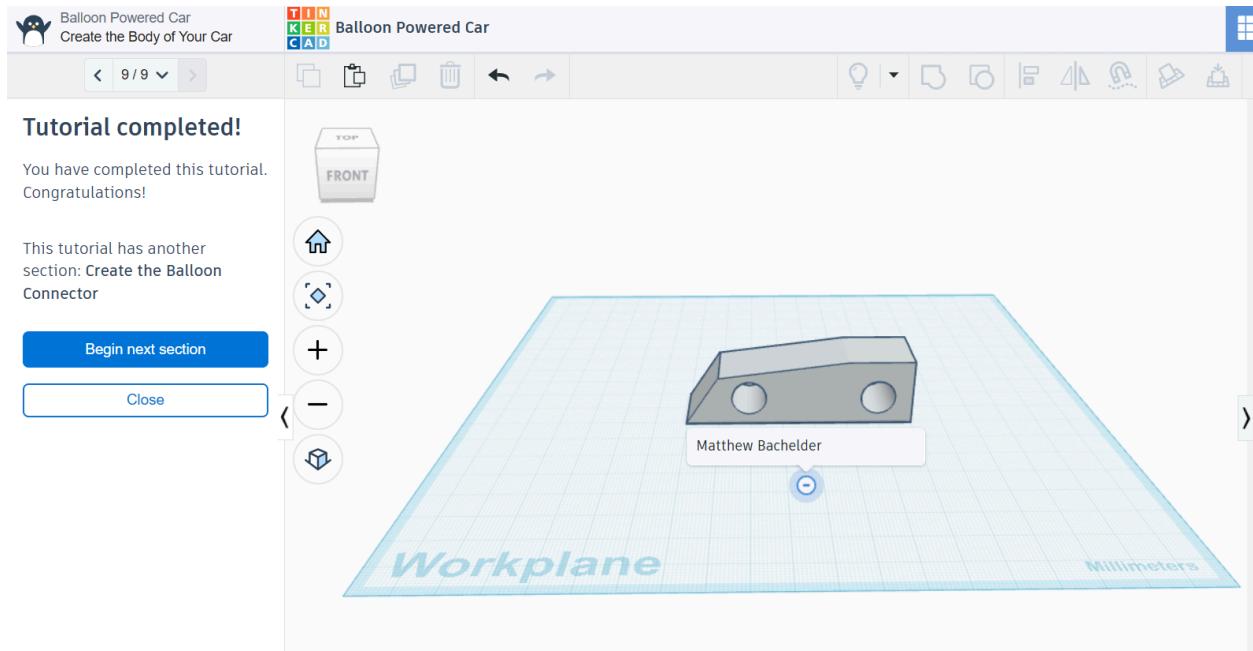
<https://www.printables.com/model/66526-limitless-balloon-car>

This was the first resource I found, and I believe it has 2 major changes I could use to make the car to improve functionality. The first change I could implement would be thinner wheels and smaller axles. This could reduce the friction that the axles would make with the axle tubes, and reduce the weight of both the axles and the wheels. The second improvement I could make with this design is a shorter balloon connector and improved air path. This would reduce the drag that the balloon connector would make, as well as reducing the material needed for the balloon connector, and therefore make it lighter. Making the air path wider, like what was done in the design, would also reduce weight by making a larger tube throughout the connector and chassis, therefore reducing materials in both connector and chassis.

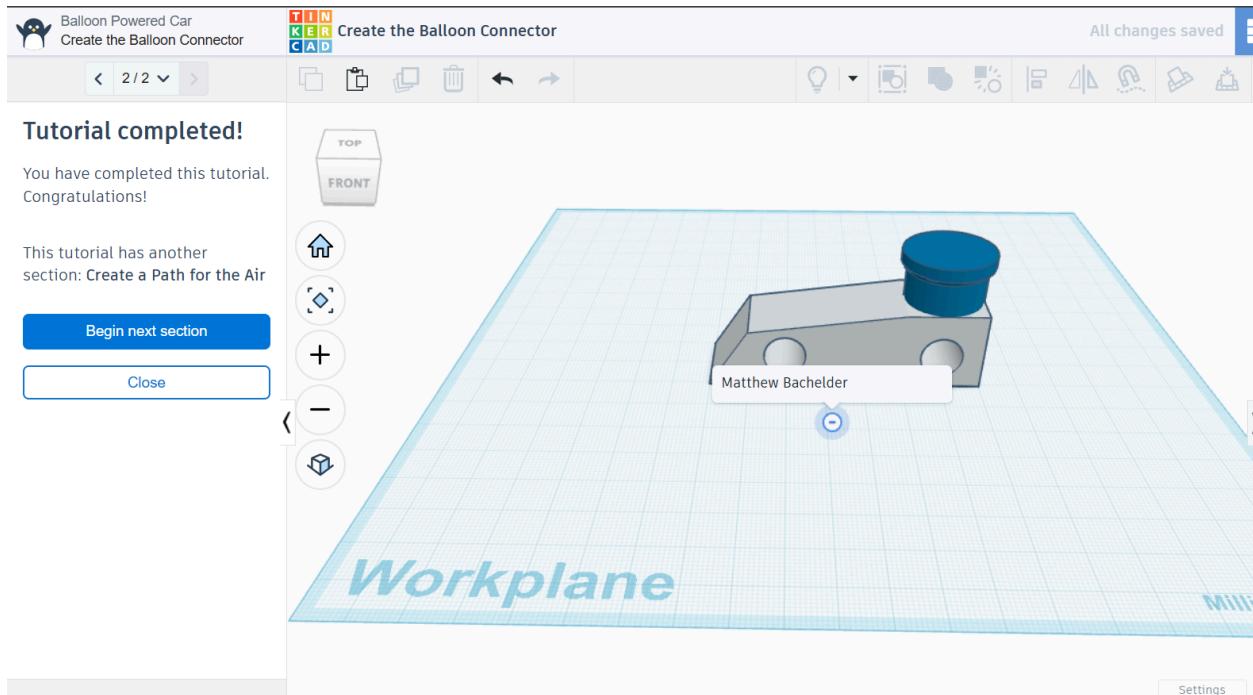
https://www.shapeways.com/blog/super-lightweight-3d-printed-balloon-powered-toy-car-video?srsltid=AfmBOorPuP-s7MwHUHfe4AmUgJI_XvyUWzsrhqw4jJdufgHrl-hFRr1I

This was the second resource I found. The major change I could make to my vehicle from this design is quite a glaring change. The wireframe design of this vehicle really stood out to me, and, like the other 2 improvements I was looking at making above, this would vastly reduce the weight of the vehicle. Less materials means a few things, like less print time, less cost, and less weight. I think making these improvements would make a much better vehicle than what we designed in Tinkercad.

Create the Body of Your Car



Create the Balloon Connector



Create a Path for the Air

The screenshot shows a 3D modeling workspace for a balloon-powered car. The main area is labeled "Workplane" and features a 3D model of a car body with a blue cylindrical balloon at the front. A user profile "Matthew Bachelder" is visible near the car. On the left, there's a sidebar with various icons and a preview window showing a red version of the car. The top navigation bar includes tabs for "TIN", "KER", and "CAD", with "Create a Path for the Air" selected. The status bar at the top right says "All changes saved".

Alternate Air Channel Paths?

Is this the best air channel path?
Before moving forward take a couple minutes to consider the following questions?
If you are working with others, discuss your thoughts on different designs?

Instructions

1. How is the air making the car move?

Create Wheels for Your Car

The screenshot shows a 3D modeling workspace for creating wheels for a car. The main area is labeled "Workplane" and features a 3D model of a red car with black wheels. A user profile "Matthew Bachelder" is visible near the car. On the left, there's a sidebar with various icons and a preview window showing a red version of the car. The top navigation bar includes tabs for "TIN", "KER", and "CAD", with "Create Wheels for Your Car" selected. The status bar at the top right says "All changes saved".

Congratulations!

Congratulations! You made it. Time to test your car.