

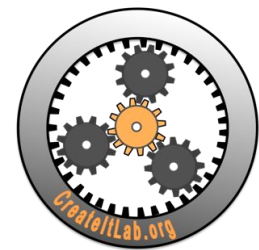
# Rocket Car

by Create It Lab (CreateItLab.org)



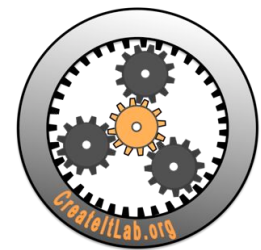
An easily assembled, fun toy that demonstrates aerodynamic principles.

This document includes a list of materials required, assembly instructions, and a discussion of the principles involved.



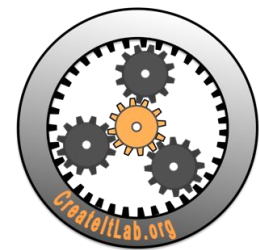
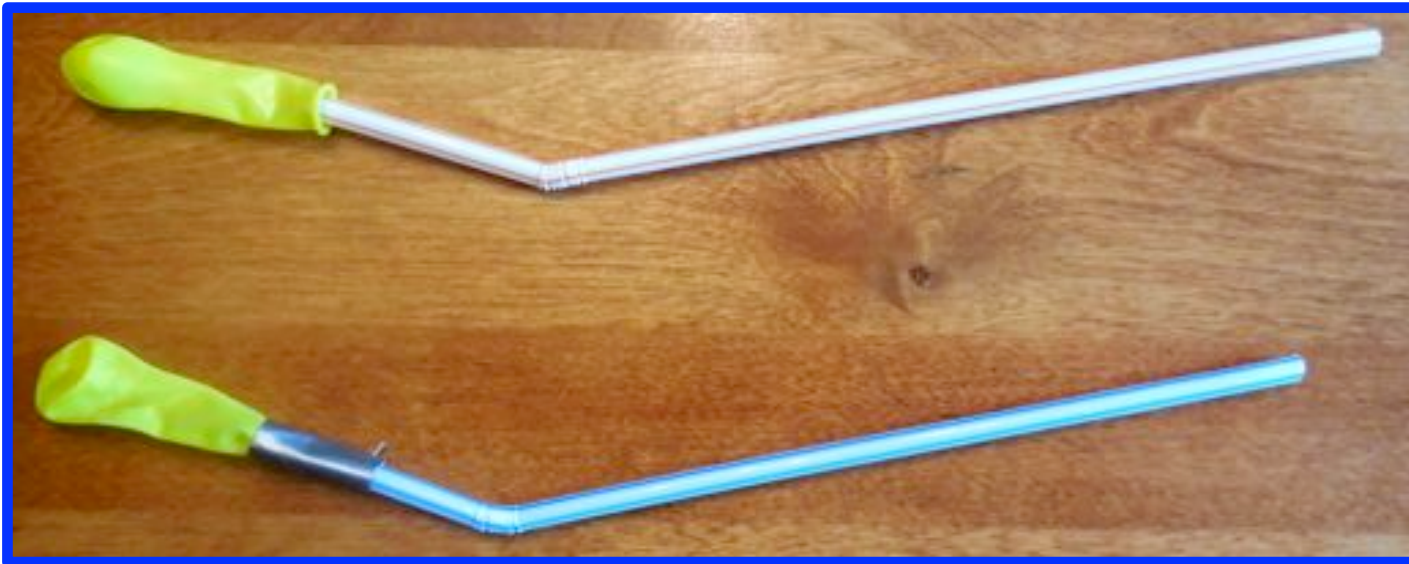
# Materials & Tools

- 1 balloon (9-inch or smaller)
- 2 straws, at least one flexible
- 1 wooden tongue depressor or craft stick
- 2 washers or candy mints (with a hole in the middle)
- tape
- rubber band (optional)
- scissors



# Assembly - 1

- Put the short end of one flexible straw slightly into the balloon.
- Tape balloon onto straw making sure to prevent any leaks
- Rubber band could be used instead of tape.



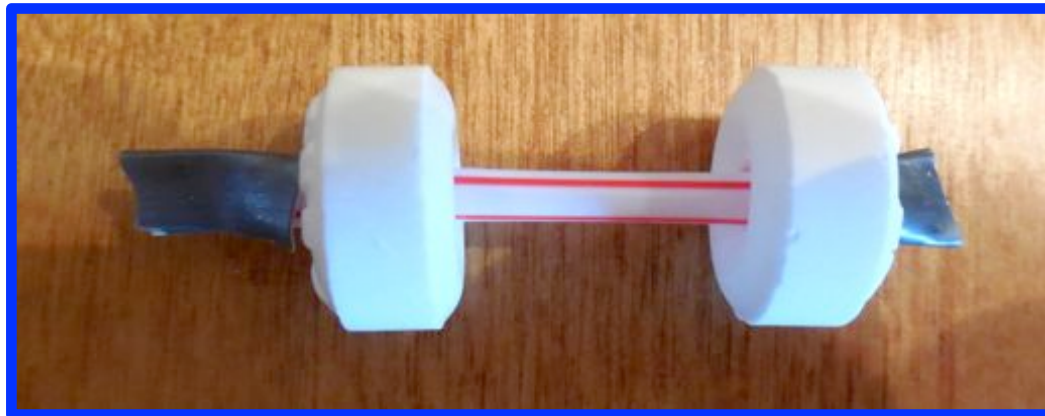
# Assembly - 2

- Tape the jet to the top of the tongue depressor or craft stick (i.e., the body).
- Make sure the jet is as parallel to as stick as possible. If it points to the side, your car won't move as fast or far as if the jet points straight back.



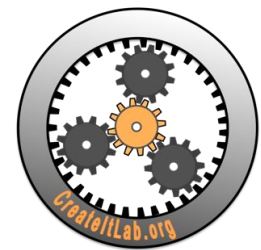
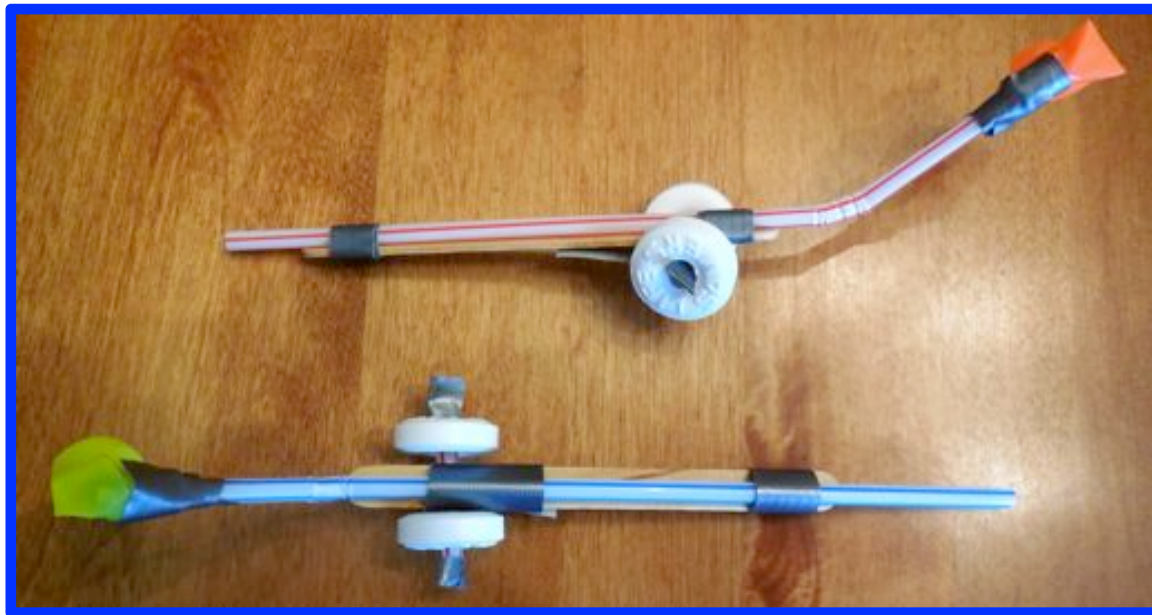
# Assembly - 3

- Slip two candy mints (wheels) onto a straw.
- Bend back one end of the straw so the candy can't fall off. Tape the tip in place.
- Trim the straw length, making sure that the body fits between the "wheels".
- Bend back the other end of the straw. Tape the tip in place.



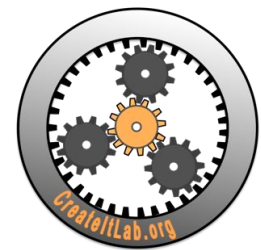
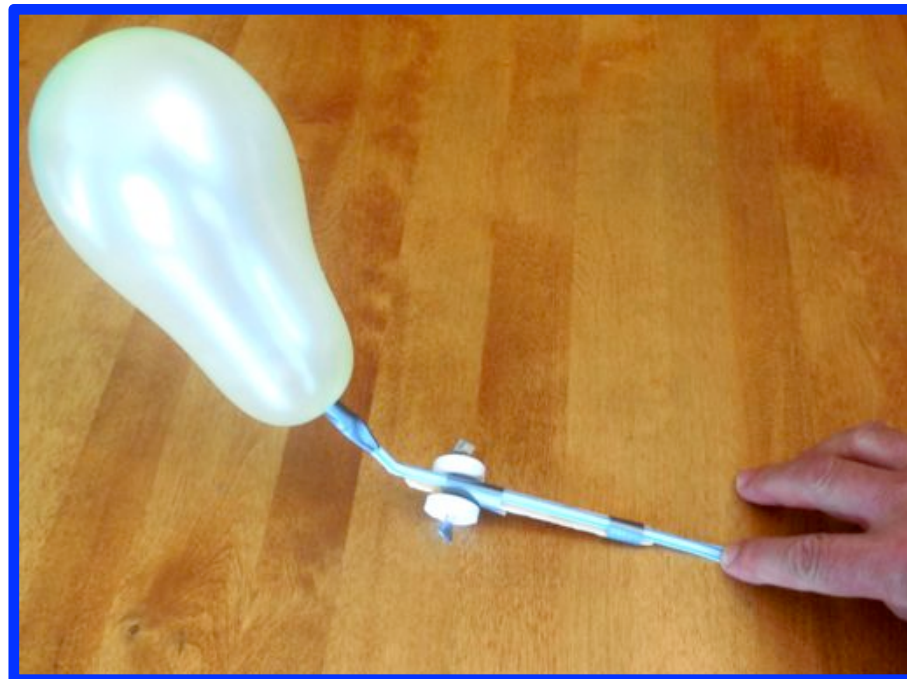
# Assembly - 4

- Tape the axle to the bottom of the body, at the front. The end with the balloon is the front.
- Make sure the wheels spin freely.
- Make sure the wheels line up with the direction you want the car to move.

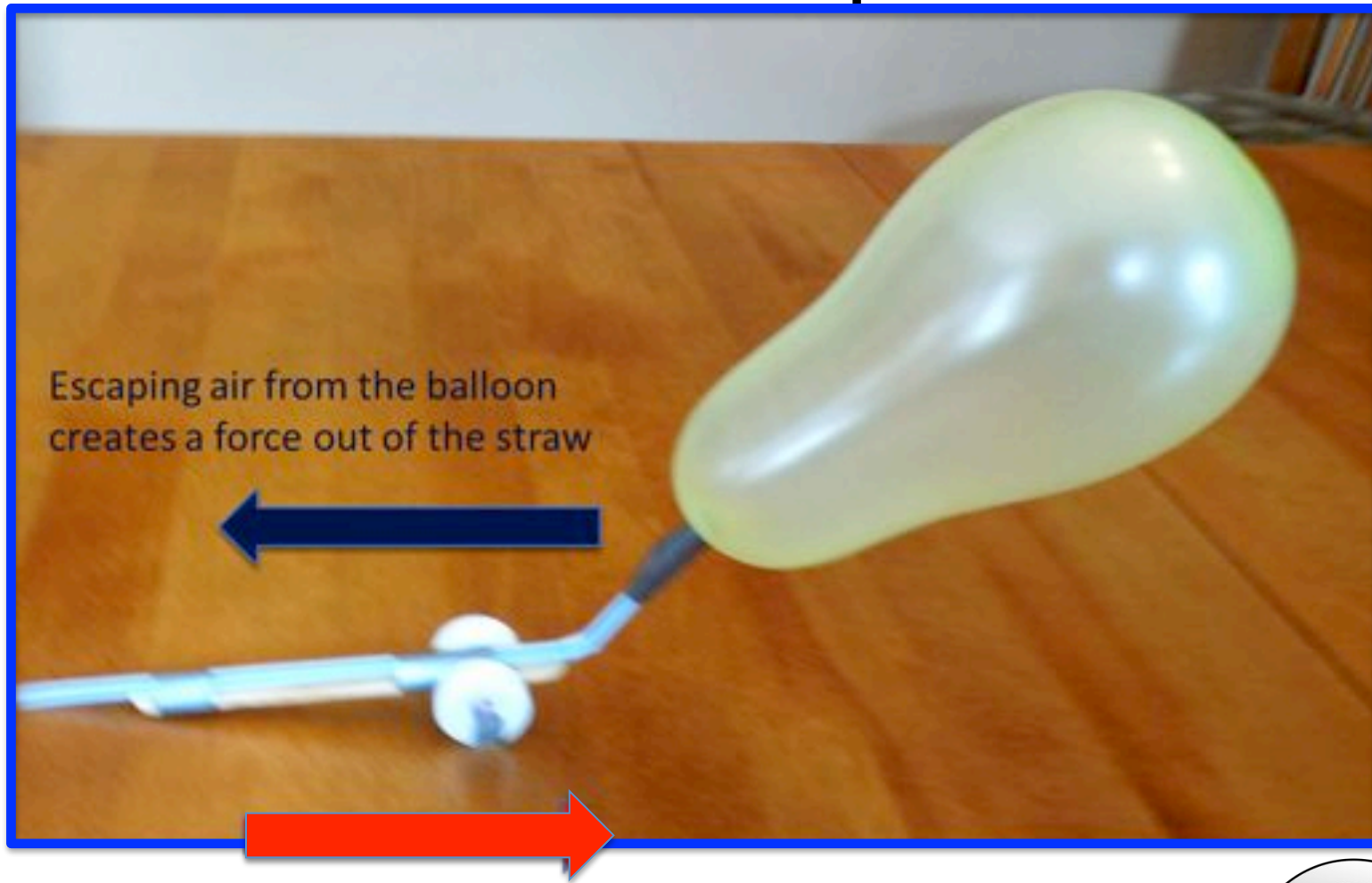


# Operation

- Adjust the angle of the short end of the straw up so that the balloon does not drag.
- Blow up the balloon. Put your finger over the end of the straw to stop air from escaping.
- Put the car on a smooth surface. Let go. ZOOM!



# Rocket Car Propulsion



An equal and opposite force is imposed on the car called thrust, propelling the car forward.





# Rocket Car Forces



Thrust

Friction



# ROCKET CAR MOTION

MAKE A BETTER ROCKET CAR ! JUST FOLLOW THE **DESIGN CYCLE!**

