

Main subject: Physics

Linked subjects:

1. Product design

2. Maths

Year  
7-9

## Make a balloon racing car

The aim of this extension task is to:

Develop your understanding of speed, Newton's laws of motion, design and producing a working models, importance of materials and uses.

**Why Not?**  
It's just for fun!

**Context of task:** Rockets are propelled by burning fuel to produce an immense force to overcome the gravitational field of the earth. This makes use of Newton's third law of motion.

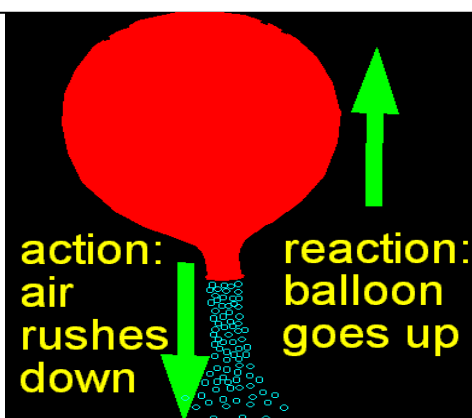
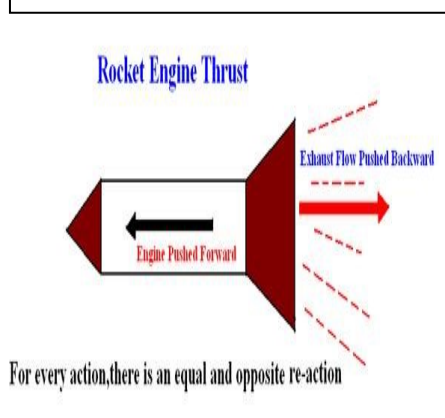
<http://www.sciencefairadventure.com/ProjectDetail.aspx?ProjectID=137>

<http://teachertech.rice.edu/Participants/louviere/Newton/hints.html>

The materials you will use to make your balloon car must all come from material that has been recycled. The rules to this activity are simple: The car must be powered by balloons. You can build the car out of anything. It must have at least three wheels. Wheels are defined as anything that is round and goes around. The wheels cannot be wheels from a toy car. They must be made out of something that was not originally meant to be used as wheels. The car may not leave the ground. The car must be capable of traveling at least 5 meters.

### Questions / Issues to address:

1. Calculate how fast your balloon car can travel?
2. Use different size balloons, different wheels, different type of materials to see if you can make the car go faster or slower
3. Can you explain why the car is moving, and what is affecting the speed?
4. Explain how this is an application of Newton's 3rd law of motion
5. Can you draw a force diagram showing all the forces acting on the car when it is in motion?
- 6 Why was it important to only use material that has been recycled?
7. Give some other examples of Newton's laws of motion in your environment?



### Expectation

Bring in the car to be demonstrated during a physics lesson with answers to the questions.

**Deadline: whenever you finish**

### Note to students:

It is not essential, but you are encouraged to extend this task into an area of your own particular interest . If you would like to do so, please discuss your ideas with your teacher.