

# Balloon Jet Cars

Integrated Science: Physics/Design

Name(s): \_\_\_\_\_ Per \_\_\_\_\_

## Introduction

Engineers develop cars, buildings, bridges, and all kinds of consumer products using the following steps. First, they formulate an idea—known as their conceptual design. They often create technical drawings, or blueprints, to communicate their idea. Next, they build a working model known as a prototype. They test the prototype, then use what they learned to evaluate and refine their design. Usually several prototypes are built and tested before the project is complete. The final model is then constructed full-scale, on site, or (in the case of a consumer product) produced in large quantities and sold in stores.

## Materials

- 2 Drinking straws
- 1 Large index card
- 1 Wooden skewer
- Tape
- Scissors
- 1 round party balloon, medium size
- 4 Wheels

## Procedure

Your goal is to construct a self-propelled vehicle that can travel a minimum of 1.5 meters using only the materials listed above.

1. Work with your group to develop a conceptual design for your vehicle.
2. Submit your written plan or drawings to your teacher. **At this point you will be given the materials listed above.**
3. Build a prototype.
4. Test your prototype.
5. Evaluate the design.
6. Repeat steps 1-5 as needed.

## Results

1. Demonstrate **for your teacher** how far your car can go. Measure and record the time elapsed during this demonstration trial.

Distance traveled: \_\_\_\_\_ Teacher's initials: \_\_\_\_\_

Elapsed time: \_\_\_\_\_

2. Calculate the average speed of the car during the trial. Show your work. Don't forget units.