

# Data Analysis

*Lesson Plan for Grade K-2*

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## OVERVIEW & PURPOSE

Students will design an experiment with two different vehicles on a racetrack using observations and data analysis to determine how each performs.

## EDUCATION STANDARDS

(Next Gen. Science) K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

(ELA Common Core) Reading (NF), Writing, Listening, Speaking

## OBJECTIVES

1. Students will build a race track with an opening and closing gate to connect to the Makey Makey.
2. Students will choose and/or design two different vehicles to race on the track.
3. Students will measure the speed of the vehicles using the Makey Makey and Scratch program.
4. Students will compare the results of their racing vehicles and synthesize the data.

## MATERIALS NEEDED

1. 4 Makey Makey
2. 4 Computers with internet access and updated flash player
3. Access to [scratch.mit.edu](https://scratch.mit.edu/projects/116199867/) : Makey Makey Hot Wheels Timer program
4. Hotwheels tracks and entry gates
5. Variety of Hot Wheels vehicles, marbles, small balls, etc.
6. Aluminum foil/aluminum tape/copper tape
7. Cardboard or cardstock

## ACTIVITY

Students will work in groups to create a length of track to race their vehicles. They will use aluminum foil, aluminum tape, copper tape, cardboard/cardstock to create opening and closing gates for their length of track. This is will allow them to get accurate times for their vehicle races. The opening and closing gates will need to complete a circuit when the car passes through them to start and end the Scratch program that will measure the time.

The students will connect their Makey Makey to the computer and the race track and open the Makey Makey Hot Wheels Timer program in Scratch.

Students will take turns racing their two vehicles and recording the times. Students should make sure their program and gates are running properly by running the test more than once for each vehicle.

After running their tests, the students will record their observations and data for each of the vehicles and write a list of strengths and weaknesses for each vehicle.

In the end, the students will write 2-3 sentences explaining how they could improve their experiment in the future.

## EVALUATION

1. Students construct a functional opening and closing gate to successfully run the Makey Makey program.
2. Students use observations and data to compare and contrast each vehicle to determine the strengths and weaknesses of each vehicle.
3. Students explain potential problems with the experiment and plan for changes and/or alterations to improve the experiment in the future.