

# Gravity Power Cars Washer Power Student Inquiry Sheet



Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

## Investigation #1: Discovering What Washers Can Do

To build Gravity Force Cars (GFC) and make them go, you use fender washers as the source of power. These washers become like an “engine in a car. To effectively use the washers, you need to know what they can do to propel your car.

- A. How much mass do your washers have in grams and how much do they weigh in Newton's? Get 4 washers and determine their weight and mass. Then try to guess the weight and mass of another washer without weighing it. Record the values here:

Washer 1:	Weight: _____ N	Mass _____ g
Washer 2:	Weight: _____ N	Mass _____ g
Washer 3:	Weight: _____ N	Mass _____ g
Washer 4:	Weight: _____ N	Mass _____ g
Unknown washer :	Weight: _____ N	Mass _____ g

How would you explain the differences between weight and mass to someone?

- B. Explore the “dent-ability” (a made up word) of a washer on a piece of rigid foam board about 10 cm by 10 cm or larger. Drop one washer with the edge down onto a smooth part of the foam. Drop the washer from heights of 5 cm, 10 cm, and 15 cm. Compare the dents that the washer created. How does the “dent-ability” change as the washer is dropped from a higher distance?

Height Washer Was Dropped	“Dent-ability” Observation

- C. How would you explain what is happening that causes the washers to make different dents?

C. Using washers of significantly different weights, compare the dents made on the foam when dropped from the same height. In the table below, record the weights of the washers you used.

Weight of Washer Dropped	"Dent-ability" Observation

D. Explain the reasons why a heavier washer can make a different dent than a lighter washer.

E. Explain what things or factors are important for giving washers "dent-ability".

F. You have 2 washers and plan to drop them on the foam one at a time. Washer A weighs 4 N and will be dropped from 10 cm. Washer B weighs 2 N and will be dropped from 15 cm. Predict which one will have the biggest "dent-ability". Explain the reasons for your prediction. Then test to see if you are right!



In science "dent-ability" is called energy. To make a car that moves by falling washers, your washers have to have "move-ability" which is really the same energy that gave the washers "dent-ability." You'll explore this idea more as you build your Gravity Force Car.



**Check  
Point**