

Gravity Power Cars Driving Your GFC Student Inquiry Sheet



Name _____ Class _____ Date _____

Investigation #3: Tuning Up The GFC

Washer weights are connected to the wheel and axle of the GFC by a string or ribbon that goes over a pulley. Washers are then lifted up by winding a string around an axle. When the washers fall they move the GFC. Note: Shown below is a GCF with a ribbon to move the GFC. A string that would lift the washers works just as well.

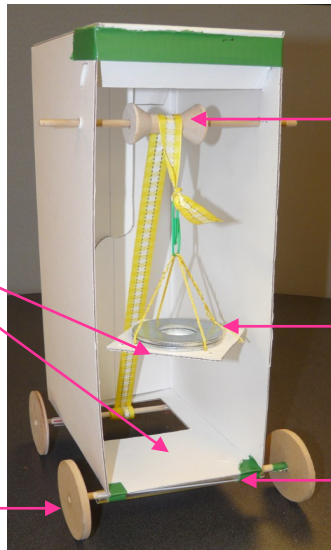
The height of the washers is the distance of the bottom of the washer platform above the floor of the GFC.

The spool of the pulley needs to be centered.

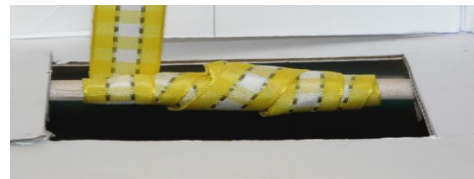
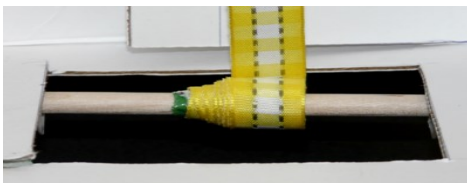
The washer platform needs to be flat or horizontal (not tipped or at an angle).

Wheels need to be pushed on the axle so that they are straight or in-line with the direction the GFC moves.

The straws and the axle need to be straight across the bottom of the GFC so the wheels travel in a straight line.



Winding the string or ribbon on the axle: When lifting the washers by turning the wheels and axle, there are several ways to wrap the string or ribbon. The way you chose may give different results and should be tested.



How did you wind your string or ribbon on the axle to get the best results?

Notes About Tuning Up My GFC

Test your GFC to see if it is running smoothly. Make about 5 test runs with your GFC to see if the car is running the same distance every time. Use 5 cm diameter wheels and 2 or 3 washers raised up 10 to 20 cm. Test the GFC on a hard, smooth, flat surface and measure how far it moves. If your GFC is running properly, the distance it moves should be about the same (but not exactly) every time. If you get a wide range of results, your GFC needs to be tuned up. Are your wheels on straight? Are they rubbing?

Record your GFC specifications and test data:

Car size (cm): Length: _____ Width: _____ Height: _____
Wheel size (cm) Diameter _____ Thickness _____
Axle Size (cm): Diameter _____ Length _____
Weight of washers for GFC tune up (N): _____ Height of washers (cm): _____
Optional: Car weight: _____

How far did the GFC travel?:

Trial 1: _____ cm	Trial 4: _____ cm
Trial 2: _____ cm	Trial 5: _____ cm
Trial 3: _____ cm	Average: _____ cm

Notes and other information:

How would you explain to someone what makes the GFC move and how it does it?