

## Grade 4 - Force and Motion Performance Task



**For the final week of school, you are going to use all your knowledge of force and motion to design a jump model (ramp) for a wheeled vehicle. How exciting!**

**Role:** You are an *engineer* who has been contracted to develop an X Games jump module for wheeled vehicles such as cars, bikes, skateboards etc.

**Task:** You must create a module of a challenging jump for wheeled vehicles.

**Format:** You have the option of presenting your creation in one of the following ways:

- Create an informational brochure, with words and pictures, about your jump design.
- Videotape an oral presentation that you give in front of family members about your design and hold a Question and Answer session at the end
- Design a three-dimensional model of your jump module to demonstrate how it works. Be prepared to explain what is happening.

**Requirements:** Use at least **three** of the requirements listed below in your presentation (video, brochure or 3-D model) to create a successful jump design.

1. Describe the potential and kinetic energy your vehicle has on the jump.
2. Identify possible points of friction on your jump module and explain the results of that friction.
3. Compare and contrast the speed of two different sized vehicles on the jump module and explain why the speeds differ.

4. Explain the need for force to propel your vehicle down the ramp.
5. Describe the effects of friction and mass on motion.

Email a copy of your video or brochure or a picture of your 3-D model to me at [freedyak@pwcs.edu](mailto:freedyak@pwcs.edu)

**Keep all the science work you created during distance learning! It will be very helpful to you in 5<sup>th</sup> grade! Have a wonderful, safe summer!**