SECTION 9: ACCELERATING MASSES

LAB

Westminster College

INTRODUCTION

In this activity, students determine quantitatively whether an object is accelerating. As a car rolls down a ramp, its speed should increase. By measuring the average speed for the top half of the ramp and the average speed for the bottom half, students should observe that the speed increases. Unfortunately, in real-word systems, friction slows the car almost as fast as gravity accelerates it, and so it is possible that cars may reach a speed at which they no longer accelerate. Also, at high ramp tilts, where this is less likely to happen, the car may be traveling so fast that students may not be able to get an accurate timing of its motion. This activity is designed to avoid theses problems and produce good data.

ASSESSMENT ANCHORS ADDRESSED

S4.A.2.1 Apply skills necessary to conduct an experiment or design a solution to solve a problem.

S4.C.1.1 Describe observable physical properties of matter.

S4.C.2.1 Recognize basic energy types and sources, or describe how energy can be changed from one form to another.

S4.C.3.1 Identify and describe different types of force and motion, or the effect of the interaction between force and motion.

PURPOSE

In this activity, students measure the changing speed of a car rolling downhill to determine whether the car is accelerating.

MATERIALS

For Each Group

Activity Sheet 9	Books, to elevate ramp*
Car	3 connectors
Stopwatches	Measuring tape
4 tracks	

*Teacher provides items marked with **