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Incorporating Interactive Physics in the Science Classroom

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Lisa Englert

Science 7/8

Level 2 Lesson Plan: Incorporating Interactive Physics in the Science Classroom

Prior to the written portion of the Intermediate Level Science Assessment (8th grade), students are required to complete a Laboratory Performance Test (January) during which concepts and skills from Standards 1, 2, 4, 6 and 7 will be assessed.

The NYS Standards that this Level 2 Lesson Plan will specifically address are:

Standard 1: Students will use mathematical analysis, scientific inquiry and engineering design, as appropriate, to pose questions, seek answers and develop solutions.

Standard 2: Students will access, generate, process and transfer information, using appropriate technologies.

Standard 6: Students will understand the relationships and common themes that connect mathematics, science, and technology and apply themes to these and other areas of learning.

Standard 7: Students will apply the knowledge and thinking skills of mathematics, science and technology to address real-life problems and make informed decisions.

Level 2 Lesson Plan Incorporating Interactive Physics will introduce and reinforce Performance Assessment tasks.

Objective: Students will discover, by design/experimentation, how the mass of an object will affect the distance it can/will travel.

Essential Question: Does the mass of an object affect the distance it will travel?

General Procedure/Background:

Students will create a situation were there exists:

- (a) a grid background for measuring distance traveled
- (b) 2 distinct and separate ramps of the same slope and height
- (c) a ball placed at the top of each ramp
- (d) change the properties of ball to differentiate the mass (es)

The students must also set certain parameters prior to RUN of the program:

For instance, friction must be assigned as a property to the ball and ramp surface(s). Air resistance must be included (WORLD) so the balls will eventually stop.

Once conditions are set, students will RUN program measuring the distance traveled by each distinct ball. A graph of the distance traveled will be created and Exploration Questions answered.

After students have had the opportunity to create this Ball and Ramp Lab using Interactive Physics, they can be given the materials to literally recreate the situation.