NC TEACH Lesson Plan
NORTH CAROLINA SIX POINT LESSON PLAN

Subject: Physics
Topic: Newton’s Law of Universal Gravitation
Teacher: Brian Bradshaw
Date: 7/7/2008

Performance Objective:
The learner will assess and calculate the nature and magnitude of gravitational forces (Newton's Law of Universal Gravitation).

Activity: Alice Gravity Demonstration

Description of Activities and Setting

Materials and Time

I. Focus and Review

Overhead. Students will be working on a review of forces and vectors. 5 minutes

II. Statement (Inform) of Objectives

4.07 Assess and calculate the nature and magnitude of gravitational forces (Newton's Law of Universal Gravitation).

III. Teacher Input (Present tasks, information, and guidance)

Lecture on gravity. Use the already generated Alice world that models gravity for a demonstration. Load the teacher generated world for Newton’s Cannon. Using the Newton’s Cannon Alice world, show a cannonball escaping Earth’s gravity, without giving them the actual escape velocity value. Explain how to use the world to the students. 35 minutes

IV. Guided Practice
Have the students watch the gravity world at their seats. Have them describe what they are observing, while the world runs. Have them open the Newton’s Cannon world. Have them run the word once with a given value for the escape velocity.

V. Independent Practice
Seatwork and Homework
Students will use the Alice World Newton’s Cannon to determine the escape velocity for Earth. They will also determine velocities to put the cannonball into orbit. They will be asked to determine cannonball velocity to allow the ball to hit the planet after 90, 180, and 270 degree orbits. 25 minutes.

VI. Closure
Ask for questions, Take up student work, and assign homework. 5 minutes.