5E Lesson Plan

Teacher:

Date:

Subject / grade level: 6th-8th Science

Materials:
Dynamics Track, Photogates mounted on support stands (2) Dynamics Carts (2) photogate flags, Steel weights, digital inclinometer(Angle Cube), Triple Beam Balance

NC SCOS Essential Standards and Clarifying Objectives

Lesson objective(s): 6.8BCD: The student is expected to identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces AND calculate average speed using distance and time measurements, AND measure and graph changes in motion.

Differentiation strategies to meet diverse learner needs:

ENGAGEMENT

1. KWL Chart
2. Picture of Rollercoaster: Students may work in pairs, groups of four, or individually to study the picture. Instruct students to write as many sentences as needed to describe the photo using the vocabulary below. They may choose to combine a few vocabulary words into one sentence. Speed, force, motion, balance, distance, time, position, travel, push, pull, direction, accelerate, power. Allow 10-15 minutes to complete their work. Allow students to share their work.

EXPLORATION
Dynamics Track, Photogates mounted on support stands (2) Dynamics Carts (2) photogate flags, Steel weights, digital inclinometer(Angle Cube), Triple Beam Balance

EXPLANATION: 1. Connect Motion detectors to motion software
2. Launch motion software
3. Adjust the two carts

4. Level the track. Use Angle cue to check the track in the center and both ends.
5. Place motion detectors in the middle of the track with about 20cm between them.
6. Arrange the carts between the two motion detectors. Both carts should have magnetic flags facing each other.
7. Collect data using motion software. The software should measure the speed of the carts passing through the photogates. Record to data Table 1 the speed speeds of carts 1 and cart 2 before and after collisions.
8. Repeat the experiment and add weights to the carts.

ELABORATION: In this investigation, students will need to create a maze with five right-angle turns using snap-together blocks. If you do not have the materials available for each group to make a maze, you can create one as a class and have students see who can achieve the fastest speed.

EVALUATION: Post Assessment
Writing in Science
Concept Builder