

# AP Physics Lab

## Lab 5-A: *Velocity of a Dart Gun* (*Conservation of Energy*)

### Equipment:

- dart gun & corresponding dart
- meter stick or 2-meter stick

### Purpose:

- Calculate the initial velocity of a dart, using conservation of energy.

### Procedures:

- Obtain the same dart gun used in Lab 2-A.
- Shoot the dart straight up into the air, using the stairwell for additional height if needed.
- Measure the maximum height achieved by the dart.

### Report:

1. Use conservation of energy to calculate the initial velocity of the dart.
2. Calculate the velocity of the dart when it is at a height of .50 m.
3. Why is the mass of the dart not required to complete this lab?
4. Do any outside forces do work on the dart as it is in flight? Do you think any such forces affect your answers? Explain.