A. **Determining force from acceleration**  Put one person on the cart. Another person pushes. Using stopwatches and tape measures, make the necessary measurements and perform the calculations to estimate the average force with which the cart was pushed.

B. **Car accelerated by weight**
   1. The mass of the car 257 g. The mass of the hanging weight and pulley is 225 g.
   2. Release the car from at rest.
   3. Record the accelerations as the mass pulls the car.
      - Acceleration (no mass on car) =
      - Acceleration (250 g mass on car) =
      - Acceleration (500 g mass on car) =

      a. Draw an FBD and KD of the car.
      b. Draw and FBD and KD of the hanging mass.
      c. Solve for an expression of the acceleration of the system in terms of the mass of the car, the hanging mass, and the acceleration due to gravity. Compare to that measured.

C. **Pasco Car Hooked to Fan Cart**
   1. The mass of the car with the force sensor is 360 g. The mass of the fan cart is 580 g.
   2. While holding the car, turn the fan cart on to high. Record the force in the force sensor.
      Force =

   3. Release the car. Record the force in the force sensor. Be sure to stop the car before it hits the end.
      Force =

      a. Determine the force that the fan generates.
      b. Determine the acceleration of the combined car and fan cart system.
      c. Determine the theoretical tension in the string between the car and fan cart as the system is accelerating.