

### Impact speed of a car

We will let a Hot Wheels car roll off a table. By knowing the height of the table and the horizontal distance the car travels through the air, we can determine the initial velocity and impact velocity.

**Data:** Height of table \_\_\_\_\_ m

Forward distance \_\_\_\_\_ m

**Determine the following:**

a) Flight time (calculate).

b) Horizontal velocity  $v_x$  (calculate).

Aside:

Verify your calculated velocity using the photogate.  $v_x =$

c) Vertical velocity  $v_y$  upon impact (calculate).

d) Speed of the car upon impact (calculate).

e) Direction of travel (angle with respect to the horizontal) upon impact (calculate).