

**PART 2**

**Activity E2: Measuring Speed**

Text page E7-E10

**EQ:**

**Determine which of the variables in this experiment are:**

<b>INDEPENDENT</b>	<b>DEPENDENT</b>	<b>CONSTANT</b>

<b>INDEPENDENT</b>	<b>DEPENDENT</b>	<b>CONSTANT</b>
<b>HEIGHT</b>	<b>SPEED</b>	<b>TRACK</b>
		<b>CART</b>
		<b>RELEASE POSITIONS ON RAMP</b>

Analysis (Number and complete.)

1. According to your data PART A, What is the speed of the cart?

**A typical time for the 100cm/s or 1m/s distance is between 1 and 2 seconds.**

**The speed would then be in the range of 50-100 cm/s**

2. According to your data PART B, What is the effect of release height on speed?

**The cart should slow down as release height decreases.**

As height decreases, speed decreases.

3. List some common units for speed. Why are there so many different units?

**-miles per hour (MPH)**

**-kilometers per hour (km/h)**

**-meters per second (m/s)**

**Different distances require different measurements.**

4. What parts/s of your experimental design (how the experiment was set up) in Part B:
  - a. increased your confidence in the results?  
**--repeated trials and averaging the data**
  - b. decreased your confidence in the results?  
**--using your eyes to judge where to start the cart and**  
**--when to stop and start the timer**

5. What is a car's speed in m/s if it travels

a. 5 meters in 0.1 seconds?

**50 m/s**

b. 5 meters in 0.2 seconds?

**25 m/s**

c. 10 meters in 0.2 seconds?

**50 m/s**

6. Reflection: Why do you think speeding is a factor in about 20% of fatal car accidents?

- There would need to be an increased stopping distance.**
- There would be less time to swerve and get out of the way.**
- There would be a greater impact force.**
- A car not designed for speed might be more difficult to control.**