

General Science 1110L Pre-Test questions

The Picket Fence Lab (Acceleration of Gravity)

1. What is the objective of this lab?
2. What apparatus is used for this lab?
3. What is the Picket Fence?
4. What is the photogate?
5. The velocity of an object is defined as? Give an example of units of velocity.
6. How is the time interval Δt measured in this experiment?
7. True or false. The Picket Fence will be dropped from rest. (Zero initial velocity)
8. True or False. The picket fence will be dropped at an angle through the photogate?
9. What is the approximate value for the acceleration of gravity we should expect to get when we plot velocity vs. time?
10. When we plot velocity vs. time what does the slope of the straight line represent?
11. How will we find the error in g?
12. How do we calculate the slope of a straight line?

Answers

3. A piece of clear plastic that has alternating stripes of black paint and clear areas on it. The distance from the top of one black stripe to the top of the next black stripe is precisely 0.05 m
(5cm)
4. The photogate consists of an infrared LED and a detector that can sense infrared light. We can tell, using the computer, when this light is blocked by the black stripes on the Picket Fence.
5. Meters/second, centimeters/second, miles/hour, feet/ second.
6. Δt is measured using the photogate. Δt is the time it takes for one black stripe to pass by the photogate.
7. True

8. False

10. g (acceleration of gravity)

11. $[(9.80\text{m/s}^2 - g_{\text{experimental m/s}^2}) / 9.80\text{m/s}^2] \times 100\%$

12. Choose two points on the line that you draw through your data points. Point 1(X_1, Y_1) .
Point 2 (X_2, Y_2) . DO NOT USE ORIGINAL DATA POINTS

The slope of the line is $(Y_2 - Y_1) / (X_2 - X_1)$

DO NOT USE ORIGINAL DATA TO CALCULATE THE SLOPE