

NAKED EGG!

A Performance Assessment

Name _____ Name _____ Period _____

Materials: **Two grocery bags** (plastic) to keep landing area clean, **20 sheets of paper** (notebook or computer), up to one foot of **scotch tape**. (You will need to supply the tape!) Mr. Lanham will provide ONE raw egg per group of two.

Materials Check Off (Lanham's initials) _____

Your mission: Design a landing platform to allow a naked raw egg to survive a fall. The platform can **only** consist of paper and scotch tape.

PreLab:	Points	Value
List five (5) safety features used to cushion objects in crashes:		5
What is the safest new car (OR SUV, van, truck) today? (make/model) List the website where this information was found.		3
What is a Shockwatch label? (hint: Shockwatch is a brand name)		2
In terms of <i>acceleration, force, time and impulse</i> , describe why crumple zones makes cars safer.		5

Which variable must be reduced to increase survivability of your egg?		5
Which variable must be increased?		
Hypothesis: What <u>specifically</u> about your plan/design leads you to this hypothesis?		10
Mr Lanham's signature for above points: DO NOT LOSE THIS PAPER!!!!!!!!!!!!!!!!!!!!!!		SUBTOTAL

Data: (video is an acceptable *backup* for observations)

Mass of egg: _____ grams conversion: _____ kilograms

EACH DROP

Measured: Height (cm)	Conversion: Height (m)	Observations

Data _____ / 20 points

Calculations: Using the height in meters for your last successful drop, calculate the following: (5 points each)

Time: $d = \frac{1}{2} g t^2$

Speed: $v = g t$

Momentum: $p = m v$

PostLab Questions: (5 points each)

What was the change in momentum? ($\Delta p = p_f - p_o$)

If the time impact happened to be 0.2s, what was the force on the egg? $I = F t$

If the time impact happened to be 0.2s, what was the acceleration of the egg? $a = F / m$

Conclusion: 20 points - Include: (1) Your results, (2) what specifically about your design led to these results, (3) what design changes you would make if you did it again, (4) a new hypothesis for design changes and (5) a rationale for the new hypothesis.

Participation, on task, preparation, planning, safety, following directions, materials, good sportsmanship... _____ / 5 points

BONUS: A successful drop from 2.5 meters!