

Name _____
Physics _____
Period _____

Date _____
Lab #21 (75 pts)
Mrs. Nadworny

NO Lab Write-Up Required

Due Date _____

Egg Drop

• The Challenge

- Your task is to design, build and explain the physics of an egg safety container that will allow an egg to survive a fall from ceiling. In the spirit of all three of Sir Isaac Newton's laws & Momentum, design a container to **HOLD** a raw egg such that the container can be dropped from the ceiling onto the hard, unforgiving floor without the egg breaking.



• Materials

- You will be supplied with the following materials:

- scotch tape
- paper straws
- scissors (not part of final design)
- printer paper
- 1 raw egg wrapped in a plastic bag or plastic wrap



• Rules

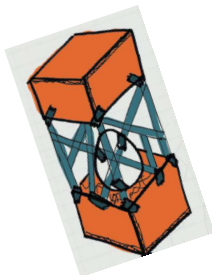
- Your egg must be tightly enclosed in one layer of a plastic bag or plastic wrap and sealed at the top by scotch tape in order to prevent a mess. If your egg does leak, you are responsible for cleaning up.
- You must be able to **prove** your egg is intact. Make sure that you can extract your egg from your device without destroying your container



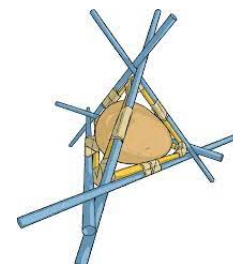
To be completed by teacher only:	
<input type="checkbox"/> Completed container	(20 pts)
<input type="checkbox"/> Excess or unapproved materials	(- 5 pts)
<input type="checkbox"/> Egg not wrapped in plastic	(- 5 pts)
<input type="checkbox"/> Egg cannot easily be extracted	(- 5 pts)

• The Point System

- Your egg must survive a fall from the ceiling to be awarded all 10 points.



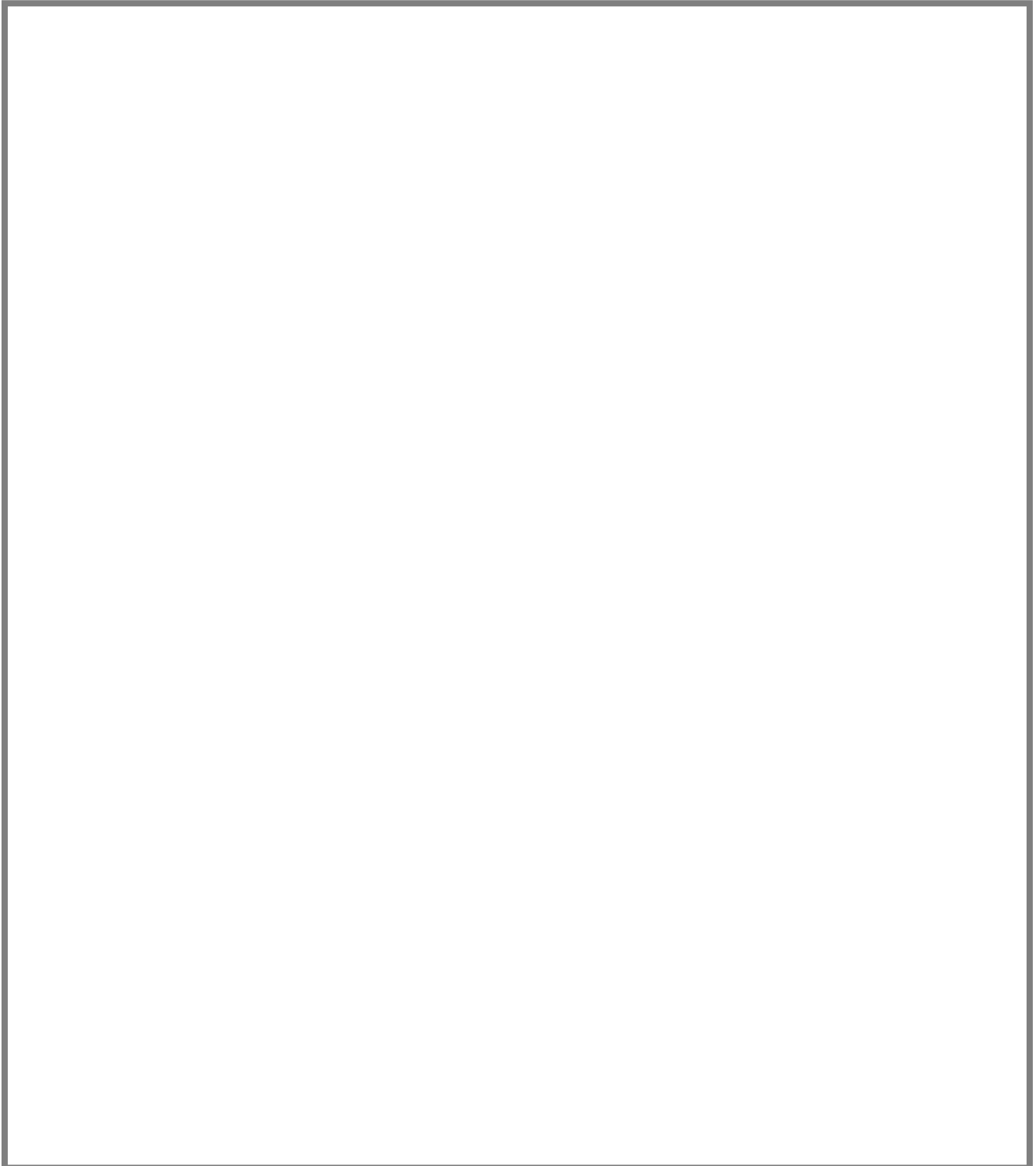
To be completed by teacher only:	
<input type="checkbox"/> Egg did not crack	(10 pts)
<input type="checkbox"/> Egg fell out of container & cracked	(-10 pts)
<input type="checkbox"/> Egg cracked & oozed	(-5 pts)
<input type="checkbox"/> Egg cracked & did not ooze	(-2 pts)



- **Diagram**

- Create a detailed diagram of your container below. Your diagram must be neat with all components labeled. Remember to specify from which perspective you are drawing your container (side, aerial, interior, or exterior). (10 pts)

View: _____



- Reasoning

- Identify THREE components of your container and explain the reasoning as to why you included that component. (15 pts)

- Your physics explanations should include the concepts of momentum, impulse, acceleration, velocity, inertia, time, forces, net force, etc.

- For example: "I added a parachute to reduce the velocity of the egg container. I was trying to use air resistance to slow down my container."

- Component #1:

- Component #2:

- Component #3:

- **Conclusion**

- Describe the success or failure of your container and its components.

(20 pts)

- For example: "My parachute was a success. It slowed down my egg drop container a lot so it was going very slowly when it hit the ground."

- Container

- Component #1:

- Component #2:

- Component #3: