EGG DROP CHALLENGE

NAME

CLASS / DATE

01 QUESTION

How does padding amount affect egg damage when matched capsules are released from the same safe height?

02 PREDICT BEFORE YOU MEASURE

WHAT PATTERN MIGHT PADDING AMOUNT SHOW IN DAMAGE AFTER THE SAME-HEIGHT DROPS?

○ more padding may reduce damage ○ similar damage across designs ○ no clear pattern yet

Well-fitted padding may help, but use the recorded PASS/FAIL results and damage notes; no design is guaranteed to win.

03 VARIABLES

I CHANGE (INDEPENDENT)	I MEASURE (DEPENDENT)

I KEEP THE SAME (CONTROLLED) · KEEP THE CAPSULE AND LANDING AREA MATCHED; RECORD ONE LOW RELEASE HEIGHT THE ADULT CAN REACH WHILE STANDING ON THE FLOOR, AND USE IT FOR EVERY DESIGN.

04 MATERIALS

- ☐ Matched 1-, 3- and 5-layer designs
- ☐ Nine similar-size fresh eggs, one per drop
- ☐ Same floor-level landing tray or padded area
- ☐ Eye protection and cleanup gloves
- ☐ Adult-selected release point reachable from the floor

05 PROCEDURE

SAFETY An adult chooses one low height reachable while standing on the floor, lowers it if needed, and makes every release. Never use a ladder, stairs, chair, balcony or raised platform. Mark a clear drop zone; students stay outside it. Use the same landing area and release straight down. Wear eye protection and closed-toe shoes; an adult uses gloves for broken-egg cleanup.

1 **BUILD MATCHED DESIGNS** Prepare one-, three- and five-layer padding versions with the same container shape and egg position. ☐

2 **CHECK THE DROP ZONE** An adult chooses a low release height they can reach while standing on the floor; use 0.9 m (3 ft) only if comfortable. Clear the fall path and use the same landing area. Never climb or use a platform. ☐

3 **RUN THREE TRIALS PER DESIGN** The adult releases each capsule straight down at the same height. Use a new, similar-size egg for every one of the nine drops. ☐

4 **RECORD** Mark PASS only if the egg is uncracked; a visible crack or leak is FAIL. Note crack location and count passes out of three. ☐

5 **COMPARE** Compare pass counts and visible damage. Three trials are a small sample; do not claim a guaranteed result or safety rating. ☐

DATA AND EXPLANATION

NAME

CLASS / DATE

06 RECORD YOUR OBSERVATIONS

DESIGN (PADDING)	TRIAL 1	TRIAL 2	TRIAL 3	PASSES / 3
1 layer				
3 layers				
5 layers				

Record visible damage after each drop

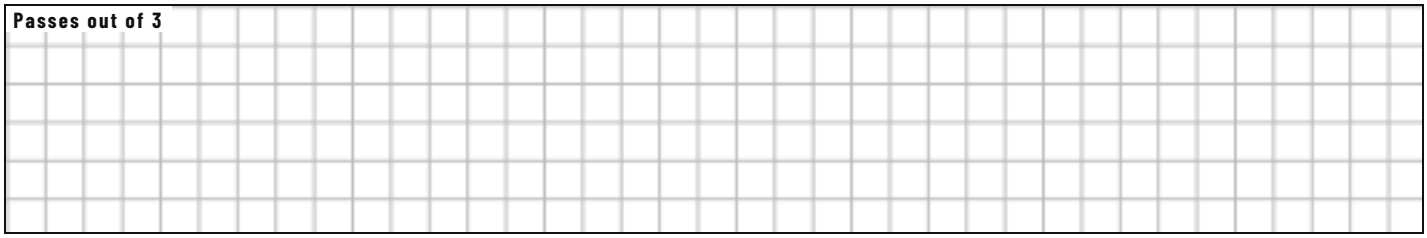
DESIGN	TRIAL 1 LOCATION	TRIAL 2 LOCATION	TRIAL 3 LOCATION
1 layer			
3 layers			
5 layers			

Write "none" for an uncracked egg; note a crack's location or leak. Use one fresh egg for each trial.

Record the chosen low release height: ____ m (same for all designs). Pass count = number of PASS results in the row. Optional pass percentage = passes ÷ 3 × 100%; this small sample is descriptive only.

SHOW ONE CALCULATION

07 PASSES AT ONE FIXED HEIGHT



Plot each design's PASS count from 0 to 3. Keep all three trials visible in the table; do not infer a universal result from this small sample.

08 EXPLAIN IT WITH EVIDENCE

CLAIM

EVIDENCE

REASONING

Reasoning must use: padding layers · same recorded low height · fresh egg each drop · PASS/FAIL

09 THINK FURTHER

After the main comparison, change one design feature such as an internal restraint and repeat at the same floor-level height with fresh eggs.