



Co created with  
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## LESSON NAME

Egg Drop Challenge

## DESCRIPTION OF ACTIVITY

Students will work in groups of 3 or 4 to design and build an egg drop device. The students will be given a budget and defined list of materials that they can 'purchase' to protect their egg.

Key features that must be included: Examples; Easy exit hatch release, Gliding effect, Holds X eggs

To find an example of what the egg drop challenge can look like, click [HERE](#)

## LEARNING GOALS

Explore the change from potential to kinetic energy and what forces that are impacting the fall; 1) gravity 2) drag and 3) air resistances.

Challenge: Design and create NASA's first bouncer cage. Capable of surviving falls from 5 stories!

Introduce financial budgeting for resources. The cost of an egg should be  $\frac{1}{4}$  or  $\frac{1}{5}$  of total budget. There are many circumstances where a student will accidentally break the egg shell while placing them in their cage. Provide an option for them buy another egg if they have enough money.

Work in teams to create the ultimate protection cage.

Hint: Best class I've hosted always included me in creating, sharing, and learning. Ask your students how they would improve their creation and and push their imagination when you present suggestions for their masterpieces.

## PRE-REQUISITE KNOWLEDGE/SKILL

No skills needed

## MATERIALS NEEDED

80 Strawbees, 50 straws, eggs, and plastic bags to prevent egg yolk from dripping everywhere

## CLASS DURATION

DURATION	ACTIVITY	TIPS
0-10 min	Introduction - Combine comical/mysterious story effect when asking about the history of space pods.	
10-20 min	Design and Sketch: Work individuals or in pairs to sketch their creation. Must complete listed target goals.	Examples: 1. Point system for evaluation 2. Plastic covered egg.
20-45 min	Build prototype and test.	
45-55 min	Share and explore creations.	
55-60 min	Discuss learning goals and prepare a student inspired homework assignment.	

## ADDITIONAL CHALLENGE

Incorporate LED safety lights for night time challenge.

<https://www.youtube.com/watch?v=gvBhpiOKXIk>

## STEP - BY - STEP INSTRUCTIONS

IMAGES	NOTES
	<p>1) For elementary students, my preferred student to teacher ratio is 13:1. I will find a volunteer or assistance for classes with more than 13 students. The main reason is because I want students and teachers to have a close connection as they complete the challenge.</p>
	<p>2) Begin each lesson with basic 10 min intro covering the egg drop lesson/challenge. Write down learning objects on the board and discuss with class. Brainstorm and create hypothesis. Introduce new physics terminologies. Provide each group with an egg and plastic wrap.</p>
	<p>3) Spend 5 minutes to introduce Strawbees (Play our intro video if needed). After the introduction, distribute Strawbees materials to each group and allow them to explore for 15 mins or so. Free build time. Or complete basic check list. (ex Two pyramids, cube)</p>



Note:  
Feel free to include links to videos too!

## STEP - BY - STEP INSTRUCTIONS

IMAGES	NOTES
	<p>4) After playing with Strawbees, Design and Sketch your Egg drop cage. Test carefully. You only get one egg!!!</p>
	<p>5) Check that all eggs are tightly secured around the egg with plastic wrap.</p>
	<p>6) Explore and test your creations carefully. Name three improvements you have made to your original drawings. Why did you change the design? What did you notice? Make sure you keep track of your progress.</p>



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## STEP - BY - STEP INSTRUCTIONS

IMAGES	NOTES
	<p>7) Class test. Who can survive the tallest Egg drop? Have each team drop their own creation. Surviving creations will move to the next round. Start each round with 1 meter from the floor and increase each round by another meter.</p>
	<p>8) Make sure you prepare ahead of time for the mess and account for clean up time. I usually spend 15 mins with the class to clean up.</p>
	<p>9) *No pictures found yet*. Complete worksheet for assignment/ notes. Complete additional homework challenge for next week!</p>



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