Delivery Egg Drop Activity

Kawaguchi Municipal High School
STEM Education

TEAM MEMBERS: _____
TEAM NAME: _____

Building Materials:

- raw egg	**- cotton balls (bag)**	**- chopsticks (50 pieces)**	**- scissors**
- string (5 meters)	**- straws (50 pieces)**	**- plastic tape (1 roll)**	**- ruler**
- balloons (5 balloons)	**- masking tape (1 roll)**	**- card board A4 (1 piece)**	**- rubber bands (100)**
- plastic bag (20 liter)	**- A3 paper (5)**	**- A3 construction paper (5)**	

Discuss in English:

What type of Delivery System will your group design?
Which building materials will you use?
How will you protect your egg?
How will you be able to accurately hit the target landing area?

Using the listed materials, sketch a drawing of your egg drop device in the space below:

Egg Drop Vocabulary/Definitions

***acceleration**:* The rate of change of velocity with respect to time. The measure of how fast the velocity of an object increases or decreases.

***energy**:* The capacity to do work. Several different types of energy include: mechanical, heat, electrical, magnetic, chemical, nuclear, sound or radiant. For purposes of this activity and its associated lesson, we are focused primarily on mechanical energy since it is the energy of motion.

***force**:* Anything that tends to change the state of rest or motion of an object. Force is represented by two quantities; its magnitude and direction in space. The magnitude of a force is represented by quantities such as pounds, tons or Newtons. Direction in space refers literally to the direction a force is applied. This means that force is a vector and requires two pieces of information to define it completely. When a number of forces act simultaneously on an object, the object moves as if acted on by a single force with a magnitude and direction that are the sum of the applied forces.

***impact**:* The striking of one object against another; collision.

***kinetic energy**:* The energy possessed by an object because of its motion.

***mass**:* A measure of how much matter an object contains, or the total number of particles in an object. Mass is not weight. Weight is the force caused on a mass by gravity. Thus, a person's mass would not change on different planets, but his/her weight would. For instance, you would weigh about 1/6th of your body weight now if you were on the moon.

***potential energy**:* The energy of a particle or system of particles resulting from position, or condition. Gravitational potential energy is based on how high off of the ground an object is while other forms of potential energy include springs, batteries or fuel.

***vector**:* A quantity that has both magnitude and direction. Example vector quantities include velocity, weight and force. Alternatively, speed and mass are NOT vector quantities and can be represented by their magnitudes.

***velocity**:* A vector quantity whose magnitude is an object's speed and whose direction is in the object's direction of motion. Velocity is different from speed because velocity describes a direction as well.

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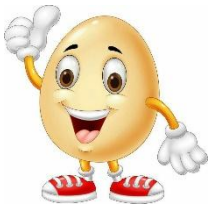
Delivery Egg Drop
Post-Test Results



TEAM MEMBERS: _____
TEAM NAME: _____

Discuss these questions in your group and answer them.

1. **Why did your team choose to build the structure that you built?**

_____
_____
_____
_____
_____

2. **Why do you think your structure worked or did not work?**

_____
_____
_____
_____
_____

3. **If you could have chose one other material to use, what would it have been and why?**

New material: _____

_____
_____
_____
_____
_____

4. **If you were able to do an egg drop again, with the same materials, what would you do differently?**

_____
_____
_____
_____
_____
_____

5. **Did you enjoy the activity? Why or why not?**

_____
_____
_____
_____
_____

Delivery Egg Drop Data Collection

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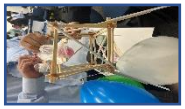
	Design	Group Name	Floor 3		Floor 4		Floor 5	
			Egg	Distance (cm)	Egg	Distance (cm)	Egg	Distance (cm)
1		Sunny Side Up!						
2		Six Seven						
3		Mr. Green						
4		Dark Wings						
5		Forest						
6		We'll Never Break Eggs						
7		Team D						
8		Scramble Egg Kosaten						

Data Keys:

Egg = (egg condition) "O" = not broken "X" = broken "-" = slight crack

Distance from target) "cm" = centimeters