

# Engineering

## Egg Drop



### CHALLENGE

Hello STEM students! We need your help to design and build a device to protect an egg from a drop of 25 feet or more. Recycled materials and masking tape will be used to create your device. Additional materials which can be used in the creation of your device include six rubber bands and six straws. The focus of this challenge is to create the lightest device possible that will protect an egg from a drop of 25 feet or more.

### Criteria for Egg Drop

- Must be created by students **only** during STEM sessions and brought to competition by the STEM coach
- Students should work in a team of 3 to 4 participants, each an active member of the team
- Must use approved recycled materials
- Can use up to 6 rubber bands not more than  $\frac{1}{8}$  inch wide and 4 inches long
- Can use up to 6 regular drinking straws (provided by coaches)
- Can use masking tape (provided by coaches)
- Device must fit into a 20 cm by 20 cm by 20 cm box (provided by coaches)
- If a parachute is part of the device, the opened parachute must fit within the confines of the box
- Access to the egg must be easy to open and close securely (necessary to check egg at competition)
- Device must be able to withstand a drop of 25 feet or more
- Consider the weight of the device. In the event of a tie, the lightest device will win.

### Accepted Materials

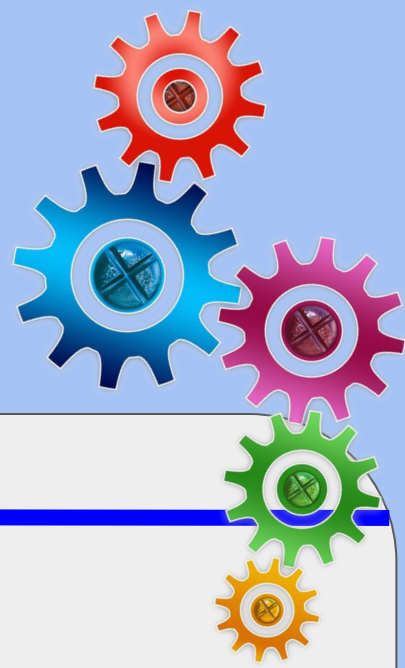
- Acceptable recycled materials (see attached list)
- Rubber bands ( $\frac{1}{8}$  inch wide and 4 inches long)
- Regular drinking straws
- Masking tape

### Constraints for Challenge

- Use STEM sessions at school to create devices in groups of 3 or 4 participants
- Create a strong device
- Consider using materials that are light in weight
- Device must fit in a box that is 20 cm by 20 cm by 20 cm
- Repairing device during competition is prohibited
- Devices with unbroken eggs will advance to the following level

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### *Acceptable Recycled Materials*

- Brochures
- Cardboard cereal/cracker boxes (plastic lining okay)
- Computer paper
- Coupons
- Egg cartons
- Junk mail
- Laundry bottles (remove caps and lids)
- Ledger paper
- Magazines
- Milk/juice cartons (rinsed)
- Newspapers
- Paper
- Paper tubes
- Phone books
- Pizza boxes (clean)
- Plastic #1 - #7 (found at the bottom of items, generally in the middle of a triangle shape)
- Tissue boxes
- Used envelopes
- Wrapping paper

### *Unacceptable Materials*

- Batting or Polyfill
- Clothing/fabric
- Food items
- Glass
- Glue
- Metal/paper clips
- Rubbermaid, Glad, or Ziplock containers
- Styrofoam and other packing materials
- Tissue paper or Kleenex