Idaho State
UNIVERSITY
College of Science and Engineering

# Egg Rocket Challenge!

**McCall STEM Festival 2018**

**The Challenge:** construct a capsule to protect an egg from damage during a head-on collision between a pop bottle rocket carrying the capsule and a brick wall with impact speeds exceeding 75 kph.

**Rules:**

1) Two or three people per egg rocket team.
2) The capsule is to be constructed during the event using only materials provided for that purpose by ISU Physics. Materials will include cellophane tape, duct tape, bubble wrap, cardboard, and other items kept secret until the event.
3) Teams must use an egg provided by ISU Physics.
4) The capsule must be rigidly attached to an otherwise unaltered 2 liter plastic pop bottle to be provided.
5) Combined mass of the capsule, egg, and pop bottle once joined must not exceed 600 grams.
6) No part of the capsule may be within 15 cm of the opening of the plastic pop bottle once attached.
7) Teams must extract their egg from the capsule and demonstrate that it is intact in less than 30 seconds after the rocket is retrieved. The only tools allowed for this portion of the competition will be scissors provided by ISU Physics.
8) Teams are allowed 45 minutes to construct a capsule containing the egg provided, and attach the capsule to the plastic pop bottle provided. Teams must submit their device for impound and weighing by the judges by the end of the 45 minute construction period.
9) No competitors or spectators will be allowed within 30 feet of the rocket launcher while the rocket is pressurized and launched by judges. Judges will recover each device after each impact.
10) Teams will be disqualified for failure to strictly abide by any of the above stated rules.

All rockets will be pressurized to the same gauge pressure prior to launch.

**Judging:**

The Team with the rocket and capsule with the lowest mass that successfully protected the egg during impact will be declared the winner, with second and third place awards going to teams with the next two lowest masses.