PhyzCompetition: The Egg Toss

PERIOD	1.	
TEAM	2.	
	3.	

• Objective •
The objective is to catch a thrown egg without letting it break. The egg successfully caught after traveling the greatest distance wins the PhyzBooty (Eggstra Credit!)!

• Equipment •
___ raw egg (jumbo eggs are preferred)   ___ 2 garbage bags
___ access to scissors   ___ access to masking tape
___ 2 50-ft lengths of yellow nylon rope   ___ trundle wheel or 100-ft tape measure (optional)

• Rules •
The competition must be carried out in a safe and fair manner at all times!

1. Follow the written and spoken instructions of the referee (teacher) at all times. Failure to do so is grounds for disqualification.

2. Each team shall have a **thrower**, a **catcher**, and a **courier**. Teams of four must provide one member to the officiating team. (Officiating team members get a separate eggstra credit reward.)
   a. The **thrower** is in charge of throwing the egg to the catcher. The thrower must keep his/her throws within the team's throwing lane (as specified by the referee). Throwing outside the lane disqualifies the team. The thrower must throw the egg with his/her bare hands.

   b. The **catcher** must wear the safety goggles and the garbage bag poncho (see construction instructions below) during competition. The catcher is responsible for catching the egg without breaking it. The catcher must catch the egg with his/her bare hands.

   c. The **courier** carries the caught egg from the catcher to the thrower after a successful catch.

3. The details of the throwing and distance requirements will be announced by the referee on the field of competition. Be sure to listen carefully!

4. If the team's egg is broken, the team is responsible for cleaning up the mess as thoroughly as possible. It is important that we leave the field of competition as we found it, not littered with broken eggs! Grind the remnants down into the ground with your feet so that the shell is a scattering of small bits.

5. No member of any team can help or hinder the performance of any other team.

6. Violation of any of the written or spoken rules or instructions is grounds for disqualification.

GARBAGE BAG "PONCHO" AND "KILT/SKIRT" CONSTRUCTION
1. Obtain a garbage bag and unfold it.

2. Using the scissors, cut a hole for your head and holes for your arms.

3. Using masking tape, indicate your group designation (e.g., F).

4. Use the second bag to make a "kilt" to protect lower garments.

• Play •

1. Alignment

Throwers form a line standing side-by-side. Use shadows for alignment: each thrower stands in the shadow of his/her neighbor nearer to the Sun. Each thrower can stand with his/her arms stretched out to the side and not touch the outstretched arms of his/her neighbor.

2. Tosses

All tosses are launched on the instructor's/referee's signal.

3. Legal Catches

A catcher must catch the egg with his or her bare hands. The catch must be made at or beyond the distance in play.

4. Disqualifications and Do-overs

a. Broken egg = disqualification: grind in the remnants with your feet; use paper towel to wipe off eggsplash
b. Egg hits ground and doesn't break = repeat at that distance (do-over)
c. Foot fault = repeat at that distance (do-over)

5. Rounds

After each toss and catch, catchers move back three giant steps. Play is over when all the eggs are broken.

• Results •

1. At what distance did the winning team finally DQ?

2. What was the distance of the farthest toss and catch in the class? Rio's farthest toss and catch in 2009 was Cameron Santo to Hunter Akins—100 ft (>30 m)!

• Post-Game Analysis •

1. What was the strategy for catching a long-range, thrown egg? Answer using words **and** pictures.

2. What's the **physics** that explains the success of this approach?