



Tricky Tennis

Problem

Oklahoma City has a new tennis league, but they want some new designs for their tennis rackets! You will be tasked with prototyping a new tennis racket which you will use to hit a ping-pong ball to a target.

Goal

Build a tennis racket that can hit a ping pong ball at least 4 feet and is able to juggle the ball twice.

Constraints

- The tennis racket must be at least 8 inches wide.
- The tennis racket must have a “woven” pattern, it can’t be a solid sheet!
 - Think of what a tennis racket normally looks like.

Brainstorm & Design

- By yourself, look at the materials and sketch a design.
- In teams, compare designs and draw **ONE** team design.
 - Determine the materials you need to build this final design
- You must show your design to an Ambassador before **ONE** team member purchases supplies.
- When purchasing supplies, bring the plastic box to hold materials.
 - **No refunds or exchanges on purchased materials.**

Build & Test

- Build your tennis racket with your team.
- Test your ability to hit and juggle the ping-pong ball
- Rebuild to improve the tennis racket!

Materials

Each group has **\$500 SEED dollars** to spend on the materials listed below. Fill in the table with the amount you plan to purchase, and the associated cost. Add your expenses together to be sure you're within budget.

Materials	Price	# to Purchase	Amount Spent
1 ft. of fishing line	\$100		
3 ft. of string	\$100		
1 paper plate	\$100		
1 toilet paper tube	\$100		
3 pencils	\$100		
5 straws	\$100		
10 popsicle sticks	\$100		
1 Styrofoam bowl	\$100		
5 rubber bands	\$100		
1 ft. duct tape	\$100		
2 ft. masking tape	\$100		
3 pieces of construction paper	\$100		
		Total Cost	

Judging Rubric

- You will get 3 chances to hit the ball as far as you can and three chances juggle the ball as many times as you can.
 - ◇ 25 pts for hitting the ball 4 feet.
 - ◇ 10 pts will be added for each additional foot.
 - ◇ 25 pts for juggling the ball twice on the racket.
 - ◇ 5 pts for each additional time you can juggle the ball.

Design Space