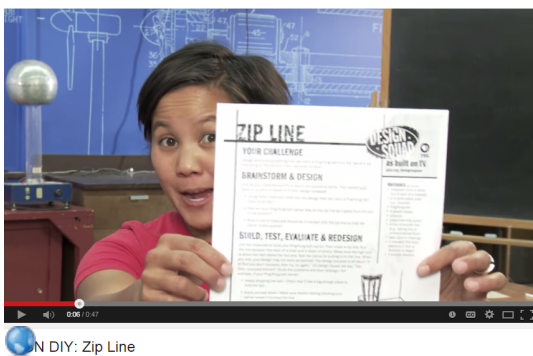



Design Squad: Zipline Challenge



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Instructions

1



Here are some of the materials you can use

- cardboard (from a cereal box or back of a notepad)
- paper clips
- Ping-Pong ball
- 4 plastic straws or skewers
- scissors
- single-hole punch
- 2-4 small paper cups (3-oz. [89 ml])
- smooth line (4 ft. [1.2 m]) (fishing line or unwaxed dental floss)
- tape (duct or masking)
- weights (10 pennies or 5 flat steel washers [1-in. (2.5 cm)])

* Design Process...Journal

Challenge...

Design a ping pong carrier to go on a 4 foot zipline with a 2 foot drop in exactly 4 seconds!

RESULTS



Mission Accomplished With Tymek's Design!

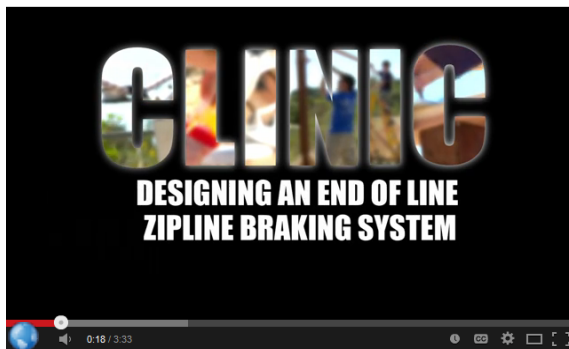
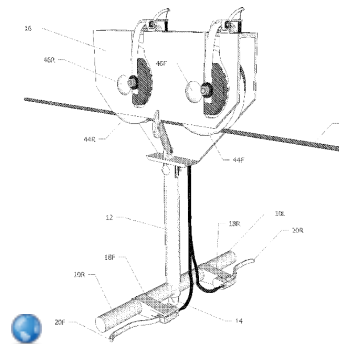
KEY ELEMENTS:

- attachment to zipline
- create friction
- * braking system

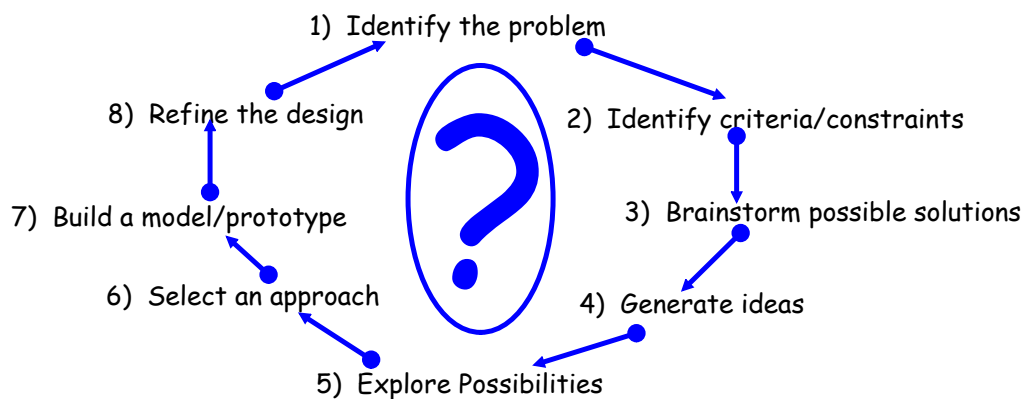


Keys to Engineering Design Process...

1) TEAMWORK & 2) DESIGN



Engineering Design Process...



- 1) State the challenge in your own words.
- 2) Specify the design requirements.
- 3) **Sketch your ideas to solve the problem.** Labels and arrows identify parts and how they move. These drawings should be quick and brief.
- 4) Develop two or three ideas more thoroughly. Create new drawings in 3D and be neat.
- 5) Share ideas among team members...discuss pros/cons and make note on your drawings.
- 6) Identify the best design to solve the problem and write a statement to justify your choice.
- 7) Construct a full size or scale model.
- 8) Evaluate the design based on criteria/constraints. Changes may be needed and identify any problems. Propose a solution by beginning at step (1) again!