

Let's Talk

STEM

with



Communicating like an engineer...

Successful engineers know how to do more than design and build things. To be an engineer you must also learn to be an expert communicator. Being an engineer means being able to describe to other people what you are building and how to build it. It also means successfully pitching your design ideas through bids and proposals to generate business.



CLASSROOM ACTIVITIES

Divide students into groups of 3 – 5 students.
Offer each group the following supplies:

- Straws (4)
- Spoon (1)
- Popsicle Sticks (8)
- Piece of Cardboard (1)
- Rubber Bands (3)
- Masking Tape

Activity #1 - Each group will be responsible for the following:

1. Build a working catapult that will launch a ping-pong ball using only the supplies given.
2. Document each stage of the build process with detailed instructions. These instructions should include a narrative and illustration for each step.

Activity #2 – Each group will be responsible for the following:

1. Each group will take turns being the presenting group. The presenting group will offer a list of detailed instructions (written/illustrated – NO TALKING) on how to recreate their design.
2. The presenting group will leave the room and take their actual design with them.
3. All remaining groups will attempt to build the same catapult using the instructions left behind.
4. The presenting group will return and compare their actual design with the designs created by other classroom groups. Through this process the presenting group should make notes outlining the differences between their design and their classmate's interpretation.
5. Groups will reconvene to make any adjustments they feel are necessary to their instructions.

*Groups can disassemble their replica designs to reuse materials (except for masking tape) to save on materials as they will go through this exercise for every group in the class.

Activity #3 - Replicate activity 2 with revised instructions

Activity #4 – Each group will be responsible for the following:

1. Create a written proposal that explains why their catapult design is the best catapult design. Proposal should include design instructions, a project budget (price out supplies + labor costs) and an analysis of their catapults productivity/output (how far can they launch their ping-pong ball consistently?).
2. Ask each group to offer a classroom presentation that goes through their written proposal and includes a live demonstration of their final product.

Based on student presentations, the teacher will select one group for “hire”.