Let’s Communicate
Lesson Plan

Amount of time Demo takes: 5 mins.
Try this at home!

Materials
- Cardboard boxes (2)
- Nameplates (2)
- Bags of Legos (2 easy, 2 medium, 2 hard, and an extra)
- Chairs (2)

Set-up Instructions
1. Place the chairs on opposite sides of a table.
2. Set the cardboard boxes on their sides with the openings facing the chairs. The students will be building inside of them.
3. Place the name cards on top of each, preferably where the crowd will be able to see inside the engineer’s box, but not the builders.
4. Have the bags sitting somewhere convenient. It might be more fun if the students cannot see them when they have to choose a difficulty level.

SAFETY!
- Keep small pieces away from especially young children.

Lesson’s Big Idea
- Communication is extremely important to succeed in life.
- Think like an engineer: Engineers must be extremely specific. Mishaps, safety concerns, repair costs, and other externalities can result from poor communication or lack of specificity.

Instructional Procedure
1. When students come up have them split up. If there are two students: one engineer, one builder. If there are four students: two engineers, two builders.
2. Tell the students to sit in the proper chairs for whichever position they decide. Standing is also okay as long as they keep their hands and designs inside their box at all times.
3. Ask the kids to pick a difficulty level (easy, medium, or hard) and hand out
the bags. One bag goes to the engineer(s) and one bag to the builder(s). The bags must be the same.

4. Lay out the rules: First, the builder cannot talk. Secondly, give the engineer approximately a minute to build something with their blocks. They do not need to use all of their pieces, but they can if they want. Third, the engineer must instruct the builder in how to replicate the engineer’s creation.
   a. When the engineer is happy with their creation, inform them that they are to give the builder instructions to create the same thing. Tell them that after the engineer is done giving instructions, the two creations should be identical.
   b. Remember -- the builder cannot talk, ask questions, etc. The burden is on the engineer to give directions and on the builder to follow them exactly. While this is not exactly the same as in the real world (where people actually do communicate) it is an amusing illustration of the importance of specificity.

5. When the engineer is done, have the students each bring their masterpieces out of the boxes and compare.

Assessment/Sample questions to ask
1. Why is communication important?
2. What was the purpose of this demo? What did you learn?
3. Are all the pieces in the right spot? Are they all the same colors?

Clean Up
- Check the six marked bags to make sure that they have the same pieces in each bag of a certain difficulty. If any pieces are missing, look for a piece in the extra bag (if one cannot be found throw out the unmatched piece).
- Put all seven bags, the cardboard boxes, and the name tags into the bin.
- Let someone know if we need more Legos!

References
- http://familyengineering.org/

Next Generation Science Standards
- K-5
- K-2-ETS1-2/3
- 3-5-ETS1-1
- 6-8
  - MS-ETS1-2