Does anyone know what engineering is? Let's come up with a class definition of what engineering is and what engineers do. Engineering is defined as *inventing and building things for the benefit of society*. So, engineers work in many different fields to create new products and improve existing products to make better the lives of people. As they are creating such products, engineers use the engineering design process to develop their ideas and inventions.

The engineering design process involves six basic steps. The idea behind the process is such that once the first design is built, the product can be further improved by restarting the process. The steps in the design process are listed below. (Write steps on the board)

Design Process Steps

1. Define: Find the need and define the problem.
2. Brainstorm: Come up with ideas.
3. Design: Select the most promising design you’ve created.
4. Create: Build a prototype of your design. What’s a prototype?? Preliminary model that can be copied or improved. Why do we use these? So we can see if they work without manufacturing 1 million defective rubber duckies (test)
5. Test: Identify if there are failure points or modifications.
6. Improve: Optimize!

Which step did I leave out? (Communication) What number should that be?

Brainstorming is a very important part of the design process. Teams of engineers work cooperatively and come up with many ideas to find the best solution to the challenge at hand. Some guidelines for brainstorming are: (Write guidelines in the chat)

* Provide only positive comments (no negative comments are allowed at this stage of the design process).
* Encourage wild ideas.
* Write all ideas down
* Stay focused on topic
* Hold only one conversation at a time
* Build on the ideas of others

Commonly in engineering, the best solution is not the most obvious, so engineers must think "outside the box." Can someone explain to the class what "thinking outside the box" means? That's right! It means thinking of a creative and perhaps unusual approach to the problem, by looking at the problem from a new angle — or tackling the problem in a new way. Engineers spend a lot of time refining and improving already existing products, so they must be open to new ideas.