### **Activity - Ideate**

**Description**

What solutions can we identify?

Work together to brainstorm potential solutions to the engineering design challenge. Focus on generating as many ideas as possible while avoiding ruling any out at this stage.

Time To Complete: 1-3 Hours

Common Core Standards

* ELA.WHST.1, 2, 4, 7, 8, 9

NGSS Assessed:

* HS-ETS1-2, 1-3

**I Can Statements**

* I can brainstorm solutions to my software challenge that:
  + Address the software challenge
  + Include sufficient detail
  + Are non-obvious, creative, or innovative
* I will know if my brainstorming is of high quality if it:
  + Addresses the software challenge
  + Includes sufficient detail
  + Includes non-obvious, creative, or innovative ideas

**Suggestions for Assessing Student Readiness to Move Forward:**

* Confer with students, asking probing questions about their brainstormed ideas to gauge how well they meet the quality criteria.
* Ask students to describe their brainstorming process and the solutions they generated, and to explain (orally or in writing) how the quality criteria for a high quality challenge are met.
* Ask students to self-evaluate their work after completing one of the activities below.

Have students “draw-storm,” using large pieces of paper or storyboard to brainstorm nonverbally.

Use de Bono’s Six Thinking Hats approach to help students explore ideas: <http://www.debonogroup.com/six_thinking_hats.php>

Have students generate and respond to randomly generated or “forced” questions: <http://jcflowers1.iweb.bsu.edu/rlo/brainstorming2.htm>

If students have been provided with limited materials to complete the design challenge, have them describe the attributes of the materials to discover non-obvious uses: <http://jcflowers1.iweb.bsu.edu/rlo/brainstorming2.htm>

Resources

Steve Jobs and his team brainstorm as they design the NeXT computer: <http://tnw.co/1Gl2tu5> (starts at the 6-minute mark)

Brainwriting, a technique for generating ideas:<http://bit.ly/1rw2YIH>