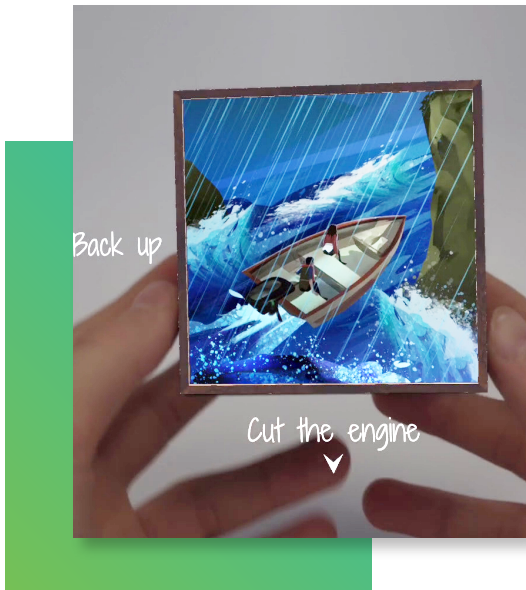


# Shipwrecked

Created by Amy Cramer

Grade

3



Difficulty **2**



35 minutes



small group

**Tags:** Science, Creative Writing, Problem Solving

**App/Tech Tools** 57° North app, MERGE Cube, MERGE Headset (optional), device (phone/tablet)

**Materials** Building materials (recycled items and/or k'nex), Paper and pencils

## Learning Objective

Engineers design solutions to problems. All people can benefit from going through the steps of the design process to solve their problems. Problem solvers first define the problem. Then, they brainstorm ideas, come up with a plan, and draw detailed sketches. They use their ideas and plans to create a model/prototype. To see if their model will work, they test it. If something goes wrong or does not work during the test, they redesign.

## Activity

1. Pass out MERGE Cubes to each student or small group.
2. Hand out MERGE VR Goggles equipped with phones or iPads to each student or small group.
3. Have students activate the "57° North" for MERGE Cube App.
4. Hand out paper and pencils to brainstorm, sketch, and plan the designs.

5. When needed, hand out recycled materials and/or k'nex to build the models.
6. Remind students that, as discussed in the past, they are all natural born, problem-solvers, and that whether they realize it or not, they naturally go through the stages of the design process each and every day to solve problems of life. Instruct them with the following steps:
  - Today you will be responsible for saving the lives of two children who encounter grave danger in a narrative presented in the 57° North app.
  - All Caleb and Sasha wanted to do was to escape the boredom of an Alaskan vacation with their family members. As the two cousins embark on a journey in the waters between the chain of islands, they encounter a storm that causes their boat to wreck, leaving them stranded on an island.
  - Use the Cube to view the first three chapters of the narrative.
  - You will be given choices along the way and should turn the cube to make those decisions as you begin to take part in the treacherous journey along with Caleb and Sasha.
7. Students view the first three chapters.
  - Not only do you need to escape the island to return to your family and life, but you find out that your life is in more danger than ever because there is a volcanic eruption likely to occur on the island.
  - You have no choice but to escape the island! Pieces of your boat are shipwrecked on the shore. Also, you have materials from Station 57 as well as any natural materials found on the land.
  - Use the materials available to you on the island to design an “escape” solution to flee the island of possible death!
8. Pass out the design process sheet/packet. As a class, discuss the defined problem, “How can I build a device/boat to escape the island?”
9. Students should brainstorm possible solutions in the space provided on the page.
10. Then, they should draw detailed sketches of their “escape solution,” and they should write a step-by-step plan of how to construct a model of their design solution, using recycled materials available to them as well as the classroom set of k'nex.
11. You will check the brainstorming to ascertain that the learners are on the right track.

12. Students will create a model/prototype of their escape device once the teacher has checked their brainstorming/plan.
13. Learners will have an opportunity to test their solution in a large bin of water.
14. If students encounter problems, they will redesign their escape devices/boats, fixing the problems along the way.
15. Students will present their models to the class.
16. Students will answer a series of reflection questions including the following:
  - a. What went well when building your model?
  - b. What did not go well when building your model?
  - c. What changes did you have to make to your plan to successfully construct a model?
  - d. What changes would you make if you had the chance to redesign and rebuild a model?
17. Students will be graded on the process, not on the end result! If they go through the steps of the engineering design process, they will be awarded the corresponding points.

