You and your team just finished your engineering degree in college. You see the following ad online and your team decides to take the job.

Engineering Team Needed to plan and build a strong bridge across our local river to carry heavy truckloads of people and equipment for our *Fortnite*® battles. Must be able to work within materials and time constraints. Deadline for completion is Oct. 1.

**ASK:** How can we...?

- **Our constraints are:** Time (Due by Oct. 1); Materials (no more than 200 popsicle sticks, 5 glue sticks, 5 clothes pin clips (for clamping) and rubber bands (for clamping)); Capacity: bridge must safely allow at least one “large truck” (a dictionary) over a 25 cm “river” for 30 seconds without failure.

**IMAGINE:** What’s the biggest or most amazing bridge you have ever seen (in person or in a movie)? Draw or sketch a bridge you think might work to help your engineering team get the job described above.

**PLAN:** (Part 1): Research- take notes and draw sketches in your Engineering Notebook. Work together to find ideas for these questions:

- What are the four main types of bridges? What’s the difference in them? How are they used to meet different needs?
- How can you make a strong popsicle bridge?
- What bridge designs have other engineers used successfully to make popsicle stick bridges?
After your team watches the videos and we talk about the slides together in class, check out the links below.

- www.garrettsbridges.com
- https://www.instructables.com/id/Popsicle-Stick-Bridge/
- Other resources online listed on our class website.

In your notebook, list (draw or write) at least three (3) ideas your team comes up with to deal with the constraints and achieve the goal.

[ ] PLAN (Part 2): List each member of your team and what they researched in Part 1 of Planning.

Engineer #1: ______________ learned about:

________________________________________________________________________

Engineer #2: ______________ learned about:

________________________________________________________________________

Engineer #3: ______________ learned about:

________________________________________________________________________

Engineer #4: ______________ learned about:

________________________________________________________________________

Engineer #5: ______________ learned about:

________________________________________________________________________

[ ] PLAN (Part 3): List out the steps you will do when you get your materials. Be specific. Write them on a separate page in your notes.

[ ] PLAN (Part 4) Make a full-size blueprint of your team’s bridge design.
[ ] **MAKE:** Follow your blueprint and make your bridge.
   [ ] Take at least three photos as you build it.
   [ ] Take one picture of your finished bridge and your team.
   [ ] Test your bridge. How many “trucks” can it hold?

[ ] **IMPROVE:** In your Engineering Notebook, make a list of at least three things you would do differently next time. Include a sketch if you wish.

[ ] **SHARE:**

   [ ] Participate with your team in our Bridge Testing Event.
   [ ] Pick one of your photos for publication.
   [ ] Write about your team’s experience of building this bridge.

     Answer at least three of these questions using Standard Written English. You may write it or type it up. Put it into your Notebooks.

     - What did you enjoy most about this challenge?
     - What surprised you about this challenge?
     - What did you learn about bridges?
     - What did you learn about engineering?
     - What did you learn about working as a team?

[ ] **What is your team’s preference for publishing?**

   ( ) Sota Iya Ye Yapi (tribal newspaper)
   ( ) Bulletin board in hallway
   ( ) Facebook and Instagram

   [https://www.instagram.com/kagapi_oyanke/](https://www.instagram.com/kagapi_oyanke)
   [https://www.facebook.com/KagapiOyanke](https://www.facebook.com/KagapiOyanke)
   ( ) Tribal TV station interview
Grading:

1. Think about your own work on this team. Based on what you did for your team, what grade did you earn? ___ because I _____________________________________________________

2. Think about your entire team’s work together. Talk with them and together, decide what the entire team earned. Also decide how to complete the following sentence. Each person should write the same response after you agree with each other on it.

   As a team we earned _____ because we _____________________________________________________

3. In your opinion, what was the best part of this project?

4. In your opinion, what was the hardest or most challenging part of this project?

5. In your opinion, should we do this type of project with next year’s students? Why or why not?