

Water Holder

An engineering design challenge

Materials Needed

One sheet of 8 ½ x 11 paper, timer, paper for notes and design ideas, pen or pencil

Procedure

Using one sheet of 8 ½ x 11 paper (e.g., printer paper, notebook paper), design and construct a container that can hold water without leaking for at least 10 seconds. You have 15 minutes to work and test your container. You will need to show your classmates your construction, and official timing will take place with the group.

Teacher Notes

- We are purposely not defining the container. You might use the word “cup” if you think your students need this structure, or leave it more open-ended, as “container.”
- Instruct students on quantity of water to use.
- Determine the testing details and share with class.
- Once a container is wet, it may not work as well for subsequent testing. Address this before students are sent off to work—or not?
- Suggest a design process for the class to use, one is suggested below, perhaps you have already introduced a similar process.

Engineering Design Process

1. consider the problem
2. follow the constraints
3. sketch out some ideas, draw a design
4. construct a prototype
5. test
6. redesign
7. test
8. review steps 1 & 2 to make sure your prototype addresses the problem and meets constraints
9. repeat steps 3-7 as needed, and time permits
10. communicate results to group

Resources

<http://teachers.egfi-k12.org/lesson-paper-cup-challenge/>
<https://www.ocstem.org/wp-content/uploads/Paper-Cup-Challenge-Lesson-Plan-Beginner.pdf>