New Jersey Institute of Technology

Digital Commons @ NJIT

Spring 4-15-2023

Building Structures

Admin STEM for Success
NJIT CSLA, clear@njit.edu

Follow this and additional works at: https://digitalcommons.njit.edu/stemshowcase

Part of the Education Commons, and the Engineering Commons

Name of activity: Building structures for protection

Age/Grade range: Any

STEM discipline(s):
- Based on problem solving, key aspect of STEM
- architecture / engineering based

What topic does this activity relate to?
- Building

Pre-activity / Pre-work (what students should know or prepare before doing engaging in this activity; what teachers need to prepare before leading the activity)**:**

What should the students learn by the end of this activity?
- Girls were given a problem that required them to assess their materials and creatively create a solution, they should be able to use their given materials to create a safe and sound structure, learning how to use limited materials in creative ways to address a problem

Tools/supplies needed (indicate quantity and if it needs to be bought + price range):
- Paper (for planning)
- Toothpicks and candy pumpkins (building materials)

Total price (indicate per class or per student):
- mellowcreme pumpkins (1 lb bag) → $8.99
- Toothpicks (360 pack) → $5
- Paper → use from school

<u>Step-by-step instructions on how to conduct the activity (attach link if found online and make note of modifications for your class here): (Include e.g., size of groups, images of materials or people doing the activity that might help the reader lead the activity, helpful supporting materials)</u>

- Propose the problem to the girls at a level that they can understand (farmer that needs help)
- Made sure the girls restated the problem, and had them plan out their solutions
- Have girls work in groups to encourage collaboration, and have them work through their struggles together

During activity:

<u>Number of students present:</u>

<u>What modifications had to be made to the lesson plans and why (if any)?</u>

<u>Provide feedback: teacher observations, specific student feedback, work products:</u>
The girls worked cooperatively in small groups to build their towers. They recorded the problem, possible tower solutions that included words and drawings. They were highly engaged and worked through the task as a team. When they shared the groups that were successful, they shared their ideas and the groups that had difficulty brainstormed ideas about future planning.

Post-activity (reflection):

<u>What aspects of the activity worked well?</u>
- Overall success, girls were highly engaged and were able to complete the task as a team
- Mellocreme candy corn pumpkins worked , were string, provided necessary strength and structure

<u>What can be improved on?</u>
- Could try experiment again using jelly or gummy pumpkins next time to provide a harder challenge

<u>What suggestions do you have to adjust the lesson for different purposes or populations?</u>

If money was spent on tools/supplies, in your opinion, was the investment worth it?

Provide thoughts on alternative materials, steps or other modifications that might be worthwhile for others to consider.

Additional notes: