



Image credit: Nasco.ca

Pasta Cantilever Competition

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Question

Who can build the longest cantilever?

Grade/Subject

Grade Five Science, Grade Six Science, Physical Science.
Virginia Standards of Learning: 5.1, 6.1, PS.1, PS.10.

21st Century Curriculum

Engineering: Design and Build 2.23, 2.24; Civil Engineering 4.41, 4.43, 4.45.

Background

Cantilever arms are architectural elements that project outwards from their supporting post. They are only supported on one side, and look like diving boards. They are used in cantilever bridges to support a suspended span.

This activity is designed to get students to think about how a cantilever works and how to build one that can reach the farthest without touching the floor. It is also designed to get students to work in teams to problem solve different structural strategies.

Safety

Remember to follow your regular classroom rules for labs and activities.

Materials

- Small package of spaghetti
- Roll of masking tape
- Table
- Meter stick

Procedure

1. Construct a cantilevered structure that:
 - extends as far from the table as possible without touching the floor,
 - is only attached to the top of the table,
 - is made entirely of spaghetti and masking tape!
2. Measure the length of the cantilever from the edge of the table to the

end of the spaghetti structure and record your results.

**Data Analysis/
Results**

Lengths of cantilevers may be recorded in a class data chart. Prizes may be awarded to the first, second, and third place winning teams.

**Conclusion /
Questions**

Direct student teams to share their strategies for building their cantilevers. Discuss why different designs were successful or not. Ask students what are the advantages and disadvantages of cantilever design structures. Have students share examples of cantilevers they have observed in their homes and in local buildings or other such structures and what specific problem the cantilever design solved. Conclude the activity by having students brainstorm on the topic of potential new uses for a cantilever design.

References

Explore these other sites for even more activities to learn about cantilevers:

www.richmangalleries.com/cantilever_bridges.htm

<http://www.weirdrichard.com/activities7.html>

<http://www.exploratorium.edu/structures/strawspins4.html>

<http://pbskids.org/zoom/activities/sci/cantilever.html>

http://www.pbs.org/wgbh/buildingbig/educator/act_mini_cantilever.html

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Information on educational programs available to students, teachers and school divisions and procedures for registering for programs.

<http://msinnovation.info>