STEM in the Outdoor Classroom and School Garden

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NSTA STEM Forum & Expo
July 27, 2020
Crazy for Tomatoes

A STEM lesson for designing supports for tomato plants for students in PreK - 2
by Nancy Tate
Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to help it solve a given problem.
Before You Begin:

- Plan a visit to the garden to observe a real tomato plant. Students may have a garden at home, you may have one at school, or find photos of tomato plants on the web.
- Read a book about growing and caring for tomato plants.
- Show a real tomato cage, either “live” or photos of cages. Ask questions to guide students to discover how the cage supports the growing plant.
- Use laptops/tablets to show various kinds of tomato plants; different sizes, shapes and colors, and how they grow.
- This would be an opportunity for a parent, grandparent, or other enthusiastic gardener to come for a visit, to share tips with the class for growing and caring for tomato plants, *once social distancing limitations are dismissed.*
Build a Structure to support Tomato Plants!

Materials for student pairs, or each student:

(Perhaps by Spring 2021, it can be groups of 3-4.)

- 10 craft sticks or real sticks
- One yard of string
- 10 total pipe stems
- Recycled paper
- 4 total cardboard tubes, long and short
- Ruler or measuring tape, or string used to measure
- scissors
Instructions

- This STEM challenge may be completed individually or in pairs, IF social distancing guidelines can be followed. One student could be the builder and the second the project manager.
- Students use only the materials provided with no constraints on paper.
- Guide students to plan individually for 10 minutes, then with a partner if using one, for an additional 10 minutes. Students use the planning page included.
- Students predict the success of the challenge.
- Give students 20 to 30 minutes to build, adjusting this time as needed.
- Allow students to test their plant support as they build.
- At the end of the time limit students present and demonstrate their structure.
- Students sketch and measure the finished structure.
Crazy for Tomatoes: Build a Structure to support Tomato Plants!

Garden Engineering by
Problem: How can you build a structure to hold up the tomatoes? Materials to use include: sticks, string, pipe stems, paper, cardboard tubes

Plan your idea:
Prediction: I predict

Procedure:

1. Plan how you will build the tomato structure with a sketch.
2. Get your materials. Begin to build.
3. As you build, test your structure at the tomato plant. Does it hold up branches?
4. Make changes if needed.
5. Sketch your finished tomato structure.
6. Count! How tall is your structure? Use a ruler or measuring tape.
Reflection

What other materials could be used to build the tomato structure?

How tall was your structure?

What worked well?

What was challenging?

What changes would you make next time?

Please sketch your finished tomato structure on the back of this page.
Resources for STEM in the Outdoor Classroom and School Garden

Check with the Cooperative Extension of your local university. They have great resources for school gardens, from soil testing to Master Gardener Volunteer Educator programs.

Welcome to KidsGardening.org! - KidsGardening

School garden ideas

Cornell Lab Bird Academy Lessons and Activities

DIY Nature Journal with 70 FREE printable activities!

Jr. Master Gardener