

SUMMER STEM ACTIVITIES

from PLTW's 2016 Teachers of the Year

1 Design and build a car out of cardboard. Families can park their cars in the living room and enjoy a family night watching a movie in their own drive-in!

2 Design an arcade game! Get some inspiration from a nine-year-old boy named Caine who created his very own cardboard arcade. <http://cainesarcade.com>

3 Take a field trip to your local wastewater plant or water treatment facility. Typically, tours are free but need to be scheduled in advance. This is a great way for the entire family to learn about city infrastructure, water management processes, and what we can do to help conserve water and properly care for our water resources.

4 Visit a local science museum or STEM-based museum. Most have daily activities and lots of hands-on displays as well as an I-MAX theater.

5 Make an inventor's box! Fill a box with common household items: boxes, cardboard tubes, empty butter tubs, glue, paper clips, string, construction paper, etc. Kids can use their imagination and natural curiosity to design and build all summer long. A couple of rules: if it's in the box, use it. If you need something not in the box, ask for permission. One fun activity for the tinker box is to design a boat that can hold 10 to 20 pennies and then try to float it in the sink, bathtub, or small pool.

6 Design your own toothbrush. What do you wish could be better about your current toothbrush? What issues do you see with it? Design a better version and test it. Record the steps you took to identify the problem, design a new toothbrush, and your final observations in a notebook.

7 **Robot Virtual Worlds** – Expedition Atlantis! Download this fun activity to learn how to code, incorporate math skills, and expand on your proportional reasoning skills.

8 Books are great ways to learn more about STEM and find your inner inventor. Here are a few recommendations:

- a. *The Most Magnificent Thing* by Ashley Spires
- b. *What Do You Do With an Idea?* by Kobi Yamada
- c. *Rosie Revere, Engineer* by Andrea Beaty

9 Watch the **TED Talk from Debbie Sterling**, inventor and CEO of GoldieBlox, about her journey as a female engineer and her quest to inspire young girls to pursue engineering.

10 Try your hand at the various tutorials on the **MIT AppInventor** website. Basic tutorials are great to start, and once you have a basic understanding, try the **QuizMe** tutorial to better understand the concept of List and how to use indexes to iterate through them.

