Graysville Elementary School - Title I presents:

Family S.T.E.M. Challenge at Home
March 23 - 27, 2020

Challenge 4 - Bridge Builders

Materials Needed:
- 5 or more sheets of construction paper
- 2 thick books of equal size
- ruler
- 50 pennies or more
- Scotch tape

Instructions:
1. Place the two books 10 inches apart.
2. Lay a piece of construction flat across the two books, creating a "bridge". Note how the paper sags under its own weight. It can not even support a single coin.

3. Brainstorm ways to create a bridge capable of holding up the weight of as many coins as possible
4. Begin constructing your bridge. You may use two pieces of tape on the paper to secure your design, however you may not tape the paper to the books.
5. Begin by placing one penny on one end of your bridge. Add pennies across the bridge to simulate more people crossing.
6. If you make it across, begin stacking additional pennies at the start and working across. Keep a total of how many pennies you are able to add.
7. Record your finding in this [Google Form](#) (click the link)
8. What changes could you make to your bridge to increase its strength? For example:
   a. A different shape?
   b. Folding the paper more times?
9. Take a photo of your student with their bridge and send it to mwatson.ges@catoosa.k12.ga.us

Video Link for extra information: https://www.youtube.com/watch?v=CgYGVW2Eu6Y

S.T.E.M. Take Away
The Bridge Builder challenge has students develop a simple, physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Standards Applied:
- **K-2nd:** *S2P1.b Obtain, evaluate, and communicate information about the properties of matter and changes that occur in objects. Construct an explanation for how structures made from small pieces*

(linking cubes, building blocks) can be disassembled and then rearranged to make new and different structures.

- **3rd-5th:** *S4P3.b. Construct an argument to support the claim that gravitational force affects the motion of an object.*