

Graysville Elementary School - Title I

Family S.T.E.M. Challenge at Home

March 23 - 27, 2020

Challenge 1 - Hoop Glider



Materials Needed:

- Straws
- Index card or cardstock
- Tape
- Ruler or Measuring Tape

Instructions:

1. Cut the index card or cardstock into 3 separate pieces that measure 1 inch by 5 inches
2. Take 2 of the pieces of paper and tape them together into a hoop as shown. Be sure to overlap the pieces by about half an inch so that they keep a nice round shape when taped
3. Use the last strip of paper to make a smaller hoop, overlapping the edges a bit like before
4. Tape the paper loops to the ends of the straw, keeping the straw inside of the loops
5. Test your Hoop Glider
6. Measure how far your glider can fly
7. Record your finding in this [Google Form](#) (click the link)
 - a. K-2nd - find something else to measure your distance. (ex. The glider flew 12 Barbies)
 - b. 3rd-5th - convert your measurement from standard to metric
8. What changes could you make to your glider to increase its flight length?
 - a. Move the hoops in or out along the straw
 - b. Make the rings smaller or larger
9. Take a photo of your student with their Glider and send it to mwatson.ges@catoosa.k12.ga.us

Video Link for extra information: <https://www.youtube.com/watch?v=InoRZc77XOA&t=6s>

S.T.E.M. Take Away

Hoop Gliders illustrate the **4 Forces of Flight**. The curved surfaces on top generate **lift**, the large hoop creates **drag**, your arm provides **thrust**, and gravity pulls the glider to the ground (**weight**). It doesn't turn over since objects of different weight generally fall at the same speed.

Standards Applied:

- **K-2nd:** MGSE2.MD.1 Measure the length/distance by selecting and using appropriate tools such as rulers, yardstick, meter sticks, and measuring tapes.
- **3rd-5th:** MGSE5.MD1. Convert among different-sized measurement units (length) within a given measurement system.