

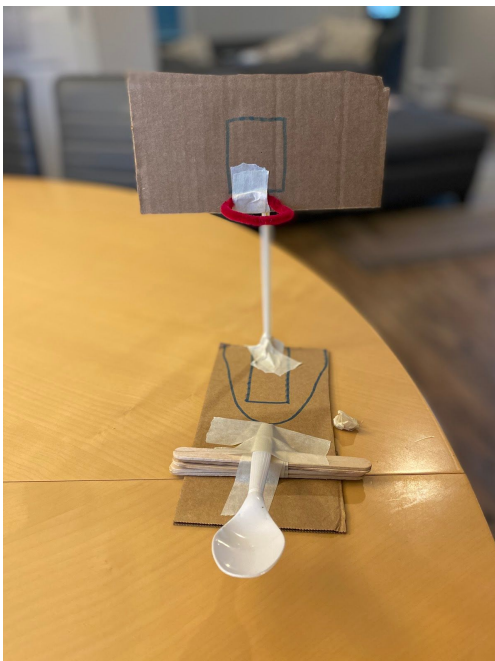
March Madness STEAM Basketball

WHAT ARE WE INVESTIGATING?

Can you design a basketball goal and free shooter? How many baskets can you make in a minute?

MATERIALS:

- Cardboard
- Toilet Paper Rolls
- Paper Towel Rolls
- Tape
- Scissors
- Straws
- Paper
- Popsicle Sticks
- Paper Plates
- Legos
- Pipe Cleaners
- Ball to fit through your hoop
- Strive Academy's Engineering Design Process Handout (found at www.striveacademy.org)
- Pencil or Pen



EXTENSION:

- * Add in some math constraints...
 - the bottom of the backboard must be 6-8 inches above the table
 - the catapult to shoot the ball must have a specific angle
- * Make it a family March Madness competition - you can even make brackets!
- * Check out this video about Lonzo Ball's shot!
<https://www.youtube.com/watch?v=0CNxoTKvG20>

March Madness STEAM Basketball

DIRECTIONS:

1. Choose the materials that you want to use to build your structure. Our materials are just suggestions - feel free to add other things too!
2. On your handout (found at www.striveacademy.org), fill in the title of your experiment (March Madness STEAM Basketball).
3. On your handout, fill in your hypothesis. You want to answer the question: How many baskets can you make in a minute?
4. On your handout, draw a picture to design your structure. There are 2 parts to what you will build - a throwing device (catapult) and a goal/net. Sketch out what you want both your throwing device and your goal/net to look like. Feel free to use crayons/markers to add some color to your picture!
5. Build your throwing device and your goal/net using your materials. As you are building, you will want to be testing. For example, you will want to test your throwing device and see how high/far it shoots to help determine how high to build your goal/net.
6. Once your throwing device and your goal/net are complete, on your handout under "Data Collection/Observations", draw a picture of what your finished ramp looks like.
7. Using your throwing device (catapult), shoot some baskets and make adjustments as needed.
8. Once you have practiced a few times, use your timer to measure how many baskets you can make in one minute. Under "Results", record the number of baskets.
9. Repeat Step 8 three more times.
10. Answer the "analysis" questions on your handout:
 - Find the average number of baskets that you made. Add up all 4 of your basket trials. Then divide that number by 4. Record this under "results".
 - What adjustments did you have to make while doing this activity?
 - What seemed to have the biggest effect on your baskets? The force that you used or the angle of your throwing device?
 - Does it work better if your goal/net is closer or farther away from your throwing device? Why do you think this is so?

**** Try the extension activities on the first page for more fun! ****