Columbia STEM Alliance
Design Challenge: Litter Catcher

Registration Deadline: February 12th 5:00pm
Submission Deadline: February 19th 5:00pm

Litter can have a negative impact on both land and water-dwelling wildlife. Animals can ingest inedible materials, such as plastic packaging and cigarette butts. They come away with a better understanding of how littering impacts our local community! Even the smallest of people can make the biggest impact. The volume of garbage in our rivers, lakes, and oceans has become a global crisis. Stormwater carries litter from roads, parks, and sidewalks into streams where it can break down and harm critical habitats. **What if we were able to catch the litter BEFORE it made it to our waterways?**

Our Litter Design Challenge invites students to design a litter catcher that will prevent various types of litter from entering the water system. We ask participants to use the engineering design process to plan, design, build, test, and improve your solution to this problem. Participants will be asked to submit a set of plans for your device and a short video showing how it works.

You can learn more about litter by going to **https://sites.google.com/como.gov/sustain-edu-litter-stem/home**. Here you will find research related to litter that can help inspire your litter catcher design.

The contest is free and open to students in Kindergarten through 8th grade. Students will be divided into one of three groups based on age: K-2nd grade, 3rd - 5th grade, and 6th - 8th grade. Please read the rules and guidelines below to ensure your device plans and video meet all necessary requirements for submission.

Contest Rules and Guidelines:

- **You must register (for the contest) by Friday, Feb. 12th.**
- An online submission form must be submitted by going to https://forms.gle/PabYT4KRcguFhahEA
- Entries must be received by STEM Alliance by midnight on **Friday, February 19th**
- **Device Plan Requirements:** Each participant will be asked to submit a set of plans for their device . This should consist of a set of drawings showing your litter catcher from either a “3 view” (top, front and right side) or as a “sketch/freehand drawing”. Be sure to label the different parts you use.

- **Device Implementation Video:** All participants will be asked to submit a short (2-3 minutes or less) video of your device in action. We ask that you include the following components in your video:
    - Identity the problem you are solving with your device
    - Explain what design options you tried and why you settled on your final design
    - Explain the process you used to design your device
    - Show and explain how the device works
- **Only original work will be accepted.**

How to submit:

- Upload your video to youtube and submit the link to the video on our submission form.
- Upload your video directly when you complete the submission form

Mailing address:

Attn: Craig Adams - Columbia STEM Alliance
5640 Waterfront Dr.
Columbia, Missouri 65202

Judging criteria:

Rubric Here

Winners:

Winning entries will be awarded using the criteria above. Prizes are outlined below:

- Grand Prize – BEST OVERALL DESIGN – (1 winner) $25 Gift Card
- First Prize – Best use of recycled materials. (2 winners) $20 Gift Card
- Second Prize – (3 winners) $15 Gift Card
- Third Prize – – (3 winners) $10 Gift Card

All work submitted for the contest may be used for educational purposes and will become the property of the Office of Sustainability and Columbia STEM Alliance.

Checklist to think through before submitting your work:

- Submit registration information by **Friday, February 12th at 5:00pm**

- Contact us at Craigadams1965@gmail.com for any materials if needed
- Design your device
- Create a device plan that shows either a “3 view” image or a sketch of your device with labels
- Create your explanation video
- Only original work will be accepted
- Submit final artwork by **Friday, February 19th at 5:00pm**