

What if...

... you had time to collaborate with colleagues and community partners to set up a real-world challenge for your students to help them develop computational thinking skills?

... you had help to line up the people you want students to meet, figure out how to make it work, and make the connections to curriculum standards?

... you had help not just in the planning phase but as your students are engaged in the work and as you think about what you'd want to tweak for next time?

Now you do

Northwestern Mutual has funded an effort to help MPS middle school teachers create and pilot collaborative real-world projects within their classrooms that provide opportunities to build computational thinking skills. Through Learn Deep's STEM Studio, teams of teachers will work together with district staff and community partners to design and pilot these projects.

Lead the way

You can be part of the STEM Studio's inaugural cohort. We're looking for eight teachers who have been itching to engage their students in real-world problem solving. These teachers will undertake a collaborative design process with community partners who bring domain and technical expertise to flesh out project details and timing to pilot a project before the end of the school year.



Time Commitment

Design

Learn Deep will lead three two-hour sessions to be held at a central location at the end of the school day during February and early March. Participants will include MPS teacher teams,

community partners that can provide domain and technical expertise, and MPS district curriculum staff.

- Session 1: Project goals, scope, activities/student deliverables
- Session 2: Collaboration with community partners-- who, where, when, how
- Session 3: Implementation plan

Implementation

- ½ hour weekly check in call over the course of the project
- At least 1 in-person visit from Learn Deep during class time

Review

- 2 hour debrief session - what worked, what would you change, what would other teachers need to know or have in place to run the project?

Potential Projects

This semester we're focused on projects that align with MPS's environmental science/human impact units.

Adopt a Storm Drain

Sweetwater, a Milwaukee nonprofit concerned with water quality issues, is working to reduce the amount of waste material that is washed down storm drains. **Challenge: model and design a device that uses wireless sensors to detect when waste is present at a storm drain.**

Cistern Sensors

Reflo, a Milwaukee nonprofit that supports green infrastructure improvements at area schools installs cisterns to collect stormwater runoff. **Challenge: Model and design a system of sensors that can be used to monitor how a cistern performs.**

Greenhouse Sensors

A number of schools have greenhouses and aquaponics systems. **Challenge: Model and design a system of sensors that can be used to monitor the conditions within the greenhouse and/or aquaponics system.**

Artful Capstone

A number of schools have green infrastructure elements (bioswales, rain gardens, rain barrels, permeable paving etc.) installed. **Challenge: Model how an infrastructure element performs**

and use the algorithms embedded within the model or data produced from it to create a visual piece of art that explains how the system functions.

Design a Water Sampling Device

Key to evaluating how green infrastructure performs is to understand what is carried in the the water that might flow into or out of the infrastructure element. **Challenge: Design a device that can collect water samples a three points in time during a rain storm-- within the first minute, after 20 minutes, after the rain has stopped**

Olla Pots

Olla pots can be used as a low maintenance watering system for raised bed gardens.

Challenge: Identify the variables that impact the performance of olla pots; design and model an olla pot system that could be used within a school or community garden.

Interested?

If you'd like to get involved with one of these projects or have another idea that we ought to consider, contact Rochelle Sandrin, MPS Science Curriculum Specialist, by Friday February 28th.

Contacts

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