Kickin’ Grass

Matthew Switzer

6th grade self-contained elementary classroom: Science

Aldrich Elementary School, Cedar Falls, IA

2021 extern at UNI Tallgrass Prairie Center, Cedar Falls

Part I: Overview of Workplace

The University of Northern Iowa Tallgrass Prairie Center maintains and cultivates native Iowa prairie seed to use with Iowa Roadside Vegetation Management, natural prairie preserves, and farms looking to add the benefits from prairie plantings. The Tallgrass center also has undergraduate and graduate research teams looking at effective seed mixes and impact of prairie on Monarch Butterfly populations.

Part II: Workplace Focus

The Tallgrass Center is responsible for:

-Plant materials: The Plant Materials Director cultivates native prairie plants on site from seed to bloom.

- Seed Mixes: The director also develops seed mixes appropriate for specific zones around the state to send to prairie plantings.

- Funding: The center works with national and local agencies to fund the center and assist the public in using native prairie plantings.

- Education: Directors lead educational tours and support for teachers and farmers when it comes to the benefits and logistics of a native prairie.

- Research: Graduate research teams collect and publish data over prairie planting benefits, seed mixes, impact on the environment, and pollinators.

- Iowa Roadside Vegetation Management: Iowa Roadside Vegetation Management is a state and federally funded program designed to seed native prairie plants along state roadways

Part III: Introduce the Problem

The courtyard at Aldrich Elementary school lacks a cohesive vision or design for learning. Design a mutually beneficial (people and plants/ecosystem) learning space in the courtyard at Aldrich elementary.

How can we create a learning space in the courtyard that benefits learners AND the environment?

Students will innovate design elements in the courtyard to create a learning space that respects and appreciates the native Iowa prairie, and also allows for students to maintain and learn about plant biology.

Part IV: Standards, Driving and Essential Questions

MS-LS-1-5- Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

MS-LS-1-6- Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

MS-LS-2-1-Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

Driving questions: How can we utilize the courtyard to make an inviting learning space AND respect the native prairie?

- How do plants use resources to grow?
- How do plants compete for resources?
- What are the impacts of humans on the environment, and vice-versa?

Part V: Extern Host Role

Laura Walter- Plant Materials Program Manager Tallgrass Prairie Center

Expert role: talking about prairie plants, growing from seed, cells and photosynthesis. Giving advice on experiments and tracking data

Jason Lang- CFHS AP Environmental teacher. HS students will assist elementary students with setting up experiments and tracking data, field work, and plant biology.

Kenton Swartley- CF CAPS Engineering Instructor. Engage the CAPS Engineering associates to assist in engineering and building innovations for the courtyard. Associates can also assist in developing plans, building prototypes, and engaging students in planning.

Megan Droste- CF CAPS Education Instructor. Education associates can hear proposals and give initial feedback, while also helping elementary students with soft-skills, which may include handshakes, eye contact, speaking with confidence, collaborative work, etc.

Part VI: Student Learning

Students would have a choice in the way they want to engage with the problem: Improving the courtyard space would include learning about natural spaces and biology, but also engage students with design elements and construction.
Students also have a voice in pitching their ideas to stakeholders, CAPS associates, and experts in detailing their innovations. The problem presented to students demands on open-ended response with a number of elements which students could engage with.
Revision of ideas is an important step in innovating, and students will have a number of opportunities to pitch ideas and innovations to a number of stakeholder groups. Initial pitches would be made within the classroom and collaborative teams are established; other pitches would happen with CAPS associates to refine ideas and presentation skills.
The final reflection would happen after students have completed a model or prototype of their innovation or innovative process.