FIELD SCHOOL INNOVATION CENTER
GRANT PROPOSAL

Field School Principal Dan Green, in collaboration with a team of faculty and administrators, recently submitted a $45,000 grant proposal for a Field School Innovation Center which would enhance teaching and learning at all three elementary schools. This grant is currently in the approval process.

Description of Project and Purpose:

The proposed grant seeks funding to create a Field School Innovation Center. This center will support Weston Public School's new vision statement, which emphasizes the need for "innovative instruction" and technologies that foster 21st century skills. Much like the iLab at Country School and Hatch at Woodland, a Field Innovation Center will provide formal and informal opportunities for students to design, create, and innovate. For example, students might use 3D printers to develop a visual to augment a science project or utilize a Cricut cutter to develop a compelling art piece or history project. Whether utilizing the space as part of a standards-based activity or in a club, students will engage in the design thinking process. Design thinking is a key science and engineering practice emphasized throughout Weston's K-5 curriculum. The design thinking process pushes students to identify problems, collaboratively brainstorm solutions, build prototypes, receive feedback on work from peers, and make adjustments (sometimes several times) accordingly. Students will create, innovate, and experience joy while applying design thinking in a vibrant Field Innovation Center full of tools, technology, and supportive adults.

Specific goal(s) of project, and expected outcome(s) when the project is completed:

The goal of the proposed project is to create a maker space called the Field School Innovation Center. Sheridan et al. (2014) define maker spaces as "sites for creative production in art, science, and engineering where people of all ages blend digital and physical technologies to explore ideas, learn technical skills, and create new products" (p. 505). Research suggests that teachers can include maker spaces in their efforts to teach the 21st century skills required for success in the global economy. Specifically, anecdotal and empirical evidence reveals that maker spaces promote technology use (Sheridan et al., 2014), peer collaboration (Papavlasopoulou, Giannakos & Jaccheri, 2017), creative problem solving (Moorefield-Lang, 2015), and student risk taking (Oliver, 2016).

The Field Innovation Center will be housed in a large classroom at the end of the 5th grade hallway. The proposed space will include 3D printers, Cricut and laser cutters, coding equipment (e.g., Microbits and Spheros), iPads, tools, tables for students to work on, basic construction

materials needed for prototyping, etc. Field students will be able to access and benefit from the space in the following ways:

1) Curricular Connections: Every class will use the Field Innovation Center to complete projects assigned in the areas of science, social studies, art, math, etc. These assignments will be built into the existing curriculum and developed by curriculum specialists (see examples below in curriculum section). A master schedule will be created at the beginning of the year to track when each class is assigned to the space. Depending on the project, a class may sign up for an hour or even a half-day (e.g., if students are required to use all stages of the design thinking process). Classes may also use coding equipment in fulfillment of our science and engineering standards.

2) Before and After School Clubs: The Field Innovation Center will also be used to increase our before and after school club offerings. At the current time, there is high demand for our WeDo Coding Club, which meets in the library. We would like to offer additional coding opportunities in the proposed space while also establishing new clubs devoted to construction, design, innovation, and robotics. Existing clubs will also have access to the Field Innovation Center. For example, our Student Green Leadership Club could use the space to develop prototypes for solar paneled vehicles. Our Field Student Council could use the center to produce marketing materials or hatch a plan for upcoming community service drives.

3) Expanded Library and Media Literacy Course: At the current time, every student at Field School meets in the library for 30 minutes a week. This time is used for a variety of literacy related activities (reading, finding books, and learning about library/media literacy). Our hope is that some of this built-in time can be devoted to the Field Innovation Space, where students (with their classes) can code, learn about technology, and work on innovation projects.

4) Whole School Design Challenges: This year, Field kicked off the school year with a school-wide design challenge. Each class was tasked with using the design thinking process to repurpose plastic bags into something useful to people. Students collaborated with one another to produce some innovative products, which we celebrated at an outdoor, whole school assembly. This experience was so successful and positive that we've decided to make it an annual tradition at the start of each year. A Field Innovation Center can support future design challenges, as it is a space where students can plan and create prototypes related to whatever the challenge may be.

5) Community Opportunities: We also hope to use the Field Innovation Center as a place where students, parents, and school staff can build and/or code together. We envision PTO events at night where parents and Field students, with guidance from staff, can innovate together. For example, students/parents could be given an hour with resources in the space to construct a new toy concept or invent a solution to a problem students experience at school. These experiences will further connect families to Field School by providing a space for learning and collaboration.

In summary, the Field Innovation Center will provide authentic and joyful learning opportunities for students. The space will be leveraged to enhance our existing curriculum while also adding more opportunities for students (and families) to code, learn about technology, and use design thinking to innovate.

Description of how the project will enhance or enrich the curriculum:

We believe that the Field Innovation Center will foster an innovative mindset that will carry over into all academic subjects and curricular areas. We don't want students to view the space as their only opportunity to take risks, create, and collaborate with peers. Rather, the Field Innovation Center will enhance student curiosity and authentic, hands-on learning in support of teaching and learning already happening across the school.

The 4/5 science curriculum is one subject area that will be augmented by the Field Innovation Center. For example, 5th grade students learning about Earth and its relationship to the Sun can demonstrate the relationship between size and distance using coding robots or create a sundial to measure shadows using a 3D printer. 5th grade scientists can also demonstrate their understanding of interdependence and watersheds by designing a rotating composter using the Lego Education SPIKE and BricQ. After learning about invasive plants and using design thinking to conceive of solutions, 4th grade students might use 3D printers to create their own invasive structures to combat overachiever plants.

The Field innovation Center will also breathe life and authenticity into the social studies curriculum. 5th grade historians will learn how to code robots to mark trade routes across maps of the United States. As students learn about the geography and history of different states, they can create a tour with a robot, use green screens to create commercials promoting the natural resources found in a region, and use 3D printers and Cricut cutters to construct sophisticated advertisements enticing visitors to a selected region. We believe that the Field Innovation Center can be used by students to create similarly creative hands-on projects in art, math, ELA, and Spanish classes.

Method of evaluating success of project:

One key method of evaluating the success of this project will be to measure the extent to which the Field Innovation Center is used by students and staff. As mentioned, we will set up an annual calendar which will track when classes, individual students, clubs, student leadership groups, and school community organizations (e.g., the Field PTO) use the space. We will also survey students and staff after the space is used to better understand what is working and where there is room for improvement.

Timetable (when project will begin and end, or specific date of performance, presentation, visit, etc.):

Our goal is to set up the Field Innovation Center by September 2022. We will purchase furniture and equipment in the winter and spring of 2022 and outfit the space throughout the summer of 2022. Faculty will have opportunities to learn about the space and its equipment via professional development offered throughout the summer. Field School students will have access to the space in September 2022. The Field Innovation Center will become an integrated and ongoing center for learning at Field School.

Other possible sources of funding and possible future expenditures linked to this project (e.g. maintenance, parts replacement, etc):

Over time, the school may need to replenish supplies and fix/maintain equipment in the Field Innovation Center. Field School will use its unclassified teaching supplies budget to pay for these expenditures. It is also possible that improved equipment and technology may become available and financially accessible in the future. If this is the case, Field School may seek additional funding from WEEFC.