



STEAM-Powered Classroom

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Based on personal experiences and examples of outstanding magnet schools already operating successfully in the United States, this document proposes a progressive, child-centered model for public elementary education.

Pilot Elementary School Proposal

Vision Statement

The Pilot School will nurture self-directed children who have personal investment in their own education and in the communities in which they live, and who have the critical thinking and problem solving skills to succeed in the changing paradigm of our global community and economy.

Mission Statement

The Pilot School will operate from a student-centered approach, providing quality, individualized education that builds on each student's strengths and interests. Through active supervision, discussion, positive expectations, and student leadership, the Pilot School will foster a community of respectful students who are invested in both the success of their school and their peers. Education approaches will emphasize technology, project-based learning, critical thinking and problem solving skills.

Philosophy

Student-Centered: The Pilot School seeks to replicate and build on established successful models that educate from a student-centered approach. From the beginning, students will be paired with a guidance coach who will remain with the student throughout the school career. This coach in collaboration with teachers, parents, and the student will work to tailor each child's education to his or her specific needs and interests.

Strengths Approach: Like adults, children become more successful when their strengths are validated and encouraged. With this in mind, the School will orient its education around each student's strengths, building on the student's confidence and natural abilities to help them succeed in all areas.

Community of Respect: The School recognizes that a dynamic community must also be a safe one. By operating from a philosophy of student respect, engaging students in leadership and discussion, and positively addressing every instance of disrespect or bullying, the school will foster a student body that is invested in the success not only for themselves, but for their peers and the larger school.

Student-Leadership: When children are given ownership and control in a respectful manner, they become more confident and invested in their environments. The School will operate with this philosophy and seek to provide numerous ways to work with children to guide the school's policies and care for the school facility. Student Council is one format in which to do this, but the School will seek to engage every child in some mode of larger school responsibility.

Project-Based Learning: Again, like adults, children learn best when they can find relevance in their lessons. The School will build on that knowledge and focus its education on real-life applications, making its lessons relevant to the child and the world around him.

Critical Thinking/Problem-Solving: The School embraces the reality that our 21st century workforce and economy is in constant change, and that to be successful young people require the ability to move and change within a paradigm. To this end, the School will focus its education not only on fact exposure, but on critical thinking and problem solving skills that will help the child learn to analyze and/or use these facts in new and interesting ways.

Technology: Our global technology is also changing radically. Our world is connected like never before, and the resources available to share information and connect with other learners across the world are boundless. The School will actively use these tools to not only enhance students' academic learning, but to explore the possibilities of the tools themselves.

Facility Considerations

The School facility will be designed to support the School's mission, vision, and philosophy. Classrooms will be outfitted according to the subjects being taught within; guidance coach offices will be included as an integral part of the school; technology will be incorporated in the library and classrooms. Every space will be designed with the student at the forefront, providing students, teachers, and administrators the space and tools needed to perform their best.

In keeping with the School's philosophy of community respect, leadership, and responsibility, the School will be built as a LEED facility, incorporating the best environmental building practices in its construction. Alternative energy, natural lighting, and recycled materials will be used throughout the building. The school will incorporate recycling and composting programs as well, engaging students in every step.

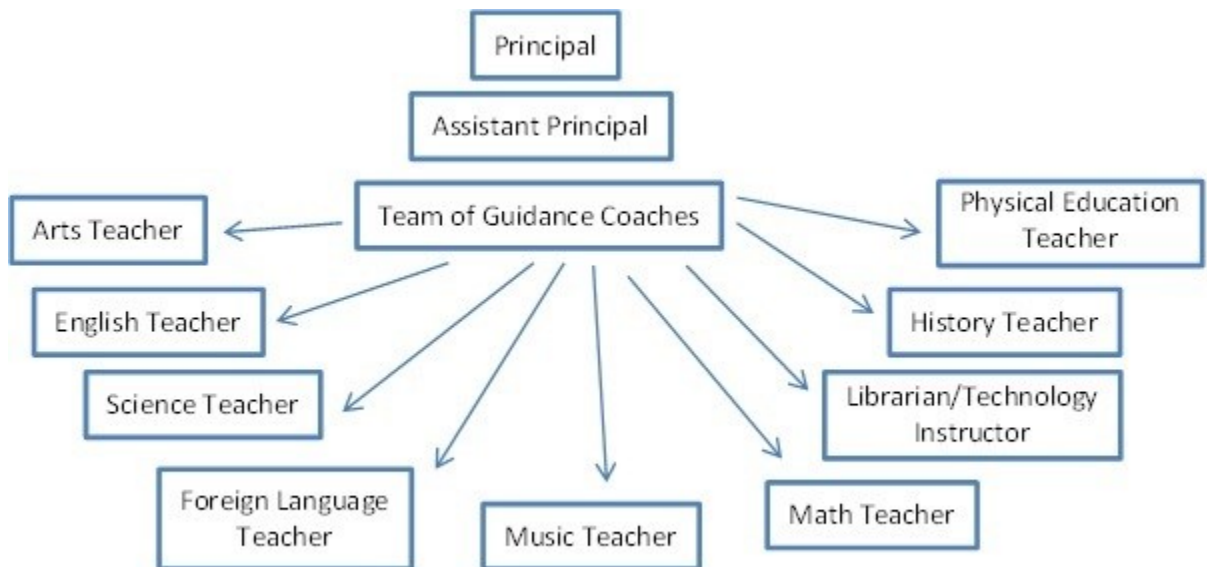
In addition, the School will be equipped with a working greenhouse in which students will grow a portion of the food that will be prepared and served in the cafeteria. The cafeteria will be fully equipped for the preparation of fresh, healthy lunch foods.

Guidance Coach Approach (IEPs for Every Child)

- Every student will be paired with a guidance coach upon entrance to the school. This coach will work with the child and the child's guardians to co-create an Individualized Education Plan (IEP) that will be used to direct the student's educational progress throughout his or her elementary academic career. Emphasis will be placed on student participation in the creation of this plan.
- The IEP will be a dynamic, changing document that records school and student goals. The IEP will be used periodically throughout each school year as a tool to assess student progress. As the child will have a part in developing and altering the document over time, she will be more personally invested in her education.
- The guidance coach will be a consistent figure throughout the student's life in the elementary school. The coach will work the child as he develops, and will coordinate with teachers to help cater each child's education to his interests and strengths.
- This plan is not simply a document, but a dynamic point of reference to ensure a personalized education that helps each child develop his or her full potential.

Faculty Tree (from the student's perspective)

- Students enter school participation through the guidance coach, who connects each child to the appropriate courses. The guidance coaches make these determinations with the use of assessments, pre-tests, student and parent interviews, and evaluations. They work in collaboration with the teaching faculty and are under the direct supervision of the Assistant Principal (or a head guidance coach/Levels of Service staff). The following chart illustrates the what the school might look like from the students' perspective:



- Other staffing considerations include a nutritionist/chef who will work closely with the science teacher, facilities staff, and teaching assistants.

Course Choice and Mentorships

- The School recognizes that children do not learn evenly across every subject. One student might be strong in math, but weaker in reading. To accommodate this wide variety of needs, the School will structure itself on a university model, offering different levels of individual subjects from which the child can choose. For example, instead of simply being in third grade, one student may take math 3, reading 2, and science 5, depending on her strengths and needs.
- The School believes that students should be appropriately challenged in every subject, and that the building is a meeting place in which to study these subjects. If the meeting place is no longer appropriate for a particular subject (i.e., if the student requires study that isn't offered in the school facility), the guidance coach will work to find other opportunities, either in another school building, through independent study, or through mentorships.

Assessments, Pre-Tests, and Continuing Evaluation for Appropriate Placement

- The School firmly believes that if a child is proficient in a particular area, he or she needs to be allowed the opportunity to move forward. To ensure these opportunities, the School will actively use pre-tests and assessments to identify appropriate placement and lessons. These assessments will be done periodically throughout the child's academic career, and more often as the needs are identified; the test scores will be used to benefit the student, ensuring a challenging and appropriate education.

Hands-on, Differentiated, Project Based Approach

Subject study will be explored through a project-based approach, teaching specific skills in broader applications that help students connect to the relevance of the learning. This type of exploration by its nature provides opportunities for differentiation and hands-on learning. Examples may include:

- In all subjects, the use of multi-media reference/research libraries instead of textbooks
- English/Grammar
 - Reading and discussion
 - Writing child-created stories to produce self-published works – book/film/theater fair at the end of every year – build anticipation and hype
 - Film-making
 - Play-writing
 - Public speaking
 - Proposal writing

- Math
 - Providing variety in approach: Khan Academy, DreamBox, Beast Academy, group puzzles
 - Logic exercises
 - Hands-on problems, such as figuring the area of the classroom, the weight of the combined student body, or how much water is used daily in the school facility's water fountain.

- Science
 - Greenhouse care (botany/agriculture/symbiosis)
 - Farm to Table program (nutrition)
 - Wildlife observation space built into the facility (students care for birdfeeders grounds-oriented field trips, etc.)
 - Well-equipped science lab with sinks, microscopes, lego education kits, etc.
 - Identify course choices as subject-based science classes instead of "general science"

- History
 - Teach history instead of social studies
 - Follow the world history timeline, beginning with ancients, moving to new periods of time each year. Have one massive student-created timeline in the history class that each separate group works on every year, creating a collaborative bigger picture; this way, younger students will be able to anticipate what's to come, and older students can reflect back on former lessons. Constantly refer to and allow class discussion regarding the timeline.
 - Teach social studies within this framework

- Foreign Language
 - To every child, from Kindergarten up.

- Music
 - Music starts in K, band starts in 3rd grade with recorders, then with band instruments in 4th grade. Music selections are a wide variety of genres that don't condescend to the students.
 - Drum clinics as early as K

- Art
 - A dynamic art program focuses on the process, not the product. Children are not asked to produce the same piece in the same style. Creative expression and experimentation is emphasized.

Entrepreneurship

By introducing entrepreneurship to the very young and including it as an integral part of students' education throughout their academic careers, public schools will graduate self-directed, forward-

thinking students who are better prepared to start and run their own companies. Even if a child does not go on to become a business owner, the skills learned through entrepreneurship will help empower the student make confident, satisfying career decisions.

Teaching entrepreneurship to elementary students works to further promote the values of self-direction, education and community investment, and student leadership. In addition, having the opportunity to take one's interest to a professional level supports the School's philosophy of building on student strengths and involving the child in the development of his or own Individualized Education Plan.

Entrepreneurship can be pursued individually or collaboratively, depending on the particular project. By having a variety of entrepreneurship experiences, students will come to understand and appreciate the benefits of both approaches.

Entrepreneurship activities may include:

- Students write their own pieces (short stories, poems, comics, plays, non-fiction, etc.) as chosen by each child, self-publish their works, and present/sell them to the public. Cross-curriculum aspects include:
 - Rough draft writing skills
 - Editing and grammar
 - Layout and design
 - Illustrations and graphics
 - Computer skills needed to self-publish
 - Special event planning
 - Marketing
 - Film-making (book trailers)
 - Blogging about the process
 - Instructional videos to share with other students about the process
 - Budgeting
 - Investment of profits
- Students make crafts or inventions to sell at a student-led school marketplace event
- Students form music groups and explore composing, rehearsal, recording, marketing, and selling
- Students sell or donate excess produce from the greenhouse

Emphasis on Teacher Planning and Collaboration Time

- Innovative, collaborative, individualized education requires planning and discussion time. With the use of teacher aides and parent volunteers, the School will provide additional time for teachers by relieving them of non-instructional duties including hall duty, lunch duty, morning duty, bus duty, walking students to and from various places in the hallways, making copies, cleaning up classrooms, classroom management, etc.

Emphasis on Teaching Innovation

Encouraging Innovative Teaching

- The School will encourage fresh approaches by providing teacher training and workshops, honoring best practices, and providing opportunities for information sharing and brainstorming between the teaching faculty members.

Technology in the Classroom

- Teachers incorporate social media into subject areas. Examples may include:
 - students posting responses to a reading assignment or history lesson to a school blog site (extra credit for uploading images that enrich the responses)
 - students creating instructional videos and uploading them to YouTube or TeacherTube; this could especially be used in math and science
- Utilize digital cameras and movie making software as a part of instruction
- If interactive white boards are used, appropriate training is provided for teachers so that they feel comfortable using the technology to its full potential

- Classrooms use Skype and videoconferencing to connect with other students, professionals, and experts
- Teachers and administrators have active collaboration with EduTech

Extra-curricular Activities

- A well-rounded group of extra-curricular activities will be offered to students, equally providing opportunities in the arts, humanities, STEM, and sports.

Additional Leadership Opportunities

Student leadership will be incorporated into every element possible. Opportunities may include:

- Increased collaboration between student council and the Parent-Teacher Organization
- PTO-generated grant money to be available to the student council for small initiatives
- Periodic student listening/visioning projects
- Student-led announcements
- A student council who actively polls its peers
- Facility/greenhouse care
- Child-led sessions in which children share their interests or expertise with their peers