MPX STEM 2014-15 Grade 10 Syllabus & Expectations

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MPX is an innovative, interdisciplinary program featuring a project-based curriculum as the primary focus of student work.

It immerses learners in such 21st Century skills as collaboration, effective oral and written communication, inquiry, and problem-solving through hands-on work and community interaction.

The STEM curriculum will encompass the skills and knowledge that are in the traditional Physics and Algebra II courses at MPI, but will focus on deeper understanding of these ideas through original research, exploring student interests and questions, problem solving and authentic tasks. In particular the Common Core in Mathematics emphasizes that math learning should encompass procedural knowledge, understanding and application *equally*. In our work this year we will apply this idea to our math and science learning. Some of the projects we are looking to complete this year are Understanding and building transportation systems, building quality exhibits to understand the physics of light, working with math and art, exploring humor, cartoons and science understanding, becoming energy auditors and much more.

****Because our learners move on to traditional math classes after this course, one day a week of our time will be spent in a more traditional math format: a pre-assignment that involves either reading or looking at a mini lecture, time in class to approach and apply a particular concept from the algebra two series, and some practice problems for home. The feedback from our learners last year was doing the sessions help them get ready for the transition to either Math Studies or Precalculus. Learners that wish to be placed in precalculus will be required to take a placement exam during finals week in May 2014 to ensure that they have the necessary skills.****

Basic Guidelines and required materials:

All students are required to keep a standard composition book for notes, brainstorming, sketches and other means of recording their thinking. Having a set of multiple color pens and/or pencils will help strengthen their work they write with.

Students are expected to bring iPads and other assigned materials to class every day. If they have a laptop they may bring and use it as well.

Electronic resources we will use in class:

- Evernote - Students will need to create an account – this is where we will keep our electronic portfolio
- Blogsy - students will be given this application which allows them to create their blogs
- NeuDraw and Notability - these applications allow rich graphical representations to be created
- Graphical Analysis - students will be given this application which allows mathematical relationships to be explored and understood
- Desmos - a powerful graphing calculator that we will use extensively to explore mathematical functions – free!
- We will use an open source flex book for our Algebra 2 text. Students will download this in week 2 and assignments will be given from it to meet the math requirements. We will be using CK12 Algebra II with Trigonometry Concepts.

Student **grades** will be **based on**:
- Daily activities (writing, blogging, schematics, constructions, experiments, etc)
- Project benchmarks (drafts, storyboards, etc.)
- Finished projects/artifacts/presentations
- Essays, Research Summaries and other formal writing assignments and authentic reports

All **assignments** will be placed onto **MyPueo** and updated regularly. We will also use a variety of platforms to place resources, collect student work and create representations of knowledge. Students missing class should check online for assignments. Students missing class the day an assignment is due are allowed extra time to turn work in after assigned due date. Otherwise, late work is subject to deductions for each day it is late.

Finished projects/artifacts will be **exhibited** publicly at the stage of completion. Parents are strongly encouraged to attend these exhibitions.

Note: There is no standard sitting final exam for this class. This year we are expecting students to present on an original solution to a problem that encompasses their learning from the semester. This is called a "presentation of learning," or, P.O.L.

Finally, though this course is different in practice from MPI's regular curriculum, students will still learn the **same core concepts and skills** as the standard courses in Math and Science. These core concepts and skills will be located in a folder on MyPueo titled "Core Concepts".

Our quest: How will YOUR WORK change our community for the better?