GROTON BOARD OF EDUCATION
CURRICULUM COMMITTEE MEETING
Monday April 17, 2023 @ 5:00 p.m. Central Office / Room 4

Members Present: Andrea Ackerman (remote) William Horgan, Liz Porter
Also Present: Phil Piazza, Ted Keleher, Gabe Mortali (remote)

Porter called the meeting to order at 5:01 p.m.

1. Review of Minutes:

   Motion: Horgan, Ackerman to approve amended minutes of March 20, 2023
   Amend minutes to note change of date of discussion of TC Writing from April to May.

2. Review financial literacy curriculum

   Piazza walked the committee through his collected outline of where financial literacy is taught throughout the school system (handout provided)

3. Update from High School w/ Principal Keleher

   Keleher and Mortali presented the Project Lead the Way, Engineering, Design and Development course outline

   a. Pilot for next year with 6-10 students who qualify
   b. Next steps: send outline to BOE curriculum committee for review
   c. Continue discussion at May meeting
   d. Committee requested an overview of the pilot from Mortali including his vision for this class

4. Referral list

   The referral list was review. No changes recommended.

5. Future Topics

   May agenda items will include:
   Teachers College writing component
   Update on Project Lead the Way Engineering Class

6. Adjournment

   MOTION: Ackerman, Horgan: To adjourn made at 5:59
   PASSED UNANIMOUSLY

Next Meeting: May 15, 2023

FINANCIAL LITERACY

ELEMENTARY

Other than warm up/math talk lessons on money embedded in Investigations, the elementary level has a formal unit on financial literacy.

GMS

Sixth graders do a project on unit rates, finding the best deals for various party items.
In the 7th grade curriculum we do unit rates, which includes finding the better deal. We also study percentages with examples of calculating sale (percent off) prices, tax and tips. So many aspects of consumer math are covered. In the integer unit we do examples of balancing accounts (e.g. checkbooks), so students get some exposure to that.
In math 8 they have consumer skills like comparing pricing plans with linear equations.

FHS

Accounting 1 & 2 take students through the financial cycle of a sole proprietor, partnership and public company.

We have Personal Finance, Honors Personal Finance, Honors Personal Finance II and Unified Personal Finance.

During summer school, all the lessons were based on personal finance. I learned of a program through NCTM last spring through the Next Generation Personal Finance. https://www.ngpf.org/ it was all free. The students really enjoyed the program. There is a middle school year program and also mini lessons that we used focusing on fractions, decimals, percents, rates, etc.

FITCH BUSINESS ELECTIVES

Accounting I (.5 Credit) Students are introduced to basic accounting concepts, principles, and procedures. Financial transactions are analyzed, recorded, and financial statements produced for service and merchandising businesses, using both manual and computerized accounting systems. **This course may be used toward minimum mathematics requirements for graduation.

Business Management and Entrepreneurship (1 Credit) This is an introduction to management concepts, theory, and practice. Contemporary trends, issues, and management practices will be included. A project will take students through the process of starting a small business and will illustrate the step-by-step technical and non-technical skills necessary to successfully operate a business.

Marketing I (.5 Credit) An introductory course designed to develop an understanding of concepts and strategies needed to communicate information about products, services and/ or ideas. Hands-on experience for marketing and business management is gained through Falcon Central, the school store. This course is designed to provide basics for entry-level positions and to prepare students for career opportunities in the business field.

Microsoft Office I (.5 Credit) This course extends basic skills in Microsoft Office applications (Word, Excel, PowerPoint, and Access). Students will develop the skills and knowledge necessary to be successful in post-secondary and career settings. Communication and problem solving skills will be emphasized and developed through a projectbased learning approach. Highly recommended for all students.

Microsoft Office II (.5 credit) A continuation of Microsoft Office 2 with more advanced skills in Microsoft Word and Excel integration. We will also learn some advanced business communication/presentation skills using Powerpoint as a tool. An introduction to databases and Microsoft Access will round out the course.

Personal Finance I (.5 Credit) A must for every student! Practical skills in personal financial literacy that provides a foundation for making informed financial decisions. Students will be introduced to financial concepts and develop skills to be able to survive and prosper in our complex economy. Topics covered will include: income and money management, spending and credit, budgeting, banking and financial services. Basic math skills are required.

Honors Personal Finance I (.5 Credit) Honors Personal Finance I offers an opportunity for students to develop critical skills of analysis, synthesis, and evaluation in a more rigorous and reflective academic setting. Students are empowered to perform at higher levels as they learn the ideas, concepts, knowledge and skills that will enable them to implement beneficial personal decision-making choices; to become wise, successful, and knowledgeable consumers, savers, investors, users of credit and money managers; and to be participating members of a global workforce and society.

The following topics are included in Personal Finance classes:
Goal Setting
Income
Money Management/Budgeting
Personal Banking-Saving/Checking
Credit

The following topics are included in Honors Personal Finance I:

Charter Oak FCU-students work as student tellers at our HS Branch
Banking
Financial Planning
Principles of Finance
Budgeting
Taxes
Cash Asset Management
Credit Management
Lending
Insurance
Home & Auto Decisions
Investments
Retirement Planning
Employment Skills and Preparation

PLTW Engineering
Engineering Design and Development I Course Outline

The knowledge and skills students acquire throughout PLTW Engineering come together in EDD as they identify an issue and then research, design, and test a solution, ultimately presenting their solution to a panel of engineers. Students apply the professional skills they have developed to document a design process to standards, ready to take on any post-secondary program or career.

Engineering Design and Development (EDD) is the capstone course in the PLTW high school engineering program. It is an open-ended engineering research course in which students work in teams to design and develop an original solution to a well-defined and justified open-ended problem by applying an engineering design process.

Students will perform research to select, define, and justify a problem. After carefully defining the design requirements and creating multiple solution approaches, teams of students select an approach, create, and test their solution prototype. Student teams will present and defend their original solution to an outside panel. While progressing through the engineering design process, students will work closely with experts and will continually hone their organizational, communication and interpersonal skills, their creative and problem solving abilities, and their understanding of the design process.

Engineering Design and Development is a high school level course that is appropriate for 12th grade students. Since the projects on which students work can vary with student interest and the curriculum focuses on problem solving, EDD is appropriate for students who are interested in any technical career path. EDD should be taken as the final capstone PLTW course since it requires application of the knowledge and skills introduced during the PLTW foundation courses.

The Engineering Design and Development course of study includes:

Engineering Design Processes

- Project Management
- Documenting an Engineering Design Process
- Teamwork and Professional Skills
- Problem Identification and Justification
- Research
- Intellectual Property
- Design Requirements
- Project Proposals
- Design
- Virtual Design and Testing
- Preliminary Design Reviews
- Prototyping
- Testing a Prototype
- Presenting the Process and Results

The structure of Engineering Design and Development is aligned to the Engineering Design Process Portfolio Rubric. Students in this course are encouraged to format their Engineering Design Process Portfolio according to the Components and Elements defined within this rubric.

Below is the Engineering Design and Development course structure.

Component 0: Project Management

(α) – The EDD Design Process and Project Management
(β) – Documenting the Engineering Design Process
(γ) – Teams, Timelines, and Contacting Experts
(δ) – Project Evaluations and Classroom Management
(ε) – Intellectual Property

Component 1 – Research

Element A – Identification and Justification of the Problem
Element B – Documentation and Analysis of Prior Solution Attempts
Element C – Presentation and Justification of Solution Requirements

Component 2 – Design

Element D – Design Concept Generation, Analysis, and Selection
Element E – Application of STEM Principles and Practices
Element F – Consideration of Design Viability

Component 3 – Prototype and Test

Element G – Construction of a Testable Prototype
Element H – Prototype Testing and Data Collection Plan
Element I – Testing, Data Collection, and Analysis

Component 4 – Evaluation of Project and Process

Element J – Documentation of External Evaluation
Element K – Reflection on the Design Project
Element L – Presentation of Designer's Recommendations

Component 5 – Reflection and Presenting the Design Process

Element M – Presentation of the Project and Project Portfolio
Element N – Writing Like an Engineer

Component 6 – Going Beyond EDD

Component 0 – Project Management
Major focuses of the course are project management and professional skills required to successfully complete and document an engineering design process. Topics student will study and skills they will refine are:

(α) – The EDD Design Process and Project Management

(β) – Documenting the Engineering Design Process
(γ) – Teams, Timelines, and Contacting Experts
(δ) – Project Evaluations and Classroom Management
(ε) – Intellectual Property

Component 1 – Research
This component requires students to identify a problem for which they will design a solution during the remainder of the course. In the first lesson, students will write a clear problem statement and validate the problem by documenting credible sources that indicate that the problem exists. Validation is carried out through research and input from experts and mentors. Once their work is defined, students are asked to perform additional research in order to justify the problem by confirming that the expense and effort involved with solving the problem is warranted based on need and cost. Students will explore and analyze prior solution attempts. Based on their research, student will create a testable design requirement which will be used to explore possible solutions. The students will present a project proposal to ensure the project is justified and that all prior solution attempts have been explored.

Element A – Identification and Justification of the Problem
Element B – Documentation and Analysis of Prior Solution Attempts
Element C – Presentation and Justification of Solution Requirements

Component 2 – Design
Based on the design requirement identified through research, students develop multiple solution possibilities. Through an evaluation process that involves feedback from experts and stakeholders and the application of a decision matrix or data-driven process, students will select the best potential solution to pursue.
Students will refine the final selected solution path and provide evidence that the solution selected is viable.

Element D – Design Concept Generation, Analysis, and Selection
Element E – Application of STEM Principles and Practices
Element F – Consideration of Design Viability

Component 3 – Prototype and Test
Student will create a testable prototype and an unbiased testing plan based on the defined design requirements to determine the effectiveness of the solution created.

Element G – Construction of a Testable Prototype
Element H – Prototype Testing and Data Collection Plan
Element I – Testing, Data Collection, and Analysis

Component 4 – Evaluation of Project and Process
At this point in the design process, it is critical to seek and document feedback from all stakeholders. The designer(s) should reflect on all design decisions and the analysis that was generated from the testing process. Finally, the designer(s) can begin to formulate next steps.

Element J – Documentation of External Evaluation
Element K – Reflection on the Design Project
Element L – Presentation of Designer's Recommendations

Component 5 – Reflection and Presenting the Design Process
At the conclusion of the design process, students will be asked to present and defend the process and decision.

Element M – Presentation of the Project and Project Portfolio
Element N – Writing Like an Engineer

Component 6 – Going Beyond EDD
Many opportunities exist for students to receive tangible value for their work beyond the classroom walls. These opportunities range from competitions, scholarships, and university admission notoriety, to interest from business representatives to further develop the ideas created in EDD classrooms.

This section of the curriculum is dedicated to providing resources, examples, and suggestions for helping your students obtain tangible value for their work.