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CURR 676

June 23, 2021

Major Project: Phase 1

Tower Power and the Engineering

Design Process from Engineering is Elementary (EiE)

Concepts Explored

Learners will explore the Engineering Design Process (EDP) through the creation of a solution for a given problem. They will have to use the EDP to understand the relationship that Engineering has to mathematics and science. Through this experience participants will have a shared experience which could be the foundation for future studies of the engineering field.

Learning Standards

Common Core

- 3.OA.8 Solve two -step word problems using the four operations, represent these problems using equations with a letter standing for the unknown quantity.
- 3.MD.4 Generate measurement data by measuring lengths using rulers marked a line pilot, where the horizontal scale is marked off in appropriate units-whole numbers, halves, or quarters
- 4.OA.2 Multiply or divide to solve word problems involving multiplicative comparisons

Next Generation Science Standards

- ETS1.A: Defining and Delimiting Engineering Problems
- ETS1.B: Developing Possible Solutions
- ETS1.C: Optimizing the Design Solution

Types of Problems and Declarative Knowledge

During this project participants will be faced with a moderately structured problem because it will ask the learners to develop strategies to solve the problem with giving them a set model to follow. They will have to use mental models to determine the effectiveness of a strategy in this context. To be able to use this efficiently learners must use knowledge of concepts and principles.

Activity

The group has been provided the parameters and budget for this project. They will be under a time crunch so they will be divided into smaller teams to develop as many ideas as possible in a short amount of time. Remember teams should feel free to compare ideas, borrow, use inspiration from each other. The GOAL is to provide Windsor Public School with the BEST possible tower.