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20% Research & Design Science Project

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A project allowing employees to use 15 % of their time on independent projects was established at 3M in the 1950's. The result of this project included products like post it notes and masking tape. Google allows its employees to use 20% of their time on independently pursued projects. The company values creativity and innovation. Employees are allowed to explore projects of interest to them one day out of the week, 20 % of their work week. Products like AdSense, Gmail, Google Transit, Google News, and Google Talk are the result of this 20 % program.

My school is implementing the Next Generation Science Standards (NGSS) as part of our regularly scheduled curriculum review. These new standards focus on the process of learning by doing and designing. The NGSS are very hands on and active. The new standards emphasize learning how to define, understand and solve problems in science and technology. In today's society everyone needs to be familiar with science and technology. This project allows students to develop and practice skills to help them be more comfortable and confident with science and technology while exploring something of interest to them.

This project includes three major parts: research, design, and presentation. Students will spend approximately 2-4 weeks defining a project proposal and educating themselves by researching a science and technology topic that is of interest to them. In the next phase, 2-4 weeks, students design a product or plan to collect data for something related to their topic. The time spent on research and design will be dependant on the topic students select. Projects should be ambitious enough to encompass about six weeks. Lastly a presentation or demonstration incorporating the research and design of the project is created, peer reviewed and presented to the class.

There are some problems anticipated or already experienced with this project. It is difficult for all students to choose a unique topic when you have large class sizes. Some students find it painful to design something independently as they are used to being told what to do. Assessing the projects, which include a wide degree of ambition established within the proposal, can be challenging. Implementation of this project requires the loss of approximately 20 % of class time. This can be a challenge when class time is already at a premium. However; the benefits of this project outweigh the loss of instructional time.

This project is student centered and allows each student to pursue a topic of interest to them. This ability to choose their own topic allows students to explore with very few boundaries to confine their imagination. The project allows students to propose an ambitious project. The option for failure with the design portion of the project allows them to learn that failure is not always negative and can provide many learning opportunities, much like real world situations. This project is aligned with the NGSS encouraging creativity and innovation through unique, authentic investigations in science and technology.