The Great Vehicle Design Challenge
PBL @ a Glance

Name of Project: The Great Vehicle Design Challenge: "Forget the bacon...save your egg!"		**Duration:** 10 wks
Subject/Course: Science/Math/SDAL	**Teachers:** Forry, Kazakos, Walton, Santoro (Science) Sweitzer, Frese, Wisner, Beck, Pierce, Linebaugh (Math) Howell, Eaton, Koplitz, Hufnagl (SDAL)	**Grade Level:** 8th

Driving Question:	How do people survive major collisions? How does physics explain the effectiveness of car safety devices?

Learning Goals:

Science	3.2.8.B1 Explain how inertia is a measure of an object's mass. Explain how momentum is related to the forces acting on an object. 3.2.8.B2 Identify situations where kinetic energy is transformed into potential energy, and vice versa. 3.2.8.B6 Explain how physics principles underlie everyday phenomena and important technologies. 3.2.8.B7 Formulate and revise explanations and models using logic and evidence. Recognize and analyze alternative explanations and models.

Math	M08.B-E.3.1.2 Solve linear equations that have rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. M08.B-E.3.1.5 Solve real-world and mathematical problems leading to two linear equations in two variables. M08.B-F.2.1.1 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models and in terms of its graph or a table of values.

Learning Goals: (Continued)

Skills for Digital Age Learners	**Research and Information Fluency** CYDAL.3.8.1 Plan strategies to guide inquiry CYDAL.3.8.2 Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media. CYDAL.3.8.3 Evaluate and select information sources and digital tools based on the appropriateness to specific tasks CYDAL.3.8.4 Process data and report results **Collaboration** CYDAL.2.8.4.01 Use digital tools to collaboratively create projects and solve problems. **Critical Thinking, Problem Solving, and Decision Making** CYDAL.4.8.1 Identify and define authentic problems and significant questions for investigation CYDAL.4.8.2 Plan and manage activities to develop a solution or complete a project CYDAL.4.8.3 Collect and analyze data to identify solutions and/or make informed decisions CYDAL.4.8.4 Use multiple processes and diverse perspectives to explore alternative solutions **Creativity and Innovation** CYDAL.1.8.1 Apply existing knowledge to generate new ideas, products, or processes CYDAL.1.8.2 Create original works as a means of personal or group expression CYDAL.1.8.3 Use models and simulations to explore complex systems and issues CYDAL.1.8.4 Identify trends and forecast possibilities

Timeline	Use the following link to access the calendar where you will learn more about due dates and content to be taught in all content areas: https://docs.google.com/a/cypanthers.org/spreadsheet/ccc?key=0Aj50R_uvii1ydFRvSUE2S2JRcnVxVFE2bTRPY0RXc2c&usp=sharing

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How Will I Be Graded?

(Student learning will be monitored *throughout* and *at the end of* the unit using the following criteria.)

Research & Information Fluency

Expectation: **Student applies digital tools to gather, evaluate, and use information.**

	Exceeds Expectation *Student excels in applying skills.*	Meets Expectation *Student has shown competency.*	Below Expectation *Student is just getting started.*
Inquire & Gain Knowledge	**-30-** Student ***uses THREE or MORE digital tools to gather and evaluate*** information. *Example: Searching multiple online sites and offline books to locate and evaluate the accuracy of information.*	**-25.5-** Student ***uses TWO digital tools to gather and evaluate*** information. *Example: Comparing two sources of information to confirm accuracy.*	**-22.5-** Student ***uses ONE digital tool to gather*** information. *Example: Searching one website to locate information.*

(Continued)

How Will I Be Graded?

(Student learning will be monitored *throughout* and *at the end of* the unit using the following criteria.)

Collaboration

Expectation: **Student remains on task and meets deadlines.**

	Exceeds Expectation *Student excels in applying skills.*	Meets Expectation *Student has shown competency.*	Below Expectation *Student is just getting started.*
Time Management	**-20-** Routinely uses time wisely. **-AND-** All parts of the assignment are completed and turned in on time or ahead of time.	**-17-** Some time and focus reminders are needed. **-AND/OR-** Most parts of the assignment ***are completed*** on time.	**-15-** Many time reminders are needed to refocus student's attention. **-AND/OR-** Most parts of the assignment ***are not completed*** on time.

Critical Thinking & Creativity

Expectation: **Use digital tools (blog) to collaboratively create projects and solve problems.**

	Exceeds Expectation *Student excels in applying skills.*	Meets Expectation *Student has shown competency.*	Below Expectation *Student is just getting started.*
Ideas & Content	**-30-** Blog provides ***comprehensive*** insight, understanding, and reflective thought about the topic.	**-25.5-** Blog provides ***moderate*** insight, understanding and reflective thought about the topic.	**-22.5-** Blog shows ***little evidence*** of insight, understanding or reflective thought about the topic.