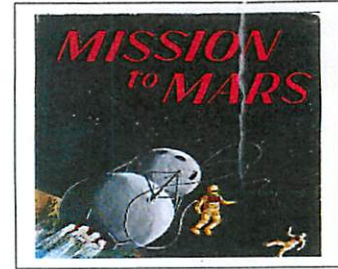




Harrison Bay Future Ready Center

School-wide PBL

Quarter 2 – 2019/2020



The Harrison Bay Future Ready Center will be conducting its second school-wide project-based learning activity for our 9th and 10th grade institute students. The activity, “Mission to Mars” will include each class subject in the PBL. State standards and future ready institute learning targets will be blended as students work together in a collaborative effort in groups, between classes, and cross-curricular to apply real-world information and knowledge to produce artifacts and results through problem solving. We hope to involve the UTC Challenger Center and its NASA sponsored space program.

The following will be some of the standards, learning targets, and products that will come from this PBL:

Architecture & Design: This class will study different types of energy used for propulsion and will design rockets and their capabilities of being launched through the use of pneumatics.

Biology: This class will study non-traditional food growth in varying soils and methods such as hydroponics within the state standard on Photosynthesis and plant cellular respiration.

Coding I and Computer Science: These classes will write code for lunar “bobots” that will navigate across a scaled down surface similar to estimated Mars soil.

English 9 & 10: These classes will work on their narrative writing and will include journaling from their science classes and CTE classes to develop a final essay incorporating their activities, benefits, etc.

Mechatronics I: This class will study geometric shapes followed up by the challenge to design and build a “Biodome.”

Physical World Concepts: This class will study different laws of energy, laws of motion and forces, how those laws affect propelled objects such as rockets and also vehicles. The students will create “bobots” to be used on the simulated Mars surface (created by our FRI partner Terracon) and will collaborate with the coding students to navigate from landing site to biodome.

Principles of Manufacturing: This class will study different types of energy used for propulsion and will design rockets and their capabilities of being launched through the use of pneumatics.

Teachers will challenge students with a problem solving activity that will involve a "Driving Question" to focus them on the problem at hand and to create a product to resolve the problem. The different courses will have different problems and focus questions. Students will receive templates/forms that they will complete and will also receive rubrics to help guide them to either an acceptable level of proficient or advanced/mastery. Support and scaffolding for students will come in the form of Class activities (lessons and activities done by all together), Station activities (lessons and activities done in small groups at different times/rotations), Workshop activities (students can choose to do these for added help or information), or Focus Group activities (mandated by the teacher for individuals or groups to receive added support).

This is one of the added activities for those students attaining "Honors" status for their core subjects (English, Science) and a level of Advanced or Mastery should be achieved.

Groups selected for these activities in every class will be determined by the teacher of that class. Students will not be picking their partners. This will create better diversification and will also allow students to acclimate to working with varied partners in a range of collaborative discussions and activities.

Unlike the first PBL which was done in three large groups of 40 students in each and on a rotating station process, classes will work independently during class time, but teachers will coordinate with each other to tie in the learning experience in all three areas; the CTE chosen course, English, and science.