**CODE/MOE/UOIT Makerspaces Project**

**Lesson Plan: Grade 8 Science:**

**Mythbusters: Understanding Structures and Mechanisms**

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| **BIG IDEAS: Systems are designed to accomplish tasks; they include**  **an input and an output and are designed to be optimized for human and natural resources.**  **Objectives: As a Myth Buster you will explore how systems are designed to accomplish tasks, how systems include an input and an output, and why systems are designed to be optimized for human and natural resources.**    **Science and Technology Overall Curriculum Expectations:**  **1.assess the personal, social, and/or environmental impacts of a system, and evaluate improvements to a system and/or alternative ways of meeting the same needs;**  **2. investigate a working system and the ways in which components of the system contribute to its desired function;**  **3. demonstrate an understanding of different types of systems and the factors that contribute to their safe and efficient operation.**  **Science and Technology Specific Curriculum Expectations:**  **1.1 assess the social, economic, and environmental impacts of automating systems**  **12. assess the impact on individuals, society, and the environment of alternative ways of meeting needs that are currently met by existing systems, taking different points of view into consideration** | |
| **Learning Goals:**  **To create a video that identifies a system that accomplishes a task, that describes the input and output and synthesizes the impact on human and natural resources.** | **Success Criteria:**  My video has the following:   1. An identified system that clearly shows a task being completed. 2. A thorough description of both an input and an output. 3. All the ways that the system ‘input and output’ impacts both human and/or natural resources.  * Must use at least one formula  1. Will be 3 min. In length 2. Will have an introduction, ending and include at least three special effect.   \*Green Screen  \*Sound effects  \* Clipping/splicing multiple videos together  \* Visual Effects  \* Other |
| **Lesson Overview:**  **Students will be given a variety of myths to choose from. From the scenarios given, they will have to describe the system, the variety of inputs and outputs, and most importantly the possible impact to both human and natural resources.** | |
| **Materials and Technology:**  iPads  MacBooks  Green Screen  Camera  Lego  Tools (saw, screen driver, )  Animation | |
| **Student Accommodations/Modifications:** |  |
| **MINDS ON: Getting Started** | |
| Introduce Myth Busters by showing an episode and discuss the concept of questioning a scenario.  Introduce the 6 Scenarios and give the students the option of creating their own (teacher approved) | -Discuss what videos/myths they know/have seen.  What is a system, what are the systems, that we can identify in our school, city, country.  Simple to complex inputs to Outputs (ex. Garden-feed, fertilizer, weeds, etc. output-food, flowers)  Ex. Family Unit if a simple system and Government is a complex unit. |
| Introduce what Myth Busters is by showing an episode and discuss the concept of questioning a scenario.  Students will work with a small group (3 students)  Knowledge and Understanding test to determine current level of understanding. This would be a summative project at the end of a Unit study on Systems. | |
| **ACTION: Working on it** | |
| Students will have multiple periods to bust their myth.  They will be encouraged to use multiple manipulatives, videos, technology pieces.  They will be encouraged to ask an expert. (contact a farmer, manager of McDonalds, etc.)  They will create a video representing their understanding of the system and how it works. |  |
| **Students will work in small groups to create a video to depict their myth findings.**  **Since it is scenario based the possibilities are endless, therefore teacher conferencing will be built in to this entire project.**  **Students will show in their video the system represented, the input and output, and how it synthesizes the impact on human and natural resources.**  **As an extension activity, the group could present their findings to the business/organization that they studied.** | |
| **CONSOLIDATION: Reflecting and Connecting** | |
| \*Students will share their videos and findings based on their myth. They will explain their results.  \*Individualized summative reflection in the form of a written task or teacher interview. | **\*\* Individualize summative reflection in the form of written task or teacher interview.** |
| All students will present their findings to the class in the form of a presentation and video.    Scenarios to choose:  \*1) The principal wants to know if there is a better way to organize bussing/departure of walkers and the staff parking lot. Our current problem is; staff believe there isn’t enough parking spots in the parking lot and the departure of students takes too long. Can you bust this myth?  2) Mr. McDade is frustrated that the new drive-thru (two lanes) seems much slower to him. It takes longer to get his food and he never knows when he should pull in front of a car. He doesn’t believe this system is better. Can you bust this myth?  3) The breakfast program is interested in adding school grown vegetables and fruit. However, there is great concern about whether or not the amount of food would be worth the amount of work. Can you bust this myth?  4) The city of Stratford decided that it will put in more bicycle paths and bikeways instead of expanding its existing public transit system. This will reduce the amount of bussing (number of bus on road and the routes needed). A recent letter to the editor raises great concerns about the effect this will have on the city. Can you bust this myth.  5) Many students have complained about the number of interruptions that happen during the school day with the intercom system. Student government has proposed a vacuum shute system to be installed to send messages between classes and the office. This process would eliminate the need for the intercom system. However, Mrs. Teahen is not convinced. Can you bust this myth?  6)Mrs. McDade wants to pressure wash her back deck. However the pressure washer no longer works properly. She wants to buy a new one but Mr. McDade thinks it can be fixed at a low cost. Mrs. McDade doesn’t believe so. Can you bust this myth?  7)Use a system of your interest and get it approved by Mrs. Davis | |