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**“Let’s Get Wasted!”**

**Biology 1 Mrs. Somma**

**Driving Question:** How do humans affect the environment negatively and what are some solutions to create a more sustainable society and reduce your carbon footprint?

**Explanation:**

Every day there are millions of tons of waste generated by society. Where does that waste go, to a landfill where it will sit for up to 1000 years. What’s worse, over half of all the materials put in a landfill could have been reused, recycled or upcycled.

**Process:**

Students will keep journals about what they use and throw away daily over the course of one month. Students will be required to calculate using an excel spread sheet how much they waste in a year, ten years and over a live time based on the data collected. How could they change their own consumption patterns and use less and reuse more. If just 1% less how much of a difference would that make in a lifetime?

Students will then be put in groups of 4.. Once this information has been documented students begin to research how human waste and over consumption affects ecosystems which in turn affects the amount of biodiversity of that ecosystem has. Each group will be assigned an industry that is contributing to environmental degradation in our country and globally. Students will write a 5-page paper documenting ways the industry wastes and harms the environment as well as remediation factors, i.e. how are we trying to fix it? What are the Pros and cons of each solution? In addition to the paper students will create a scale model of a product that can be marketed to the target industry out of completely reused materials. Nothing can be new except maybe glue, thread, or staples. At the end of the project we will be inviting parents, community partners, and professionals to view and critique your creations. This project will be approximately 8 weeks in duration due at the end of quarter 1.

**Habits of Mind/Tenets Practiced:**

Technology skills-daily journal electronically

Problem solving-Ways to save and reuse waste

Collaboration-Work with a team to come up with a marketable product made from 100% reused material

Written communication: 5 page paper about topic problems and ways to save.

Presentation: Present artifact to peers

Content: Ecology and human impact

Content knowledge-

* THE STUDENT WILL DEMONSTRATE HOW CHANGES IN AN ECOSYSTEM CAN AFFECT BIODIVERSITY AND BIODIVERSITY’S CONTRIBUTION TO AN ECOSYSTEMS’S STABILITY
* The student will evaluate human impact as a selective influence on a community.
* THE STUDENT WILL ANALYZE HOW THE AMOUNT OF LIVING MATTER AN ENVIRONMENT CAN SUPPORT IS LIMITED BY THE AVAILABILITY OF MATTER, ENERGY, AND THE ABILITY OF THE ECOSYSTEM TO RECYCLE MATERIALS.
* To identify the impacts of human activity on the environment and to engineer solutions mitigating any adverse effects

**Subject Area Standards:**

* Identify and critically evaluate information in data, tables, and graphs.
* Use appropriate technology and laboratory procedures safely for observing, measuring, recording, and analyzing data.
* Use multiple methods for organizing items and information.
* Describe consequences of technologies that can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical.
* Recognize consumption patterns, conservation efforts, and cultural or social practices in countries that have varying environmental impacts.
* Describe the influence of ethics on scientific enterprise.
* Identify processes of obtaining, using and recycling of renewable and non-renewable resources.
* Recognize the amount of living matter an environment can support is limited by the availability of matter, energy, and the ability of the ecosystem to recycle materials.
* Explain how changes in an ecosystem can affect biodiversity and biodiversity’s contribution to an ecosystem’s stability**.**

**Project Timeline & Due Dates:**

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| Date | Assignment | Value |
| 9/11 | **Begin journaling daily consumption patterns, i.e. everything you throw in the trash.**  | **60 points** |
| 9/14 | **Journal due, 20 points per week. Also due waste calculations, how much did you waste in 1 month? What does that calculate to over the course of 1 year, 10 years, over a life time (average live span in America is around**  |  |
| 9/16 | **Pre-test what do you know about environmental degradation and remediation efforts for a sustainable society.** | **15****Points** |
| 9/18 | **Areas of focus research, which industry will your group focus on, i.e. how does the construction industry waste?** | **40 points** |
| 9/21 | **Individual tasks list due** | **15 points** |
| 10/1 | **Blueprints for product design** | **15 points** |
| 10/7  | **Rough draft of paper due** | **40 points** |
| 10/15 | **Return rough drafts and make corrections** | **15 points** |
| 10/7 | **Building materials brought to class to begin assembly.** | **15 points** |
| 10/19, 10/20 | **Final product completed** | **20 points** |
| TBA | **Art show showcasing student work for parents** | **100 points** |
| 10/19, 10/20 | **Final draft of paper due** | **100 points** |

**Specific Project Instructions**

Each group will be given an industry to write about, Fashion, cosmetic, oil, agriculture, plastics, hospitality, auto, and construction. Paper must be typed 12-point font and double-spaced. There must be a minimum of 4 APA citations to accompany the paper.

Design a marketable product that is made completely from recycled materials. The group should be broken up in to 4 main jobs, Scientist, Technician, Engineer and Mathematician. The scientist will answer all the scientific questions, what will the product be made from, what that product can do to the environment etc. The technician, create the design using the computer with the engineer. Mathematician calculates all the dimensions of the design; make it to scale so that it is usable.