**Consider Standards in Global Education**

**Standard**

NGSS HS-PS1-3: “Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles”.

**Integration of Global Education**

* Students will recognize the influence of different types of manmade materials on societies around the world.
* Students will gain insight into the connection between materials science and cultural and global technological developments.
* Students will investigate the world beyond their immediate environment and form a historical perspective on the advancement of society directly correlated to material science.
* Students will recognize that different people and cultures, throughout time, have made the discovery of materials throughout the world.

**Lesson Plan Modifications**

* Students will research the history of manmade materials to gain knowledge about the chronological advancement of materials with time, from the first plastics to fullerenes.
* From the historical perspective of materials, each group will pick one material they believe has greatly impacted the human race.
* Students will analyze a variety of materials for strength, purpose and usage around the world. Students will study the chemical reactions these materials are involved in the products of these reactions.

**Informal Assessment**

* Students will create a short video about the material they selected to research and why they believe it to be the most important material to society.
* The class will hold a debate, and each student will cast a vote on which material has had the greatest influence on the human race. Groups will be allowed to defend their material and answer questions.

**Standard**

NGSS HS-PS1-8: “Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay”.

**Integration of Global Education**

* Students will work collaboratively to critically and creatively evaluate various historical and political issues in order to promote social change in the 21st century
* Students will recognize that collaboration in the classroom can extend to collaboration within the local, national, and global communities.
* Students will better understand other people’s perspectives and identify what influenced them.
* Students will recognize and express their own perspectives and identify what influenced them.

**Lesson Plan Modifications**

* Students will investigate the effects of the nuclear bombings during World War II, Fukushima, etc. and the residual complications that are still present today.
* Students will be able to identify nuclear reactions and explain the energy associated with them.
* Students will be able to predict products of nuclear reactions and explain how these products are harmful to living beings.
* Students will be able to compare/contrast all the various types of chemical reactions (nuclear, Redox, Acid Base).

**Informal Assessment**

* Students will use the information gathered to explore how nuclear energy is being utilized today and analyze the benefits and costs of nuclear energy.
* Each student will write a letter explaining his/her personal view on nuclear energy and the students will be asked to critique each other’s work.

**Standard**

NGSS HS-ETHS1-2: “Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering”.

**Integration of Global Education**

* Students will investigate and study population demographics in some of the most populated cities in the world.
* Students will analyze the housing situation in these cities and some of the major issues associated with high-density areas.
* Students will research and evaluate ways to alleviate the housing situation in crowded cities.

**Lesson Plan Modifications**

* Students will investigate the issues of lack of living space in crowded cities.
* Students will design, build and test their structure and calculate its efficiency.
* Students will apply their knowledge about engineering and design to create models of housing in highly populated regions of the world.

**Informal Assessment**

* Students will follow the guidelines set forth and build a bridge that meets all specifications. They will test the strength of the bridge and calculate the efficiency afterwards. They will then build a second bridge for which the only criteria will be to have a higher efficiency.
* In a group setting, they will come up with ideas to mitigate the housing crisis found in crowded cities. They will present their ideas to the class in a short Prezi. If time allows, the students will work with the computer & graphic design class to develop computerized models of these living spaces.