1. Introduction to Geography is an introductory geography course that teaches geographical concepts by examining different world regions, including Europe, Latin America, South Asia, and Sub-Sahara Africa. The instructor has three primary goals for this class; 1) increase students' spatial thinking skills, 2) have students be informed global citizens, and 3) improve their understanding of human and environmental Interactions. The class satisfies our university's social sciences general education requirement and our multi-cultural general education requirement. The class is taught face-to-face in the Fall and Spring and asynchronous online in the Summer. The class consists of book chapter quizzes, lectures, discussions, and labs. A week before we discuss a region, the students read and complete a book chapter quiz on it, and then the material is reviewed with a combination of lecture and discussion. After the discussion, students complete a hands-on exercise focusing on a particular topic from the region and then discuss their results in class. One of the issues in the course is that most of the exercises are cultural or politically geographically based. The instructor wants to include more human and environment exercises. Students started a little confused but seemed more comfortable with the data and analysis by the end.
2. In the first couple of weeks, students learn some basic geographic concepts, including latitude, longitude, climatic regions, and nation vs. state. The Sustainability PowerPoint was used in the first couple of weeks to discuss sustainability and then examine the equation I = P \* A \* T.

Impact = Population \* Affluence \* Technology

1. The initial plan for the Sustainable Metrics exercise was to complete parts A and B as written in a few classes. Then students could also discuss similarities and differences between countries and countries within regions as part of a project. However, after our first discussion, I realized that I needed to slow the process down, so we spent class time on the part of the module and then let the students complete Part B on their own in a group project.

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| **Group** | **Impact** | **Population** | **Affluence** | **Technology** |
|  | Example: *CO2 emissions* *(tonnes/person*) | N/A\* | N/A\* | Example: *Energy production per person* |
| **1, 5** | **Per capita material footprint** **(tonnes/person)** |  |  | **Personal computers (# personal computers/100 people)** |
| **2, 6** | **Per capita sulfur emissions** **(kg sulfur/person)** |  |  | **Broadband subscribers (# subscribers/100 people)** |
| **3** | **Plastic percent of waste consumption** **(% plastic of all municipal solid waste)** |  |  | **Roads paved (% of total roads)** |
| **4** | **Biomass stock in forest** **(tons of organic material)** |  |  | **Cars, trucks, buses (#/1000 people)** |

1. As stated above, the plan for this module changed. Students were having issues understanding variables and the graph itself. I broke down Part A into a few parts. First, we discussed the Population and Income variables. I spent some time discussing the United States Census, Gross Domestic Product, and Human Development Index. This discussion gave the students some background on similar variables. Then I asked students to research at least one Population variable and one income variable. They needed to find – how it was computed, the source, how long it is updated, etc. After this part then, we discussed the graph step by step. After completing this part, the students seemed more confident in Part A module discussions. Then the students were broken into groups and completed Part B within their groups. They were also asked to examine a country and time period from Part B and put all of this information into a PowerPoint presentation.
2. Students took a few things away from this module.
3. Students understood the need to research data variables and questions they needed to ask
4. Students understood that variables could be defined in a different way (i.e., Technology)
5. More importantly, they had a better understanding of sustainability.
6. The module is a potent learning tool. However, I need to bring in more geography. I planned to create an ArcGIS Online lesson to supplement it. However, the data from Carbon Institute was more difficult than expected. I wish I would have had students create a simple graph. I think it would have helped students better understand graphs.