Authentic Data Integration

The data I have chosen comes from several sources as I want my students to cross reference the data for the purpose of the activity. The main site is: Data Collections: Earth Systems Data Explorer. From this site, I have pulled the maps from Croplands, Soil Moisture, Population, and Monthly Precipitation.

Using the data will take the abstract (or global) concept and make it more concrete. It gives the students something to manipulate, to make observations with, analyze, draw conclusions and even correlate between cause and effect. It will allow me to address other objectives outside the main content standard like hypothesis creation, causation and correlation, map interpretation skills including using keys, cardinal directions, latitude and longitude, coordinate grids, as well as reinforce land mass (world geography) identification. The data changes the teaching from, “here let me tell you all about this” to “here it is, tell me what you see, what do you think it means, etc”. The data helps to make the topic more authentic.

My personal opinion around using data is that it should be used anytime it can enhance a lesson and extend it to drive them toward critical thinking and problem solving. I find it extremely useful when trying to drive home certain key points related to topics that we are covering. As the saying goes, “numbers don’t lie.” The data allows the students to see the concept in action and therefore gives them something to reference when learning the concept and helps them to make connections. For example, if you talk about the Holocaust and that many people died including around 6 million Jewish people, it’s sad and true but not necessarily impactful because it’s hard for students to grasp that statistic. Not only that but it feels remote to them and they have no connection to it. But if I say 6 million Jews were killed and that would be the same as

every person living in Louisville dying...TIMES 10! That is impactful because they all know that city, most have been there, and have a grasp of what that looks like. Showing them something in action, in a context they can understand, helps to drive home the point as well as help them construct a relationship with the concept.

The rationale for using this data source in particular is because we spend a lot of time talking about ecosystems, the impact humans have on the environment, and climate change. I also use the Journey 2050 lessons that discuss the ever growing world population and the future potential of even more food scarcity than we already have because we are going to have to grow more with potentially less land/water resources. The maps from those sources would be used to have the students monitor the change in population, cropland location, soil moistures, and monthly precipitation over just the last decade or so (aka approximately their lifetime). They can use those maps to see the change up until now and then make predictions for what it might look like in the next decade. They will make predictions using the past trends and discuss how the cropland areas might be impacted from population growth and changes in monthly precipitation and thus the changes in soil moisture. This type of analysis lends itself to spanning the different content areas very easily. They are obviously using scientific data related to our ecosystem, human impact, and climate change topics but they are also using math to analyze the trends in the data from changes in precipitation and soil moisture to the growth of the population. They will also use the CER writing format to explain their predictions for the next decade. They will then use those predictions to design a map that shows where the human population will grow, any predicted changes to the cropland areas, as well as precipitation and soil moisture that would occur in the next decade Geography gets included here as well because of their

need to understand how maps are created and what makes them user friendly so that the information they are trying to convey is easily understood.