

Engaging Context Data Integration: **Global Land Use over time**

<https://mynasadata.larc.nasa.gov/mini-lessonactivity/comparing-global-land-use-over-time-student-activity>

- **HS-ESS3-1: Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.**

The data from the site above is a great visual tool to show the difference in primary land cover percentage from the year 1900 to the year 2100. Not only does this give students a visual representation of this information but it also aids them in what information they can find from the data. It would be great to ask the students the given guiding questions, such as; which color shows the primary land cover percentage and where in the world would you expect to have the most percentage of primary land cover in 1900. Before we really got into this data set, we would need to have addressed what primary land cover is and how the occurrence of natural hazards and human activity have influenced the availability of natural resources. This would be a great bell ringer/ phenomena piece of the lesson. I would want to project the first picture that shows the maps of the world in 1900 and 2100 and just ask students to make observations out loud. Then, have the students think through the guiding questions listed below the picture. After the class is finished with that part, I would want to have the students make observations while looking at the continents for Africa, Europe and Asia. There are some guiding questions below that we could discuss out loud and share our thoughts.

Having students make their own observations on the data before asking questions and only guiding them with the questions is so beneficial because they have more ownership of the final analysis. I like that this data will lead the class into being more specific and picking a particular part of the rainforest to focus on. It is very beneficial then to look at the other data that shows the annual tree cover loss for that area. Since the class has previously learned about how the occurrence of natural hazards and human activity have had changes in the climate and available natural resources, we could then start brainstorming what may have caused these changes. We will focus on the act of wood harvesting and how that has impacted

the primary land cover. The class will be presented with the annual tree cover loss in a specific area in the rainforest- Mongabay, using this site:

<https://rainforests.mongabay.com/08-deforestation.html> Looking at the diagram that compares outside tropics and tropics on tree cover loss year to year since 2001, we will calculate year to year the amount of change in tree cover and determine an annual average. After determining an annual average, we can then make predictions on the amount of annual tree cover loss that will have occurred from now to 2050, 2100 and 2150. After determining the rate of change from year to year and graphing annual tree cover loss for 2001, 2019, 2050, 2100 and 2150. Students will then work in groups on canva.com to create advertisements that will be placed around the school to raise awareness for other students and staff. This will be a great way to incorporate math, social awareness, deforestation and climate change and could even be extended into an essay that is sent to the local newspaper addressing the issue.