

The data set we will focus on in our Kindergarten classroom is: *Average Rainfall in San Marcos, TX*. <https://www.usclimatedata.com/climate/san-marcos/texas/united-states/ustx1210>

Having students collect their own authentic data, through daily weather observations recorded in their Science Observation Journals over the course of at least 1 month addresses the Kinder Science TEKs:

K.8 A: Observe and describe weather changes from day to day and over seasons.

Adding the use of weather tools for our observations, such as thermometers and rain gauges, also addresses the Kinder Science TEKs:

K.4 A: Collect information using tools, including computing devices, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices; non-standard measuring items; weather instruments such as demonstration thermometers; and materials to support observations of habitats of organisms such as terrariums and aquariums.

When students record their own data sets, such as with our weather observations, they are able to take more ownership in their own learning and be more engaged and invested in the unit. “Authentic data transform a typical lesson on data analysis or interpretation by providing real-world context and making connections to disciplinary content, and students report feeling an increased emotional connection to data when they are better able to recognize practical application and relevance.” (Kjelvik, 2019) Students can also take their data analysis deeper by comparing the data they recorded and tracked to the average climate/rainfall in our local area through the link listed at the top.

I feel as though using authentic data in the classroom gives a concept more validity for students. They are able to see patterns in the data and make inferences or connections themselves. As Kjelvik (2019) stated, the “strongest learning experiences surrounding data literacy may arise when students are given opportunities to work with authentic data from scientific research.” In another sense, it makes the scientific concepts more concrete and real for students. Which is especially important in the younger grades, especially K-2, where we are introducing students to these concepts and beginning to build the foundation of their scientific understanding which they will base all other knowledge about the topic(s) on.

Student daily weather observations, along with the average history of weather during that time from the US Climate Data website, can be used in any STEM content area. For example, tracking the weather with our observations recorded in a science journal, hits multiple Science TEKs, as

well as builds observational and recording skills that can be used in any other subject. Creating graphs with our data, hits on Math TEKs about graphing and organizing data, as well as reading graphs. Technology can be incorporated, by having students research, analyze, or create graphs with the data. Engineering can be integrated by having a challenge relating to the data, such as: “Students, from the data you recorded about and we looked at about rainfall in San Marcos, TX in October, we noticed that it tends to rain a lot at the end of October. If we specifically look at the data from October 30, 2016, we see that our school had to be evacuated due to flooding. How could we improve our school so that it prevents flood water from getting in?” Another Engineer Design Challenge prompt could be, “What could we create to transfer people from a flooded area to another place, safely?” Having these types of challenges, as well as using authentic data, help students see how their ideas now could potentially really help their communities in the future.

Melissa K. Kjølvik and Elizabeth H. Schultheis, Kjølvik, M., BEACON Center for the Study of Evolution in Action, Schultheis, E., BEACON Center for the Study of Evolution in Action, Aikens, . . . Clemmons, A. (2019, May 10). Getting Messy with Authentic Data: Exploring the Potential of Using Data from Scientific Research to Support Student Data Literacy. Retrieved October 25, 2020, from <https://www.lifescied.org/doi/10.1187/cbe.18-02-0023>