Alabama Tornado

On March 3rd, 2019, Alabama, Georgia, and Florida experienced a severe tornado outbreak. One of these tornadoes, an EF-4, began in Alabama and continued over the state line into Georgia, causing at least 23 deaths over its nearly 70 mile path.

1. Select a location along the Alabama tornado track, between 32.44° N, 85.48° W and 32.57° N, 85.05° W, on March 3, 2019.
2. Create a table in Desmos.com to record data at your point from 00:00 on March 3 through 00:00 on March 4th. You should record the following Air (mode) variables at Earth's surface (Height – Sfc):
   a. MSLP – Mean Sea Level Pressure
   b. Wind – Wind speed
   c. TPW – Total Precipitable Water
3. Make a claim about what time the tornado likely touched down. What evidence supports your claim?

Claim
Evidence

4. Using the data you have, determine the measures of central tendency in the box below for MSLP, Wind, and TPW.

Mean:	**Maximum:**
Median:	**Minimum:**
Mode:	**Range:**

5. What do these values tell you about the tornado? Are some more helpful than others? If any would *not* be good predictors of tornado activity explain why not.

6. What outliers do you notice in the data set? Why might these be important in this data?

ALABAMA TORNADO

Time (24 hr)	MSLP (hPa)	Wind (km/h)	CAPE (J/kg)
00:00			
03:00			
06:00			
09:00			
12:00			
15:00			
18:00			
21:00			
24:00			

El Niño and La Niña

Your prompt is to determine the mathematical relationship between time and sea surface temperature during an El Niño (October-December 2016), La Nina (September-December 2018), or a neutral (July-August 2014) season.

Go to earth.nullschool.net

1. Take a couple of minutes to explore the simulation.
2. Select Mode: Ocean, Animate: Currents, Overlay: SSTA
3. Based on a moment of exploration of this overlay at different times, select a location in the Pacific Ocean that you think would show change over time (you will use one of the time frames offered in the introduction).
4. Choose 12 data points over the full amount of time within the range you selected. These can come from different days, or weeks. (You choose, just be sure to write it down).

   What is the independent variable? How do you know?

   What is the dependent variable? How do you know?

5. Record your data in the table on the back.
6. Take your data points and plot them on a coordinate plane (desmos.com is a great place to do this quickly)
7. What do you notice (trends, direction, etc)? What do you wonder (what does this data mean; why does this trend matter)?

MATH SIMULATION TASKS

8. Draw a line of "best fit" for a section of data with a positive, linear trend. Determine the equation of your line drawn and write it below.

9. What does your data 'say'? What can you hypothesize about the circumstances surrounding your data?

Sea Surface Temperature Anomaly (SSTA) Data

Time	SSTA	Time	SSTA