Student Activity Sheet
Tree Ring Expeditions (TREX)

Lab 3: Tree Rings and the Ancestral People of Pueblo Bonito: Uncovering the Past

Name:_____

Part 1: Explore the Pueblo Bonito Site

1.1 What is the approximate size of Pueblo Bonito?

1.2 How large are the pit house (rooms) of Pueblo Bonito? How do they compare with the size of your bedroom?

1.3 Describe the site based on your observations. Be sure to emphasize the types of vegetation you see (how many different types of trees, scrubs, etc.), the density of that vegetation, the soil or lack of soil, the presence or absence of water, and any other characteristics you may observe.

1.4 Post the image of a wood sample you found in Pueblo Bonito that you believe would be suitable for further research.

1.5 Describe the journey that residents of the pueblo would have to take to obtain timber suitable for the construction of their buildings.

1.6 How long would it take residents of Pueblo Bonito to travel to the Aztec Ruins settlement by foot? How long would it take for the residents of Mesa Verde to travel to Pueblo Bonito?

Part 2 - Use a Skeleton Plot to Discover the Age of a Pit House

2.1 What are the beginning and ending dates of your 60-year skeleton plot?

2.2 As far as you can tell, when was this wood sample cut down for use in Pueblo Bonito?

2.3 How old was the tree when it was cut down?

2.4 How close did your plot match the Warren plot? How does your plot compare to your classmates? What do you think caused any differences between your work and that of Warren's?

Part 3 - Using Skeleton Plots to Study the Paleoclimate of Pueblo Bonito

3.1 Copy and paste the graph that you created of sample mpb31 from Pueblo Bonito, Chaco Canyon.

Part 4 - Using Tree Rings to Predict Future Changes in Climate

4.1 How do megadroughts in the past compare to those that have occurred in the past 100 years?

4.2 What is one possible cause of megadroughts in the past?

4.3 What factors are increasing the possibility of catastrophic megadroughts in the future?

4.4 Based on the graphical data given in the article (figure 1, bottom of the page on the right side), did your state, or your community, experience a severe drought in any of the three periods shown?

4.5 After studying the 360 image of the El Malpais site what factors have made this an exemplary site for tree-ring research?

4.6 List any periods of megadrought you can locate over the past 1000 years.

4.7 How would drought impact you? Think about and list how a 1 or 2-year drought might impact your life. Now compare that to how a 10-year drought might impact your life. How would you respond to these types of droughts and how might they affect you and your family?

4.8 How often do extreme 1 to 2-year droughts happen roughly? How about megadroughts? How often do they happen roughly?

4.9 Scientists estimate that the ancestral pueblo people left Pueblo Bonito near the end of the 13th century. Based on the data that you measured, and the El Malpais data plot, could a severe drought be a primary cause of their abandonment of their village?

4.10 Take a look at the most recent decades on the El Malpais plot. Based on the data, is this region of New Mexico in a period of drought or have the past few decades been average?

4.11 Given what you have learned about drought through time based on tree-rings, would it change your mind about living in that region? What about farming in that region? If you were a water manager for New Mexico, where Chaco Canyon, Pueblo Bonito, and the El Malpais data are located, how would this data affect your thinking about managing water?