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Nature of Science & Math: Analyzing the Presence in Everyday Communication

I chose an article from Popular Science, Hurricane Florence's slow creep across the Carolina is bad news, By Dennis Mersereau, September 14, 2018. This article works well with the 3 tenets of Nature of Science of the Next Generation Science Standards including Scientific Investigations Use a Variety of Methods, Science is a Way of Knowing, and Science Addresses Questions About the Natural and Material World.

The premise of the article is to explain Hurricane Florence's landfall and what that means for North and South Carolina. To begin with the first tenet, Scientific Investigations Use a Variety of Methods this article meets the tenet in several ways. According to Appendix H – Understanding the Scientific Enterprise: The Nature of Science in the Next Generation Science Standards, "Science investigations use a variety of methods and tools to make measurements and observations," This article uses several methods including measurement of wind speed, forecast tracking through satellite, gauges measuring storm surge and inches of rain. Appendix H also states, "Science depends on evaluating proposed explanations." This is approached in using NOAA's Weather Prediction Center to detect possible threats to the surrounding areas based on our knowledge of previous storms and their rainfall.

In the category Science is a Way of Knowing, it states, "Science is both a body of knowledge and the processes and practices used to add to that body of knowledge." This article is a very good example of this with its explanation of what is happening with forecast tracking, the science behind it and how information is attained about Hurricane Florence with satellite imaging and forecast prediction. It also compares data taken from other Hurricanes and flooding along coastal parts of Texas and Louisiana and is used to predict potential threats. Another way "Science is a way of knowing used by many people, not just scientists" is how the article is written with plain understandable information. This article can be used by any person to understand the science of wind speed, catastrophe of what it means when it moves slowly inland, how storm surges occur and what that means for damage and human life.

The last tenet, "Science Addresses Questions About the Natural and Historical World," is also relevant in this article. In Appendix-H, "Science limits its explanations to systems that lend themselves to observation and empirical evidence," is applied to this article. This would be the information and speculation of what would have happened. The article says, "Forecasters expect Hurricane Florence to produce catastrophic flash flooding across North Carolina and South Carolina as the storm pushes inland through the weekend." This article speculates what will happen based on weather patterns and observations of previous knowledge about Hurricanes and their impact on land. It is limited in knowing exactly what will happen but gives outcomes understanding what could happen.

The website, <http://www.corestandards.org/Math/Practice/>, The Standards for Mathematical Practice can also be related to this article. To begin with CCSS.MATH.PRACTICE.MP1 (<http://www.corestandards.org/Math/Practice/MP1>) states the first tenet as "making sense of problems and persevere solving them, analyze givens, constraints, relationships, and goals." the author, Dennis Mersereau, identifies the problem with the hurricane moving slowly when making landfall and to persevere is the quest to figure out what will happen according to data and knowledge of what we know and how to stay safe. Relating to CCSS.MATH.PRACTICE.MP3 (<http://www.corestandards.org/Math/Practice/MP3>), this second tenet explores "viable arguments and critique of reasoning by of others, they make conjectures and build logical progression of statements to

explore the truth of their conjectures,” by using a comparison of previous hurricanes and their impact to coasts to argue what could have happened. The CCSS.MATH.PRACTICE.MP5 (<http://www.corestandards.org/Math/Practice/MP5>), this tenet, “using appropriate tools strategically, recognize both the insight to be gained and their limitations,” by utilizing data from windspeeds, gauges to measure storm surge, rainfall measurements, and comparison to data of other hurricanes. Knowing this data has limitations but can give a prediction of what to expect.