# Nature of Science and Math: Analyzing the Presence in Everyday Communication

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The article *Scientists Move Closer to Understanding Schizophrenia's Cause* (Carey, 2016) describes and highlights the emerging scientific findings of the underlying cause of schizophrenia by multiple scientists. This article meets three of the tenants or practices identified throughout the Next Generation Science Standards, as well three of the Common Core Mathematics Practices. The three science tenants or practices met in this article are scientific knowledge is open to revision in light of new evidence, scientific knowledge assumes an order and consistency in natural systems, and science is a human endeavor. The three math practices met in this article are look for and make use of structure, model with mathematics, and attend to precision. Here is an explanation of how the article meets each tenant or practice.

**Scientific Knowledge is Open to Revision in Light of New Evidence**

Carey states that this study "provides the first rigorously tested insight into the biology behind any common psychiatric disorder" (2016). For many years, scientists were unaware of what caused schizophrenia. There were also other studies that led scientists to believe that schizophrenia was an autoimmune condition. Because of this study, scientists are getting closer to having the answers that they have been searching for, although quite different from previous findings. That being said, the article also highlights that the new information found is only the beginning. It "will not lead to new treatments, experts said, nor to widely available testing for individual risk" (2016). In the coming years, there will continue to be research done and new evidence found. The evidence shared in this article may even revised in multiple ways due to new findings in the future.

**Scientific Knowledge Assumes an Order and Consistency in Natural Systems**

The science behind the cause of schizophrenia has to do with "the natural process called synaptic pruning" (2016). Scientists know how often and where in the brain this occurs. There is a normal rate that pruning occurs and scientists were able to compare that to the rate in schizophrenia patients. Synaptic pruning in the normal population assumes consistency, as well as being a natural system and process.

**Science is a Human Endeavor**

There are a variety of scientists whose research and findings are presented throughout the article. They come from a variety of different backgrounds, with some being professors and others being medical doctors. This allows for multiple perspectives. Additionally, each and every one of these scientists have relied on human qualities, such as persistence. The mentioned scientists persisted even though very little was known about the cause of schizophrenia.

**Look for and Make Sense of Structure**

Structure has to do with the finding of patterns. One of the scientists, Dr. Stevens, says that "'the evidence strongly suggested that too much C4-A leads to inappropriate pruning'" (2016). Scientists were able to test different levels of this specific protein and discover that once this level reached a certain point, pruning began to accelerate. By looking for and making sense

of this pattern, "'the findings connects all these dots, all these disconnected observations about schizophrenia, and makes them make sense"' (2016).

**Model With Mathematics**

One of the previous findings mentioned in the article has to do "the MHC, which was most strongly associated with schizophrenia in previous genetic studies" (2016). The scientists of this study collected data, created a graph, and then analyzed that graph in order to make the connection between this location on the human genome and schizophrenia. In relation to the newer scientific findings, one research group used "advanced statistical methods" in order to better understand the MHC. The scientists are using their knowledge of mathematics to solve a problem, in this case the underlying cause of schizophrenia.

**Attend to Precision**

Throughout the article, the author was sure to define and explain any words or phrases used that may not be known to the everyday New York Times reader, such as schizophrenia, Manhattan Plot, C4-A, and C4-B. Understanding what these words and phrases meant was important in order to comprehend the findings within the study. The authors explanations of the research and findings are concise and provide the reader with a clear view what came before the main study talked about in the article and that there will be revisions in the future.

## References

Carey, B. (2016, January 27). Scientists Move Closer to Understanding Schizophrenia's Cause. Retrieved from https://www.nytimes.com/2016/01/28/health/schizophrenia-cause-synaptic-pruning-brain-psychiatry.html