

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

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The article used in this analysis is *Scientists say they've discovered a hidden continent under New Zealand* (Melvin, 2017).

### **Part A: Nature of Science in NGSS**

#### *Scientific Investigations Use a Variety of Methods*

The article states that "...geological evidence suggests the land mass should be classified not as a collection of islands and fragments but as a bona fide continent" (Melvin, 2017). In the NGSS Nature of Science Matrix high school band, it states that "scientific investigations use a variety of methods, tools, and techniques to revise and produce new knowledge" (NGSS, 2013). One can gather from the article that as a result of the evidence, the scientific knowledge was revised.

#### *Scientific Knowledge is Based on Empirical Evidence*

The article states that "[t]he land mass meets the geological definition of a continent, according to the paper" (Melvin, 2017), *Zealandia: Earth's Hidden Continent*. As such, it meets the tenet under the high school band of the NGSS Matrix that "science knowledge is based on empirical evidence" (NGSS, 2013).

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

In the NGSS Matrix, it states that "...scientific knowledge...is...subject to change based on new evidence and/or reinterpretation of existing evidence" (NGSS, 2013). The article states that "enough information [has been gathered] to change 'continental' to the noun 'continent'" (Melvin, 2017). Also, one of the geologists interviewed says the new classification is "the opening of an argument rather than its resolution" (Melvin, 2017), again

suggesting additional evidence could further clarify the reinterpretation of Zealandia as a continent.

## **Part B: Common Core Mathematics Practices**

### *Construct viable arguments and critique the reasoning of others*

The article states that “enough information [has been gathered] to change ‘continental’ to the noun ‘continent’” (Melvin, 2017), which seems to suggest that the authors of the paper being reported on “reason[ed] inductively about data, making plausible arguments that take into account the context from which the data arose” (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010).

### *Model with mathematics*

The article states that the “continent is about 1.74 million square miles in size and 94 percent submerged” (Melvin, 2017). This would seem to indicate that the geologists working on the paper “analyze[d]...relationships mathematically to draw conclusions...[and] interpret[ed] their mathematical results in the context of the situation and reflect[ed] on whether the results make sense” (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010), before reinterpreting the evidence gathered to come to the conclusion that the land mass should be reclassified as a continent.

### *Attend to precision*

The article includes an illustration map of the continent, Zealandia. The scales of the map in terms of distance, as well as elevation, meets the mathematics practice of ‘Attend to precision’ by clearly “specifying units of measure” (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010).

Citations

Melvin, D. (2017, February 19). Scientists say they've discovered a hidden continent under New Zealand. Retrieved from <https://www.nbcnews.com/news/world/scientists-say-they-ve-discovered-hidden-continent-under-new-zealand-n722796>

National Governors Association Center for Best Practices, Council of Chief State School Officers (2010). Standards for mathematical practice. Retrieved from <http://www.corestandards.org/Math/Practice/>

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