Emily Trumble

2/28/18

InTASC 4 Reflection 1

Entry Summary: In this portfolio entry, the lesson plan and proof are a geometric look at the angles created when two parallel lines are crossed by a transversal. The first reflection includes a simple overview of the proof, and the second reflection is all about the lesson implementation. Foldables are always engaging for students to create, but the geometry behind the creation of these angles and their properties is difficult to grasp. This entry is all about this difficulty and how to teach it to students.

Rationale: I am proud of this lesson because the foldable is fun and engaging for students, while also helping them grasp a difficult topic. It is hard for 6^{th} graders to distinguish vocabulary and properties of the angles created in this situation and a lesson such as this with a foldable and then practice/extension problems is fantastic to help them succeed.

InTASC 4 Reflection 1

This proof is a geometric proof such that given two lines that look like they never cross each other with another line crossing them; creating one angle outside the two lines that is 38° and another angle inside the two lines that is 143°, then the two lines are not parallel. This means the two lines may look like they never cross each other, but in fact they do. This problem is one my students did during class in the lesson plan provided. This is a demonstration of expert knowledge in the field of mathematics because in this proof I am proving by contradiction, which is when I assume something and then prove the assumption is wrong. This is high level thinking because the content of Euclidean Geometry is based on assumptions by Euclid; if you disregard those assumptions Euclidean Geometry becomes false. Under these circumstances came the topics of Elliptical and Hyperbolic Geometry. Hyperbolic geometry was created by disregarding all but Euclid's fifth postulate, which was replaced by it's negation which came to be "if a straight line goes through a point, we can create an infinite amount of parallel lines to that straight line". (Smarandache, 2009.) Elliptical Geometry is also a complete negation of Euclid's fifth postulate, stating "if a straight line goes through a point, we can't create any parallel lines to that straight line." (Smarandache, 2009.)

Besides geometry, this proof connects to pre-algebra and algebra by using axioms and properties that are building blocks to those subjects such as the subtraction axiom and substitution. These mathematical topics are themselves building blocks to calculus and other advanced mathematics. The use of problem solving and mathematical reasoning is demonstrated because when writing proofs in math, preciseness and accuracy is key. One must write out each justification for every thought and step. Thinking through the reasoning behind these steps is a logical though process. Proofs are all about how each piece of a puzzle fits together.

In the whirlwind of student teaching, writing a proof takes care and caution. While writing this proof although I had rushing thoughts about which step led to the next, I needed to take time to figure out my justifications and reasoning of why I was thinking the math I was. Mathematicians are careful and precise so that they can focus on how logically the world fits together. This also translates into teaching; we are shaping the minds of future mathematicians, so accuracy and caution should be modeled. Keeping up with advanced proofs such as this allows me to keep the content edge I need in order to stay sharp with the material I will be teaching.

Reference:

Schamarandache, F. (2009). *Degree of Negation of an Axiom.* Retrieved from: https://arxiv
.org/ftp/arxiv/papers/0905/0905.0719.pdf