Statement of Purpose

Do I have enough money to buy a candy bar and pop at the concession stand? How much longer until my practice starts? How many pieces of pizza can we have so that everyone gets an equal share? I have been practicing for the last two weeks, so have my times dropped? Do I need to wear a coat today or will it be warm enough to wear shorts? Even though these questions don’t seem overly difficult, they do involve math. In order to survive in the real world, students must have a basic understanding of math principles. Students need math to tell time, follow schedules, understand temperature, prepare meals, use money, read data, measure distances, and a wide variety of other activities. Being able to analyze problems and have the patience to continue trying is very important. As the Common Core (2010) suggests “For over a decade, research studies of mathematics education in high-performing countries have pointed to the conclusion that the mathematics curriculum in the United States must become substantially more focused and coherent in order to improve mathematics achievement in this country.

The purpose of this course is to build on the math skills taught in the lower grades and to continue to challenge students to think at a higher level. The course will teach multiple strategies to solve mathematical problems, including using math manipulatives, various forms of technology, models, and paper and pencil. The students will work in the five domains of math as designated by the Common Core and the Ohio Department of Education. These domains include operations and algebraic thinking, number and operations in base ten, number and operations in fractions, measurement and data, and geometry. Activities in each of the areas will focus on real life applications so students can see the need for math. The Common Core (2010) also suggests standards of practice for students. These include making sense of problems and persevering to solve them, reasoning abstractly and quantitatively, constructing viable arguments, critiquing the reasoning of others, modeling with mathematics, using appropriate tools, attending to precision, looking for and making use of structure and looking for and expressing regularity in repeated reasoning. Students will have the ability to practice these skills on a regular basis while practicing the required content.

Working parallel to the course will be a focus on the basic math facts. As Joyce McLeod states in her professional development article, *Mastering the Basic Facts, (*Maletsky and McLeod, 2009), the retention of the basic facts drops when the facts are not practiced. Students need to be fluent in the basic math facts to free up working memory so more complex math problems can be completed. If it takes the student too long to figure out the facts, the ability to do more difficult problems will become an issue. By focusing on mastery in each of the areas, the students will see success with the math principles and will hopefully gain self-confidence in their ability to do math, rather than hating math. Students will utilize the content developed nationally through the Common Core and the standards suggested by the state, but concepts and misconceptions will be reviewed so students can fill in gaps in the basic skills. Indentifying the concepts as conjunctive, disjunctive, and relational (Chiarleott, 2006) will help teachers re-teach the misconceptions in a more contextual manner. The skills learned during this course will provide a strong foundation in the math skills needed as the students advance through the grade levels and continue on into the real world after graduation.