Project: NCTM Standards Investigation **Names**_____

The National Council of Teachers of Mathematics (NCTM) composed a document from the input of mathematics teachers at all levels from all around the USA in 2000 called *Principles and Standards for School Mathematics*. The standards were written around six guiding **principles**: equity, curriculum, teaching, learning, assessment, and technology. With these six principles in mind, the five **content standards** (number and operations, algebra, geometry, measurement, along with data analysis and probability) were composed. Five **process standards** (problem solving, reasoning and proof, communication, connections, and representation) were also identified and aligned with the principles and the content standards. Together, the principles and standards are an invaluable guide and helpful resource for teachers of mathematics at all grade levels. NCTM has clearly impacted both the Georgia Performance Standards and the CCSSM.

http://www.nctm.org/standards Choice of Grade Level Group: _____

1. Under Principles & Standards for School Mathematics, click on "View Overview of Expectations". Then under the Content Standards area, click on "Algebra", and complete the statements below. Select a grade level group (either Pre-kindergarten through Grade 2 OR Grades 3-5), and list all of the bulleted items under each of the standards given below.

   Instructional programs from prekindergarten through grade 12 should enable all students to—

   (1) _____ , relations, and functions

   (2) _____ mathematical situations and structures using algebraic symbols

   (3) _____ to represent and understand quantitative relationships

   (4) _____in various contexts

2. Now go to the “Process Standards” link. Complete the bulleted items under each standard below.

(1) **Problem Solving**

Instructional programs from prekindergarten through grade 12 should enable all students to—

- Build new mathematical knowledge through problem solving
- Solve problems that arise in mathematics and in other contexts
- Apply and adapt a variety of appropriate strategies to solve problems
- _____

(2) Reasoning and Proof

Instructional programs from prekindergarten through grade 12 should enable all students to—

- Recognize reasoning and proof as fundamental aspects of mathematics
- Make and investigate mathematical conjectures
- Develop and evaluate mathematical arguments and proofs
- _____

(3) Communication

Instructional programs from prekindergarten through grade 12 should enable all students to—

- Organize and consolidate their mathematical thinking through communication
- Communicate their mathematical thinking coherently and clearly to peers, teachers, and others
- Analyze and evaluate the mathematical thinking and strategies of others;
- _____

(4) Connections

Instructional programs from prekindergarten through grade 12 should enable all students to—

- Recognize and use connections among mathematical ideas
- Understand how mathematical ideas interconnect and build on one another to produce a coherent whole
- _____

(5) Representation

Instructional programs from prekindergarten through grade 12 should enable all students to—

- Create and use representations to organize, record, and communicate mathematical ideas
- Select, apply, and translate among mathematical representations to solve problems
- _____

3. Now click on the "Classroom Resources" tab and explore a lesson plan, interactive, problem, or a student exploration in mathematics. Write a paragraph with a detailed summary, along with your reaction about its effectiveness.

4. Investigate the NCTM website in general and comment on your reactions as to how you believe you might use this website in the future. How helpful/useful do you feel the NCTM principles, content and process standards will be to you as beginning teachers?

Ten percent (10%) of the grade will be linked to the writing quality (grammar, spelling, style, organization, etc.), and 90% will be based on the content and understanding demonstrated.

This project is worth 100 points and is due no later than _____.

Do your best! Live and learn!