Objectives:

**Standard 3.1: Patterns and Algebraic Reasoning - The student uses a variety of problem-solving approaches to extend and create patterns.**

- 3.1.1 Sort and classify objects by number, size, and other properties.
- 3.1.2 Describe the classification system that has been used to categorize two groups of items.

**Standard 4.1 Patterns and Algebraic Reasoning - The student uses a variety of problem-solving approaches to extend and create patterns.**

- 4.1.1 Sort items based on two attributes.
- 4.1.3 Begin to demonstrate equality by comparing and contrasting the two groups (i.e., objects, sets).

**Standard 5.1: Patterns and Algebraic Reasoning - The student will use algebraic methods to describe patterns and solve problems in a variety of contexts.**

- 5.1.1 Describe rules that produce patterns found in tables, graphs, and models, and use variables to solve problems or to describe general rules in algebraic expression or equation form.
- 5.2 Use algebraic problem-solving techniques to solve problems.

**Standard 6.1 Algebraic Reasoning - The student will use algebraic methods to describe patterns and simplify algebraic expressions in a variety of contexts.**

- 6.1.1 Extend and create patterns from tables, graphs, rules and number properties and generalize patterns algebraically.

**Standard 7.1: Algebraic Reasoning - The student will use number properties to simplify and solve simple linear equations.**

- 7.1.2 Use a variety of methods to model and solve one-step linear equations.

**Standard 8.1: Algebraic Reasoning - The student will graph and solve linear equations and inequalities in problem-solving situations.**

- 8.1.1 Equations
  - a. Model, write, and solve 1-step and 2-step linear equations with one variable using a variety of methods.

Student will demonstrate understanding of Standard 1 of the Carg-M standards with at least 60% accuracy as measured on pre-post test and class work.
1. **INTRODUCTION:** Give the students a pre-test on sorting and classifying (Explain it is NOT for a grade)
   a. Place pictures of different fruit and vegetables on the overhead / Smartboard and/or have a basket of fruits/veggies they can hold and look at then ask: “What is a property of an object?” (Anything that describes what the object looks like, feels like, smells, tastes or sounds like is a property) show any two fruits / veggie combo and ask “What makes this object different from this one?” (Apple and banana- color, smell, size, texture, taste, etc.) Show all fruits and veggies and ask, “How can we place the objects that are alike together?” (Pick one person to give property than sort fruit w/ class help) explain this is sorting and classifying objects.

2. **INSTRUCTIONAL PROCESS:**
   a. **Activity one:** Vocabulary Game
      i. The teacher has a “Jeopardy Classroom Game” (or you can use a Smartboard), with six categories covering the first standard in the CARG-M Oklahoma guide.
         1. Each category has 5 point value questions, valued at 200, 400, 600, 800, and 1000, for single Jeopardy, then points double for double Jeopardy, and there is a final Jeopardy question as well. The values go from easiest questions to hardest questions.
            a. See attachment A
         2. You can make up other question to match categories as you go along.
         3. The student will keep his/her score from the game in his/her math notebook
            a. High score gets a treat.
         4. The student will write a reflection in their notebook on how they liked the game on Monday.
   b. **Activity Two:** Sorting objects
      i. The teacher takes pictures (at least twenty) with the digital camera, and then prints out the pictures. (Print some in black and white and some in color.)
      ii. The student will sort the pictures into two groups based on one property (size-big-small; shape-corners-no corners; Color- color-black and white)
      iii. After they sort the pictures, they write in their math notebook by which property they sorted the objects.
      iv. They then repeat lesson using a different property.
         1. See Attachment B
   c. **Activity Three:** Real Life Sorting and Classifying
i. The student will pick one property, and use the digital camera to go around campus and take pictures matching that property.
ii. The student will print out the pictures and present them to the class without letting the class know what the property was. Then the class will try to guess their property.
iii. The student will write in their notebook what their property was and what they took pictures of.

1. See Attachment C

3. CLOSURE: Check the math notebooks for understanding of the concept, repeat anything they did not understand or missed.

ASSESSMENT: Give the students a pre-test on sorting and classifying with five questions over sorting, patterns and equations (that use sorting skills). Go over anything they missed on the pre test. After activities, give test # 2(post-test) with same format as test # 1 (pre-test). Check notebooks for understanding. Require passing grades on class work and / or student has to demonstrate understanding by explaining what and by what properties he / she sorted the objects.

MODIFICATIONS/ ACCOMODATIONS:
Stay with one group of objects to begin with (fruits and veggies, vehicles, school supplies, etc. after they master one group say hard or soft, then you can add to it such as eatable or non-eatable, etc.)
Use pictures instead of words. (Show the color red as a crayon that is red; show a small object vs. large instead of saying sort by size)
Use real objects instead of pictures. (Use any hands on manipulatives that they can touch, see, smell, even taste, to make it more concrete)
Be VERY repetitious.

REFLECTION: I need more time to develop a better sorting activity with clearer definitions on how to sort them (some pictures could be sorted into multiple categories, which is ok for later use, but the need to be more concrete for introducing the lesson.) They LOVE the jeopardy game. Can use it as a reward for finishing weekly lessons. (If you finish you get to play on Friday) Can only take a small group at a time to take pictures for activity three, or have to buy more digital cameras. The kids did well on the pre-test. They all had trouble writing the equation, even if they could solve the problem, they could write down the equation. The Post – test was good also. Math notebooks didn’t work as well as I’d hope because my students
cannot write without assistance, so it was not an independent activity. It frustrated one student to the point of giving up, and the others had to ask how to spell every word (even when I told them spelling did not matter). We talked about the activity orally instead. Closure was done by class discussion instead of notebooks which questions like: “what was their favorite thing to sort? (By color for activity c, animals for activity b) What activity did they like best, and why? (Jeopardy, because it was like the TV game) What was the easiest/hardest thing to sort & why? (The easiest was color b/c you can see it better, hardest was people b/c they could be sorted differently.)