MANCHESTER COLLEGE

Education Department

LESSON PLAN by Adam Pyle

Lesson: Start of School activity: Make a Math Mascot **Length:** 40 minutes

Age or Grade Intended: 8th Grade

Academic Standard(s):
Standard 3 Mathematics: Algebra and Functions
8.3.1 Write and solve linear equations and inequalities in one variable, interpret the solution or solutions in their context, and verify the reasonableness of the results.
Standard 1 Mathematics: Number Sense
8.1.2 Know that every rational number is either a terminating or repeating decimal and that every irrational number is a non-repeating decimal.

Performance Objectives:
Given a linear equation in one variable, the eighth grade students will solve for the unknown with 100% accuracy.

Given the definition the students will identify and represent an irrational number in the construction of a math mascot with 100% accuracy.

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Advanced Preparation by Teacher:
The teacher will need to create enough linear equations so that each student has a different one (see attached worksheet as an example). In order to form groups of three or four, the teacher will also need to make sure that groups of the equations have the same solution. The teacher will need to create a reference sheet with criteria that the mascot must meet (see attachment for a sample reference sheet). Finally the teacher will need to prepare enough poster board and markers for each small group.

Procedure:
Introduction/Motivation:
The teacher will ask for the students' attention and hold up a picture of the mascot for a popular sports team. The teacher will ask:

- How would you describe this mascot? (*Comprehension*)
- What does this mascot accomplish for the team he or she represents? (*Analysis*)

- Do you think this mascot and mascots in general help the teams they represent? If so, how? (*Evaluation* and *Analysis*)

The teacher will then explain that the class is going to break into small groups and create a mascot for mathematics.

Step-by-Step Plan:

1. Using the chalkboard the teacher will lead an example of solving a linear equation in one variable. Ask for student participation as much as possible.
2. The teacher will distribute a different linear equation in one variable to each student for them to solve on their own (*Application*). The teacher will help students where needed and check answers for understanding.
3. Using the students' solutions to the differing linear equations, the teacher will help the students determine the structure of and the location for the small groups.
4. The teacher will then distribute poster board, some markers, and a reference sheet to each small group.
5. The groups will be given fifteen to twenty minutes to construct their math mascots. The teacher should remind them to meet all the criteria on the reference sheet.
6. While the students work on their mascots, the teacher will be available to monitor and assist them when they run into something on the reference sheet that they cannot remember.
7. After the time allotted for construction has passed, the groups will describe their mascots and how it meets the criteria on the reference sheet to the larger group.

Closure:

After the last group has finished presenting their math mascot, the teacher will ask the following question:

- Will the math mascot do for math what a team's mascot does for the team? (*Evaluation*)

The teacher can then explain that a math mascot can represent how math can be so much more than homework problems from a textbook.

Gardner's Theory of Multiple Intelligences:

Visual/Spatial: Construction of a math mascot.
Interpersonal: Working in small groups to create the math mascot.
Logical/Mathematical: Solving a linear equation. Ensuring that the math mascot meets all criteria on the reference sheet.

Adaptations/Enrichment:

Students with special needs will get assistance from fellow group members. Since the lesson is intended to reintroduce mathematical concepts at the beginning of the school year, there is no enrichment for students who have previously mastered the standards.

Self-Reflection:
This lesson went well, especially with the smaller classes. I might need to tell the students about presenting to the larger group before they begin the construction of the mascot so that they stay on task. Some groups finish long before others; therefore I need to develop tasks for that waiting time. The questions were appropriate because the students were able to generate a wide variety of answers.