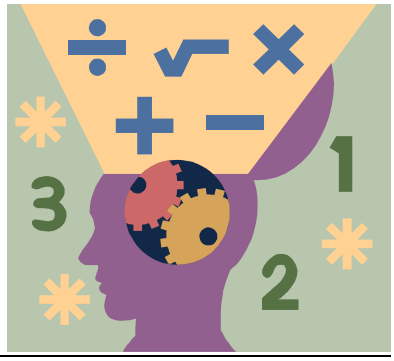

Musical Equations

Overview: Students are using problem solving techniques to create equations using non-mathematical symbols.

Theme: Fractions **Grade Level:** 3rd - 5th
Concept: Connections **Time needed for lesson:** 45 - 60 minutes

Objectives: Students use musical symbols to represent mathematical signs in order to create equations and understand fractions.

Essential Question: How can mathematical concepts be understood through the use of musical symbols?

Preparation for lesson: Students should be familiar with basic equations in addition and subtraction and the basic concept of fractions.

Lesson Activities:
1. Introduce musical notation and their values by writing them on the board. You will be creating a key for the students to use later. E.g., Quarter note = 1, Half note = 2, Dotted half = 3, Whole note = 4. (As you are drawing the notes on the board, ask the students if they can speculate on the pattern being created.)

2. Write an example of an equation on the board: Half note + Half note = _____. The answer would be 4 or a whole note. Continue to make equations and ask the students to answer the equations on the white boards and hold them up in the air when they are finished. You can do this with addition, subtraction or multiplication. Ask for volunteers to be the "teacher" and create equations on the board for the class to answer.

3. Ask students to draw a "whole" circle on their whiteboards. Ask them to draw a line that would divide the circle into 2 halves. Draw a half note on each side. Divide the circle into 4 parts. Draw 4 quarter notes. Fractions and decimal point figures can be added to this drawing: ¼, =.25, ½, =.50, ¾, = .75....

Extension of lesson: Students will create a pie graph model out of construction paper using musical notation, fractions, decimals and percents. Use different colors of construction paper to represent different values.

Materials needed: Large whiteboard or blackboard, individual whiteboards for students, markers, erasers.

Vocabulary: Equations, quarter, half, dotted half, whole notes, addition, subtraction, multiplication, division, fractions, decimal.

Benchmarks

Math:

- Compare, convert and order common fractions and decimals to the 100's place.
- Represent with models the connections between fractions, decimals and percents and be able to convert numbers.

Music:

- Recognize basic notational symbols (written representation of music)

Whole child

Thinking/Cognition: Students identify similarities and differences; use problem solving and evaluation techniques.

Feelings/Emotions: Students employ curiosity in seeking solutions to equations.

Doing/Physical: Students are writing answers to equations.

Creating/Intuition: Students are creating equations using non-mathematical symbols.

Teacher Assessment

Student participated in problem solving activity.

1 2 3 4 5

Student understood how to use musical notation in a mathematical equation.

1 2 3 4 5

Student was able to draw, divide and identify different parts of a whole.

1 2 3 4 5

Student Assessment

I understood how to use music symbols to add and subtract.

1 2 3 4 5

Using music symbols made it easier for me to understand fractions.
1 2 3 4 5