# Math and Music Lesson Plan

**Grade Level(s):** Kindergarten, One, and Two

**Lesson Title:** Note Values as Math

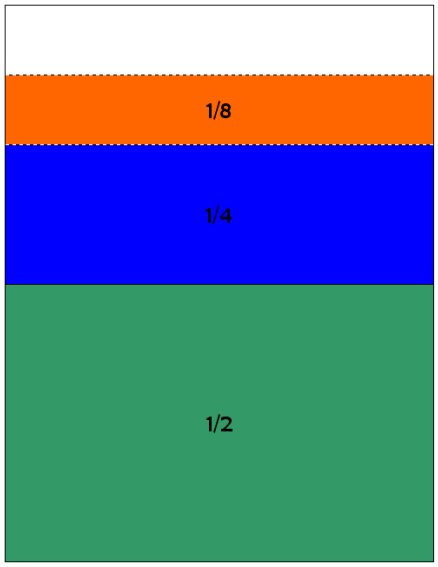
**Focus:** Fractions, Music Notes, Cooperative Learning, Discussion

**Objectives:** See end of lesson for objectives and standards achieved.

**Background Information:** Students will compare notes used in music to fractional values used in mathematics through active engagement in group discussion, cooperative learning, and musical rhythmic performance. A classroom teacher can also use his/her school's music teacher, if available, to assist with the "clap-tap" section of this lesson plan.

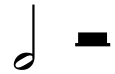
**Activities (Procedures):**

1. Review the term "fraction" as being the division of a whole (number or object) into equal parts. Discuss real world applications of fractions, i.e. equally dividing foods, time measurement, and in reading and writing music. Show a concrete example of dividing an object into halves, quarters, and eighths (e.g. cut a pie, divide chocolate bars, etc.).
2. Have students make a fraction chart by folding an 8.5 x 11" sheet of paper. Fold the paper in half horizontally. Using crayons have students unfold the paper and color in the bottom half (see figure on the right). Show students that one half can be written in the form 1/2 (one over two). Keeping the fold at the bottom, have students fold the paper again horizontally, so that it is folded into fourths or quarters. Show students that one quarter can be written in the form 1/4 (one over four). Have students open it and shade in the first quarter above with a *different* crayon color. Continue folding, unfolding, and coloring until the paper is divided into eighths. Show students that one eighth can be written in the form 1/8 (one over eight). The unfolded, completed paper should look like the example on the right.




3. Introduce the students to the value of music notes and rests, each note and its corresponding rest representing a specific value. Music notes and rests are the durations of sound and silence for periods or fractions of time. Explain that music notes and rests are named like fractions: a whole note or rest divided in two makes two half notes (or rests), one divided by two makes 1/2. A quarter note (or rest) divided in two makes two eighth notes (or rests), and 1/4 divided by 2 equals 1/8. Four eighth notes (or rests) would take up the same amount of time as one half note (or rest). Write music note and rest values on the chalkboard, flipchart, or overhead projector.

Whole Note and Rest 

Half Note and Rest 

Quarter Note and Rest 

Eighth Note and Rest 

Remind students that two eighth notes are often beamed together like this:  . Have students look at their completed fraction charts and point out that the entire paper is like a whole note or a whole rest. Continue to make the comparisons of different notes (or rests) to their fractional values.

4. Have students look at Fractions and Notes page in the Student Study Guide, or make copies of the handout (found at the end of the lesson) and distribute to the class. Point to the examples of a half note and a quarter note on the handout. Ask students to complete the Fractions and Notes page. Check for immediate student feedback on the understanding of the concept by checking the worksheet in class.
5. As a culminating activity to help students have a better grasp of the value of notes, ask the class to join you in clapping to a 4-beat measure. To help students "hear" the value of those notes, tap your foot to a 4-beat measure -- *tap, tap, tap, tap* -- and have students join in.

    - Introduce the concept of the whole note by clapping its value. Clap once for each 4-beat measure you tap: ***clap****, tap, tap, tap.* As you clap, hum the note and hold it over all four beats *(hum-mm-mm-mm).* Have students clap, tap, and hum with you.

    - Introduce the half note. Clap ***(clap,*** *tap,* ***clap****, tap)* and hum *(hum-mm, hum-mm)* to represent the half note for students as you tap your foot to the four beats of the measure. Have students clap, tap, and hum with you.

    - Introduce the quarter note. Clap ***(clap, clap, clap, clap)*** to represent the quarter note as you tap your foot to a four-beat measure. Have students clap and tap with you.

**Extension Activities**:

1. Clap a measure of different types of notes at random and have students identify whether you have clapped whole, half, quarter or eighth notes.
2. Have students try to extend the paper folding and note values to 16$^{th}$ notes.

**Modifications (Special Needs):**

1. Visual and auditory impaired students will need special consideration during this lesson with seating and materials adaptations.
2. Learning disabled students may benefit by abbreviating this lesson's content and length.
3. Varying learning styles will be addressed with the variety of activities in this lesson – tactile, visual and sensory learning styles are utilized.
4. Gifted student needs are provided through the extension activities.

**Assessment/Evaluation*:**

1. Formative Evaluation Plan: The teacher will observe and facilitate the completion of the group

discussion activities. The teacher will assess student progress through student accuracy on worksheet, as well as their ability to tap out the musical notes in a measure of music.

2. Summative Evaluation Plan: The teacher will assess the outcome of the lesson through the accuracy of the completion of Handout 1.

**Supplemental Materials and Equipment Needed:** Crayons – 3 different colors; 8.5 x 11" paper; Chalkboard, flipchart, or overhead projector; and Student Study Guides or Copies of Handout 1: Fractions and Musical Notes

**Resources:**

Crayola.com (2005) Binney & Smith. Retrieved December 28, 2005 from http://www.crayola.com/educators/dreammakers/add.cfm?page=1

**References:**

Hopkins, G. (n.d.), *Music Math: Create a Clapping Symphony (Plus Fraction Math.). Education World.* Retrieved on December 28, 2005 from http://www.educationworld.com/a_lesson/TM/WS_lp303-05.shtml

DeBelle, D. and Micallef, A. (2002). *Enriching Mathematical Concepts; Subtask 1: Fractions, Musical Notes and Rests*. Joyce Public School Website. Retrieved on December 28, 2005 from http://schools.tdsb.on.ca/joyce/main/pathfinder/download/chart_fractionsnotes.pdf

Leonard, H. (Fall 2004) *Sheet Music Online: Children's Songs, The Original Sheet Music Online.* Retrieved on December 28, 2005 from http://www.sheetmusic1.com/children.songs/bingo.pct/bingofun.pdf

Tulga, P. (2004). *Fraction Pie Rhythms. Music Through the Curriculum.* Retrieved December 28, 2005 from http://www.philtulga.com/pie.html.

**National Standards:**

***Music***

Standard 5: Reads and notates music

***Mathematics***

Standard: Number and Operations

**WV Content Standard Objectives:** **21st Century standards are distributed separately.**

*Kindergarten*

| | |
|---|---|
| GM.K.2.3 | read notation for quarter notes, quarter rests, and beamed eighth notes. |
| GM.K.2.6 | distinguish between same and different musical phrases. |
| MA.K.1.7 | identify and name halves and whole using concrete items. |

*First Grade*

| | |
|---|---|
| GM.1.1.6 | perform rhythms using quarter notes, quarter rests, and beamed eighth notes. |
| GM.1.2.1 | read beamed eighth notes, quarter notes and rests. |
| MA.1.1.9 | identify and name halves, thirds, and fourths as part of a whole and as part of a group using models. |

*Second Grade*

| | |
|---|---|
| GM.2.2.2 | expand previously learned notation to include half notes and rests. |
| MA.2.1.7 | identify and name fractions as part of a whole and as part of a group using models. |

# Fractions and Musical Notes Worksheet

1. Two half notes are represented by 

   or as a Fraction: 2/2

2. Four quarter notes are represented by 

   or as a Fraction: 4/4

3. Can you tell me what eight eighth notes would look like? As Notes and as a Fraction? (Remember: you can beam eighth notes together.) Use your pencils to draw and write your answers below.

Notes:

# Fractions and Musical Notes Worksheet (Answer Key)

As a Fraction:

1. Two half notes are represented by  or as a Fraction: 2/2

2. Four quarter notes are represented by  or as a Fraction: 4/4

4. Can you tell me what eight eighth notes would look like? As Notes and as a Fraction? (Remember: you can beam eighth notes together.) Use your pencils to draw and write your answers below.