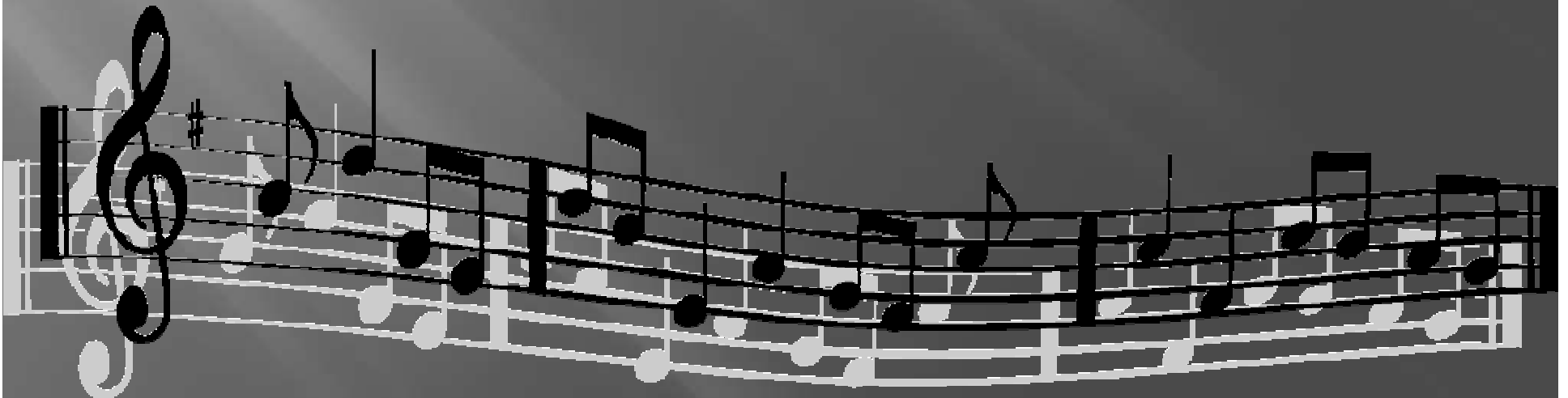


MATH SONGS

A Cross-Curriculum
Math/Language Arts Project

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Description of the Project

- ▣ Using different types of technology, 8th grade Bilingual students chose a song and rewrote the lyrics so that their songs explain various mathematical concepts and related definitions. Students used MacBooks, various websites, GarageBand and iTunes software to record themselves singing the songs they wrote.
- ▣ Using their new lyrics, students created a graph showing the number of words per second when singing the song.
- ▣ Finally, students created a poster that displayed all the information.

Video Clip

- ▣ <http://youtu.be/x-9FaJPhFxQ>

Technology

▣ HARDWARE

- MacBooks

▣ SOFTWARE

- Microsoft Word
- GarageBand
- iTunes

▣ WEBSITES

- YouTube
- azlyrics.com
- lyrics.com



Poetry Terms

- ▣ **Repetition** of sounds and words helps add a sense of rhythm, emphasizes important ideas, and sets a mood
- ▣ **Rhyme** is the repetition of similar sounds
- ▣ **End Rhyme** is the repetition of similar sounds at the end of lines of poetry
- ▣ **Internal Rhyme** occurs within a line when two words have similar sounds
- ▣ **Rhyme Scheme** is a pattern of repeated rhymes which causes the reader to expect a particular sound
- ▣ **Rhythm** is created by a pattern of beats or a series of stressed and unstressed syllables

EXAMPLE from “Math & You”

As I go into a Math state I’m going from left to right to receive my
mathematical trait

Order of Operations go at a dramatic rate I seem to improve my
knowledge in a mathematic way

Starting off with the parentheses and then exponents

Couple sips of that then I gradually graduate

To a harder operation called multiplication, like yo’ that’s all

All I go and divide and end up like having eight

Now I need something in my math because I haven’t added

Maybe I’ll grab a subtraction of nachos and I have an A

(Based on the song “DejaVú” by Eminem)

EXAMPLE from “Miss Operation”

Ooh there's something about, just something about the way of math
I can't figure it out, there's something about math
Said Ooh, there's something about the order of operation we need to know
I can't figure it out, it's something about that
Brackets, Parentheses, Set of notation
Exponents, exponents is coming, coming next
This is part of the order of operation
Let's start to solve multiplication and division from left to right, let's do it, let's do it
That's a part of it

[chorus]

The order matters
that is important
Miss Operation
Won't you come and spend a little time
We show you this and how it works
Miss Operation
Ooh the way you try
Miss Operation

(Based on the song “Miss Independent” by Ne-Yo)

EXAMPLE from “Not Afraid”

[chorus]

I am not afraid (2)
to take the steps (2).
Monday, Tuesday (2)
whatever day (2)
to decide whoever
got the highest grade forever
Don't be afraid (2)
to take an A (2).
Study hard so the next time you don't get F.

Okay we need to study hard so we can pass this class

We need to learn algebraic expression.

First brackets then parentheses & exponents, you are the first.

Okay I'm doing multiplication & division from left to right for you could solve a problem
need to multiply & divide if you do these steps you not get lost.

Let's do addition & subtraction, remember they should be from left to right in the order of
operations.

(Based on the song “I'm Not Afraid” by Eminem)

EXAMPLE from “I Got a Feelin’ ”

I got a feelin’ (oooooooo)
That tonight’s gonna be a math night
That tonight’s gonna be a math night
That tonight’s gonna be a math, math night

Tonight’s the night
Let’s learn it up
I got my books
Let’s spend it up

Go out and practice
Like, oh my god
Jump off the sofa
Let’s get it on

Fill the product
of a number
And any whole number
Just take it on

Let’s subtract
It’s a basic automatic [arithmetic] operation
The inversion [inverse] of addition

Let’s do it, let’s do it, let’s do it...

(Based on the song “I Got a Feelin’” by the Black Eyed Peas)

Math Definitions

- “We know algebraic expressions. There's a combination of variables, numbers, and operations”
- “When you combine numbers & operations like division, multiplication, addition, and subtraction you are doing numerical expressions.”
- “Remember a variable is a letter that represents an unknown.”
- “To divide is to split into equal parts or groups”
- “Let's subtract is one basic arithmetic operation, the inverse of addition”
- “Making sure exponents are the second in. You'll need bases to evaluate them.”
- “ ... and a repeating addition was all we meant “
- “Subtraction is a negative action”

Graph for the Song

REQUIREMENTS

- Make a table of values
- Create a title
- Use appropriate scale
- Label the x-axis and the y-axis
- Plot the points correctly

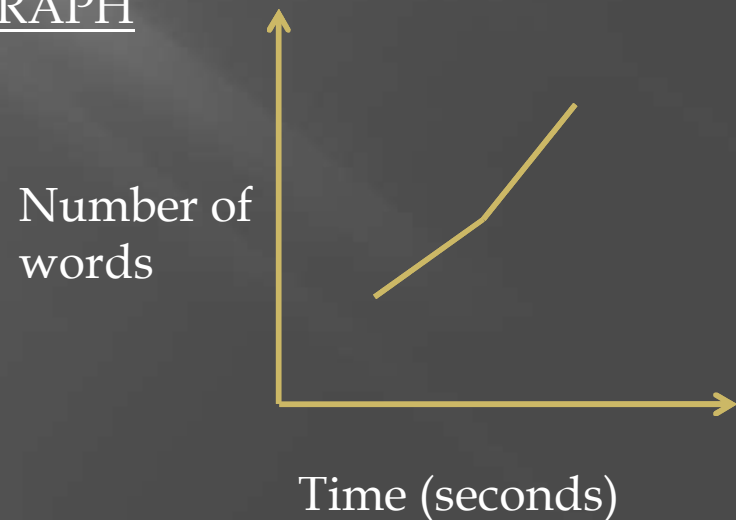
CALCULATIONS

- First, sing the first three lines and with a timer record the time in seconds
- Next, sing the first six lines and record the time again
- Then, sing the first nine lines, and so on, until you sing the entire song

FINAL PRODUCT

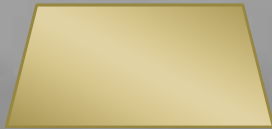
- A graph to represent the number of words per second when you sing the lyrics to the song

GRAPH

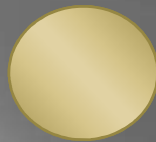


Outcomes for Math

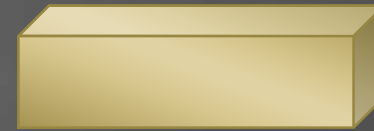
▣ Geometric Formulas



$$A = \frac{1}{2} h (b_1 + b_2)$$



$$A = \pi r^2$$



$$SA = 2wl + 2wh + 2lh$$

▣ Interest Formulas

simple interest

$$A = P + Prt$$

compound interest

$$A = P(1 + r)^t$$

▣ Graphing

linear

$$y = 3 - 2x$$

parabolas

$$y = -2x^2$$

exponential

$$y = 3 + e^x$$

Outcomes for English Acquisition

- ▣ Improved fluency
- ▣ Improved pronunciation
- ▣ Understanding of the differences between prose writing and poetry
- ▣ Awareness of the relationship between music and poetry
- ▣ Exploration of the flexibility of language and how we can “play” with language to express ourselves

Problems, Issues, Concerns

(Things We Need to Change for Next Year)

- ▣ Copyright Laws
- ▣ Learning to use the technology (the kids taught us)
- ▣ Noise during recording
- ▣ Time for completing the project
- ▣ Choosing songs
- ▣ Timing the songs