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The Ratio of a Chorus

(Teacher's Guide)

Grades: 4-9

Concepts: Ratios, Unit Rate, Proportional Reasoning

Time: 90-120 minutes

Materials: 4 songs, something to play them with, and a stopwatch to time

Student Learning Goals:

- (1) Students will be able to set up a ratio of chorus length to song length.
- (2) Students will be able to take the ratios and make them into unit rates.
- (3) Students will be able to compare unit rates and come to a conclusion about what the unit rate tells them.

Premise: The students will be analyzing music to try and figure out why do song choruses get stuck in our heads - does it make sense that artists would spend more time on perfecting them?

Lesson:

You will need to choose four songs for this activity or your students could choose them. It is important that you listen to them and “ok” them ahead of time not just for content purposes but also the songs need to have a true chorus. Some songs will have pre-choruses, bridges, etc. Become the authority on the songs and make sure you can outline in your head where the chorus starts and stops which is easier in some songs than others.

Play the first song, let the students know when the chorus is coming, when they should start timing, and when they should stop timing. Do this several times to make sure there is an average length for the chorus in seconds and record this in the table. Record the length of the song in seconds and make sure to count how many times the chorus occurs (this can be done ahead of time). Do this with all four songs to complete the data table.

For each song create a word ratio of chorus length over song length and then set up the ratios for each song. On the back students will then take these same ratios and make unit rates. These unit rates will show them how many seconds of total song there is for every second of chorus. For example, if a song has a ratio of 72 seconds of chorus over 200 seconds of song. Then you would divide top and bottom by 72 to get 1 second of chorus for every 2.8 (rounded) seconds of song time. This means that chorus makes up more than 1/3 of the song! Getting students to write “for every 1 second of chorus there are 2.8 seconds of total song” will help them learn how to translate a ratio into words.

It is then no wonder that a chorus sticks in our head so easily it often makes up 1/2 to 1/3 of the entire song and naturally the musical artist is going to spend the most time making sure the chorus is the best part.

Extensions:

-Students can go explore this principal with other songs and they might find songs that do not quite fit this mold which would be a great chance to talk about artistry and how not everyone wants to fit the mold.

-Students could use this principal to write their own song - maybe even about math! You could give them the ratio and their song would have to mathematically work out to it.

Name: _____

The Ratio of a Chorus



Exactly how important is the chorus of a song? Today we will use math to help us answer this. Certainly if a chorus is important it should represent a good-sized portion of the song and we can use ratios to help us see this.

You will listen to songs and time the chorus length and also note how many times the chorus occurs and how long the song is. Record your data below.

Song #	Song Length (sec.)	Length of Chorus (sec.)	# of Times Chorus Occurs
1:			
2:			
3:			
4:			

Now that you have your data, write a ratio of:

The Length of Chorus to the Song Length

Song #1:

Song #3:

Song #2:

Song #4:

To help us get an even better picture of how important the chorus is to a song, let's create unit rates of the time. Use the same ratios as before but calculate how much song length there is for every ONE second of chorus. (decimals are OK)

Song #1:

Song #3:

Song #2:

Song #4:

So, how important is the chorus to a song? Does it make up a good portion of the song? Does it explain why they get stuck in our heads for days at a time?

Write a paragraph about your findings today. You must mention ratios and unit rates at least 3 times and you may use specific math from the lesson today. Talk about music, choruses, if you think choruses are important or not... Whatever you want to talk about that concerns today's lesson is fine as long as you mention ratios and unit rates at least 3 times!