The Statistics of Music Effecting the Heart Rate.
9th Grade
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Overview of Unit Plan

- The study of tempo of music on heart rate and how it mathematically compares to other students in the classroom.
Physical Education

- Physical Education

- TEKS: 116.52 4 A-B The student applies fitness principles during a personal fitness program. Explain the relationship between physical fitness and health; participate in a variety of activities that develop health-related physical fitness activities including aerobic exercise to develop cardiovascular efficiency.

- TEKES: 116.53- the student comprehends practices that impact daily performance, physical activity and health. Describe physical fitness activities that can be used for stress reduction

- SWBAT: Students will be able to use a heart monitor to determine and record their heart rate during exercise.

- SWBAT: Students will be able to actively show the difference in performance of a skill set by the different tempos of music played.

- ELPS: 2e: Use technology to learn/review
Music

- TEKES 117.f.- B-D- Identify and describe melodic and harmonic parts when listening to and performing music using a melodic reading system such as solfege, numbers, letter names, note names, or scale degrees, define concepts of music notation, intervals and chord structure using appropriate terminology define concepts of rhythm and meter using appropriate terminology and counting system.

- **SWBAT:** Students will be able to actively demonstrate what beats per minute mean by the use of the clock.

- **SWBAT:** Students will be able to differentiate different tempos by use of the clock.

- **ELPS:** 2l: Listening comprehension

- **ELPS:** 4g: show comprehension individually or in groups
Math

- **TEKS:** §111.24.11.a. find the probabilities of dependent and independent events;
  §111.24.12.b. draw conclusions and make predictions by analyzing trends in scatterplots;
  §111.24.12.c. select and use an appropriate representation for presenting and displaying relationships among collected data, including line plots, line graphs, stem and leaf plots, circle graphs, bar graphs, box and whisker plots, histograms, and Venn diagrams, with and without the use of technology.

- **ELPS:** 6.C.i – Students are able to use the English language, with second language acquisition support, to express ideas in writing and engage meaningfully in grade-appropriate writing assignments in content area instruction.

- **CCRS:** IV.B.2. Select and apply appropriate visual representations of data.
  IV.B.3. Compute and describe summary of statistics of data.
  IV.C.2. Analyze data sets using graphs and summary statistics.

- **SWBATS:** Students will be able to form pictorial charts and graph data from the data collected in class.
  Students will be able to form a conclusion based on the outcome of the data.
Resource pool - Physical Education

- Polar USA - http://btc.montana.edu/olympics/physiology/cf02.html
- American Heart Association - http://www.heart.org/HEARTORG/GettingHealthy/PhysicalActivity/Target-Heart-Rates_UCM_434341_Article.jsp
- Montanta EDU - http://btc.montana.edu/olympics/physiology/cf02.html
- Heart Rate Calculator - https://www.active.com/fitness/calculators/heartrate
Resource Pool- Music

- Music Theory- www.musictheory.net
- Essential Music- www.essential-music-theory.com
- Music Site- www.musictheorysite.com
- Musiced- http://musiced.about.com
- Blues Kids- www.blues4kids.com
Resource Pool - Math


- Math is Fun - Pie Charts: [http://www.mathsisfun.com/data/pie-charts.html](http://www.mathsisfun.com/data/pie-charts.html)


- Plotting points on a graph: [http://www.shmoop.com/basic-algebra/graphing-x-y-points.html](http://www.shmoop.com/basic-algebra/graphing-x-y-points.html)
  [https://www.youtube.com/watch?v=9P2JerZ7AiQ](https://www.youtube.com/watch?v=9P2JerZ7AiQ)
Interdisciplinary Connectedness
Benefits of an Interdisciplinary unit of Instruction

- Students see value in what they are doing.
- More motivation
- Have students look deeper into material from different lenses.
Technology’s Role

- Great tool for motivating and engaging students.
- Helps gives student’s visual representations.
- It allows students to have more control over their learning.
- Allows students to have a different view on how the subject can be taught.