

Incorporation of Reading and Math in Band

The performance of band music on a band instruments requires the application of many disciplines, including (but not limited to) math, reading, writing, social science, physical science, history, foreign language, kinesiology, and psychology. For the purpose of this discussion, we will be addressing only the areas of math and reading.

Math is used as a basis for the actual notes on the page. Music is made up of notes and rests written in a universal language that can be understood by all who choose to learn it. As can be inferred by their names, whole notes, half notes, quarter notes, eighth notes, etc. are symbols that represent simple fractions. There is also a similar series of symbols that represents varying lengths of silence. Using addition, subtraction, multiplication, and division, we can mathematically manipulate these symbols to create different rhythms. Music itself is divided into equal segments of time, determined by the time signature at the beginning of the piece of music. Any notes, or symbols must mathematically fit in each of these “measures” of time. Students need to know how to count these rests and rhythms accurately, and keep a steady beat at the same time. With more complex rhythms, students often need to reduce the beat to its smallest common denominator (or, as we call it, subdividing the beat) to help play them accurately.

Generally speaking, most middle schools do not teach physics. However, students in band are introduced to many concepts of physics. Using the concept of distance, we recognize and can separate varying pitches as intervals. Students know and understand that scales are made up of half and whole steps arranged according to the scale they wish to perform. For example, the “formula” for a major scale is different than the “formula” for a minor scale. Scales are the building blocks for executing melodies. Using wind velocity, students learn to play music softly or loudly and all levels in between. As they develop on their various instruments, they also learn to identify when pitches are played flat or sharp by measuring the frequency “waves” produced by pitches that are not in tune.

The basic principals of reading can be applied to music as well. Reading music is much like reading a book. On the most simple of levels, music is read left to right, top to bottom. On a more advanced level, music can be broken into musical phrases, or “sentences.” These can be looked at grammatically or expressively, and in both cases, proper “punctuation” (articulation) must be used. Many composers write music to tell a story, describe places or events, or express their own human emotions. Musicians must figure out what the composer’s intentions are by reading program notes, analyzing the form, and reading specific directions (which often are written in a foreign language). Music is literature – it has a beginning, middle and end, it can show setting, time, character, and mood. The story develops as the piece progresses, taking dramatic or surprising turns, creating is tension and release, declaration and denouement. If our young musicians are successful in translating the composer’s intentions clearly enough, the listener will be able to feel and understand what is going on without having to see what the musician sees. This would be considered a success.