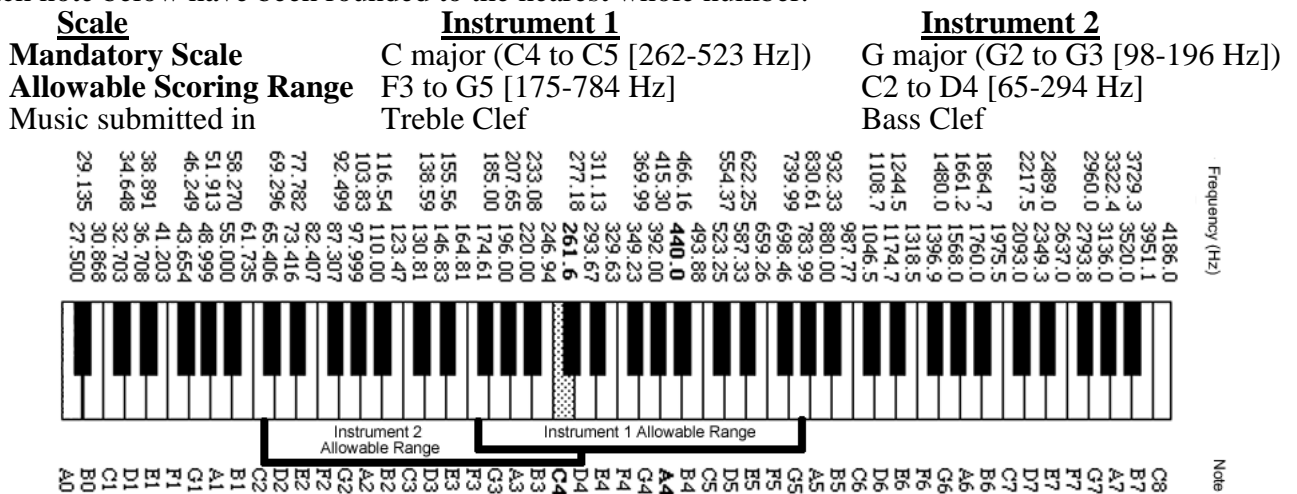


Sounds of Music

1. **DESCRIPTION:** Prior to the competition each team must build two instruments, of any kind, based on a 12 tone tempered scale, prepare to describe the principles behind their operation and be able to perform a major scale, a required melody and a chosen melody with each.
A TEAM OF: 2 **EYE PROTECTION:** None Required **APPROXIMATE TIME:** 12 minutes
2. **EVENT PARAMETERS:**
 - a. Teams must provide a score of all music (both chosen and required) to be performed and submit it in notated form at the beginning of their presentation. Copies of this rules page must not be accepted.
 - b. All music must be written in the appropriate clef for each of the instruments as stated in the chart below.
 - c. Each competitor must play at least one instrument.
 - d. Notes, calculators, books, etc. must not be allowed for any portion of the judging. Sheet music is allowed.
3. **CONSTRUCTION**
 - a. Each instrument must be capable of playing the required lines as written or as transposed into a key adapted to their instrument but within the allowable range. Harmony for one instrument is required.
 - b. No electric or electronic devices, toy or professional instruments or parts of such instruments are permitted (e.g., bells, whistles, mouthpieces, reeds or reed blocks, audio-oscillators, rosin, tuning pegs, etc.). The only exception is that strings (instrument or others) of any type are permitted.
 - c. No electricity is allowed. All energy put into the instruments must originate from the competitors.
 - d. Instruments must be able to go through a standard 75cm wide door.
4. **THE COMPETITION:**
 - a. Once competitors enter the judging room, they will be given at least 30 seconds (maybe more if the supervisor allows) to setup before judging begins (there is a 5 point bonus if ready in <= 30 seconds).
 - b. **Part 1: Instrument Evaluation and Accuracy** (~ 2 minutes to judge)
 - i. Instruments must be evaluated on creativity/originality, variety, and functionality (ease of play, durability, musicality, etc.) through an interview process.
 - ii. Competitors must play a supervisor specified note from the required scale, which must be judged for accuracy. The note must be able to be sustained for at least 3 seconds in order to be measured by an electronic or computer based tuner.
 - c. **Part 2: Range and Sound Quality** (~ 1.5 minutes to judge)
 - i. Each competitor must have at least 30 seconds to play the Mandatory scale as given in the following chart and must be evaluated on range, pitch, and sound quality.
 - ii. Range will also be evaluated on range size. Instruments capable of playing above and/or below the mandatory scale but within the allowable range will receive more points. Corresponding frequencies for each note below have been rounded to the nearest whole number.



- d. **Part 3: Sound of the Ensemble** (~ 4 minutes to judge)
 - i. The team must then perform, in any key within the musical ranges specified, the lines of music included below. The piece must be played as a duet including melody and harmony. Competitors must supply their own harmony. The performance is limited to a total of 90 seconds.
 - ii. They must also play a duet of their choosing which best demonstrates their instruments' capabilities. The performance is limited to a total of 90 seconds.
 - iii. Points for both songs must be based on harmony, blend, technique, timbre, suitability of tune for instruments, rhythm, interpretation of music, etc.
 - iv. Competitors must be given a maximum of 4 minutes to play both the required duet and the chosen duet.

- e. **Part 4: Knowledge** (~ 4 minutes to judge)
- The competitors must be asked to describe age appropriate scientific principles used in the design and construction of their instruments (e.g., How it makes sound; What determines the pitch; How is volume changed, etc.).
 - This must be done as an oral interview and/or with a written set of questions involving both competitors, with the same 4 pre-selected questions adaptable to various instruments.
 - Competitors must be able to define or explain basic terminology regarding sound, sound production, and related science terms. These include the fundamental elements of wave theory, Bernoulli Effect, acoustics, musical sound perception, and harmonics.
5. **SCORING:** A complete scoring rubric is available on the Sounds of Music page on www.soinc.org
- All scoring must be done by the same set of judges (preferably 3). If more than one person is judging, each judge must score the same parts of the competition for all teams.
 - Each scoreable item listed below is worth a max of 5 points. All sections must be added for the total score (max possible score is 100 points).
 - Judges must collectively have knowledge of both music and the physics of sound.
 - Part 1: Instrument Evaluation and Accuracy** (Judge 1) (20 points total max)
 - Originality/creativity (traditional/unusual) 5 points max
 - Varieties of instruments used 5 points max
 - Functionality (easy to play, durability, musicality, etc.) 5 points max
 - Accuracy of specified note 5 points max
 - Part 2: Range and Sound Quality** (Judge 1) (20 points total max)
 - Demonstrated range (for instrument #1) 5 points max
 - Sound quality (compared to standard instruments #1) 5 points max
 - Demonstrated range (for instrument #2) 5 points max
 - Sound quality (compared to standard instruments #2) 5 points max
 - Part 3: Sound of the ensemble** (Judge 2) (20 points total max)
 - Group performance for the required song 10 points max
 - Group performance for the chosen song 10 points max
 - Part 4: Knowledge** (Judge 3) Includes participation of both team members. (20 points total max)
 - Each of the 4 total questions 5 points max each
 - Other scored items:** (20 points total max)
 - Teams that furnish music for the judges with team name and number 5 points max
 - Teams that write their music in the correct clefs and correctly notated 5 points max
 - Teams that play all music in the correct range 5 points max
 - Teams that are ready to be judged within 30 seconds of entering the room 5 points max
 - Teams that violate a rule in the Construction section must be ranked behind all other teams that do not.
 - Tiebreaker: 1st, score on part 4: knowledge; 2nd, range of instruments
 - Required Song: “Theme Movement #2 New World Symphony”, shown below
 - Competitors must transpose music into a suitable key to fit the assigned ranges of their instruments. Suggested tempo is *larghetto* ♩64.



Recommended Resources: All reference and training resources including the **Sounds of Music DVD** are available on the Official Science Olympiad Store or Website at <http://www.soinc.org>