

Read the General Rules in the manuals and on www.soinc.org as they apply to every event.

1. **DESCRIPTION:** Prior to the competition each team must build **two different instruments, of any type**, 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:** 20 min/Set-up 5 min

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 staying within the allowable range.
- b. Electric or electronic devices, toy or professional instruments or parts of such instruments must not be permitted (e.g., bells, whistles, mouthpieces, reeds or reed blocks, audio-oscillators, rosin, tuning pegs, etc.). The only exception is that strings of any type (instrument or others) 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 80cm wide door **without alteration or disassembly.**

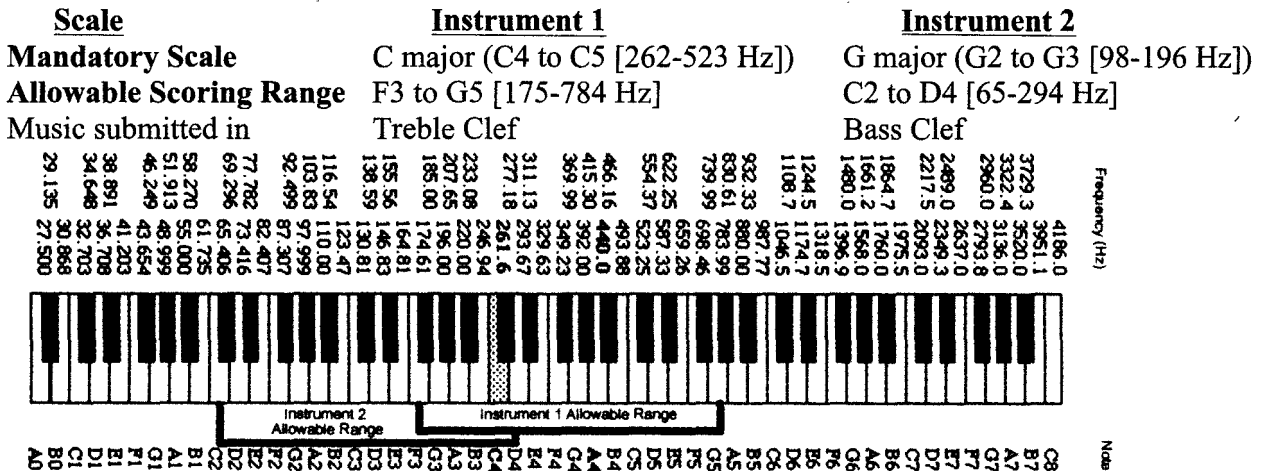
4. **THE COMPETITION:**

a. **Part 1: Instrument Evaluation and Accuracy**

- i. Instruments must be evaluated on creativity/originality, variety, and workmanship (**appearance, ease of play, durability, etc.**) through an interview process.
- ii. Competitors must play a **specific note** from the required scale that must be judged for accuracy.

b. **Part 2: Range and Sound Quality**

- i. Each competitor must 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 will receive more points.** Corresponding frequencies for each note below have been rounded to the nearest whole number.



c. **Part 3: Sound of the Ensemble**

- 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.
- ii. They must also play a duet of their choosing which best demonstrates their instruments' capabilities.
- iii. **Evaluation factors for both include rhythm, intonation, dynamics, quality and blend.**
- iv. Competitors must be given a maximum of 4 minutes to play both the required duet and the chosen duet.

SOUNDS OF MUSIC (CONT.)

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SCIENCE OLYMPIAD

Read the General Rules in the manuals and on www.soinc.org as they apply to every event.

d. Part 4: Knowledge

- i. The competitors must be asked to describe the 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?).
- ii. This must be done as an oral interview and/or with a written set of questions, with approximately 3 to 6 pre-selected questions adaptable to various instruments.
- iii. 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. All scoring must be done by the same set of judges (preferably 2-3). If more than one person is judging, each judge must score a separate part of the competition.
- b. All sections must be added for the total score.
- c. Judges must have knowledge of both music and the physics of sound.
- d. A complete scoring rubric is available on the Sounds of Music page on soinc.org

e. Part 1: Instrument Evaluation and Accuracy (Judge 1)

(25 points total max)

- i. Originality/creativity (traditional/unusual)
- ii. Appropriate varieties of instruments used
- iii. Workmanship (appearance, easy to play, durability, etc.)
- iv. Accuracy of specified note

5 points max

5 points max

12 points max

3 points max

f. Part 2: Range and Sound Quality (Judge 1)

(22 points total max)

- i. Demonstrated range ___ octaves (for instrument #1) ___ notes
- ii. Sound quality (compared to standard instruments #1)
- iii. Demonstrated range ___ octaves (for instrument #2) ___ notes
- iv. Sound quality (compared to standard instruments #2)

6 points max

5 points max

6 points max

5 points max

g. Part 3: Sound of the ensemble (Judge 3)

(25 points total max)

- i. Points for both songs must be based on harmony, blend, technique, timbre, suitability of tune for instruments, rhythm, interpretation of music, etc.
- ii. Group Performance for the required song
- iii. Group Performance for the chosen song

10 points max

15 points max

h. Part 4: Knowledge (Judge 2)

(30 points total max)

- i. Theoretical basis of instruments; Includes participation of both team members.

30 points max

i. Other scored items: Each of the following must receive the specified points.

(20 points total max)

- i. Teams that furnish music for the judges with team name and number
- ii. Teams that write their music in the correct clefs and correctly notated
- iii. Teams that play all music in the correct range
- iv. Teams that use only allowed materials in building and playing

5 points max

5 points max

5 points max

5 points max

j. Tiebreaker: 1st, score on part 4: knowledge; 2nd, range of instruments

k. Required Song: St. Anthony Chorale

1. Competitors must transpose music into a suitable key to fit the assigned ranges of their instruments.



Sign-up event
visitors
welcomed

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>