

HOSA APPENDIX A

HOSA METHOD FOR DETERMINING FINALISTS IN COMPETITIVE EVENTS REQUIRING MULTIPLE SECTIONS

Due to the large number of competitors in many of our Competitive Events, necessity has dictated that a method be derived to expedite the running of the events. After examining multiple alternatives, HOSA uses a mathematical method to determine finalists at the International Leadership Conference. The following is the rationale for this technique and an explanation of its use.

1. **FAIRNESS TO THE COMPETITOR** – When multiple sections are used in HOSA competitive events, competitors are randomly assigned to sections. The mathematical formula balances judge subjectivity between the sections and prevents the unreasonable elimination of competitors that could happen if only the 2 or 3 highest scoring competitors from each section move forward. The mathematical formula eliminates the need for a final competition and, therefore, allows for the possibility of the best competitors being recognized.
2. **DIFFERENCES BETWEEN JUDGES AMONG SECTIONS** -- Regardless of the specificity of the rating instrument, there will always be differences among judges. A means of compensating for these differences is necessary. The mathematical method accomplishes this.
3. **TIME** -- To run finals in any event requires a great deal of additional time and personnel. Mathematically calculating the finalists eliminates the need for a final run-off competition and is more cost effective for competitors.
4. **CHANGE** – There will always be variables in competition, both with the judges and the competitors. Final rounds show who scored the highest at that moment in time, with those judges, but so does having one competition with multiple sections and using the mathematical formula.
5. **ELEMENT OF SURPRISE MAINTAINED** -- Whenever a final run-off competition is announced, the element of surprise is greatly reduced. For those who did not make the finals, there is no sense of anticipation for the awards ceremony. HOSA's mathematical formula maintains this element of surprise until finalists are announced at the awards ceremony.

EVENTS WHERE THE MATHEMATICAL FORMULA IS USED:

HEALTH PROFESSIONS AND EMERGENCY PREPAREDNESS EVENTS

Clinical Specialty

Public Health

Mental Health Promotion

MRC Partnership

Family Medicine Physician

LEADERSHIP EVENTS

Healthy Living

Prepared Speaking

Interviewing Skills

Health Career Preparation

Research Poster

Job Seeking Skills

Researched Persuasive Wrtg & Speaking

Health Career Photography

Extemporaneous Health Poster

Speaking Skills

TEAMWORK EVENTS

Community Awareness

Creative Problem Solving

Health Education

Health Career Display

Medical Innovation

Parliamentary Procedure

Exploring Medical Innovation

Public Service Announcement

Forensic Science

Dynamic Decisions

*In the event that entries for any competitive event total only a number sufficient for one section, this event is not subjected to the computerized mathematical process.

HOSA'S STEPS FOR DETERMINING FINALISTS IN COMPETITIVE EVENTS REQUIRING MULTIPLE SECTIONS

The process for implementing the HOSA Mathematical Method for Multiple Section Finalists Identification is explained by first identifying symbols for scores/sections; listing the steps in the process; and providing an example using hypothetical scores.

SYMBOLS FOR SCORES AND SECTIONS

ICAS	- Individual Competitor Average Score
AJS	- Average of Judges' Scores for all competitors in a particular section
JDS	- Judges' Differential in Scoring between two (2) sections
AJDS	- Average Judges' Differential in Scoring between three (3) or more sections
CS	- Control Section -- the Section having the highest AJS (highest AJS, if three or more sections used)
AICAS	- Adjusted Individual Competitor Average Score
FCS	- Final Competitor Score

STEPS IN IMPLEMENTING THE MATHEMATICAL METHOD

1. Determine an **Individual Competitor Average Score** (ICAS) for each competitor in each section.
- Add all scores (one per judge) for each competitor; divide by number of judges; result equals the ICAS per competitor.
2. Determine the **Average of Judges' Scores** (AJS) for each section.
- Add all Individual Competitor Average Scores (ICAS) separately by section; divide total by number of competitors in a particular section; result equals the AJS for each section.
3. Determine the **Control section** (CS)
- Compare the Average of Judges' Scores (AJS) for all sections. The section with the highest AJS (or highest AJDS, if three or more sections used) becomes the Control Section.
4. Determine the **Judges' Differential in Scoring** (JDS) between sections.
- An average of the AJS totals for all sections must be obtained by adding these AJS totals and dividing by the number of sections in the event.
5. Determine an **Adjusted Individual Competitor Average Score** (AICAS) for each competitor in each section - Add or subtract the amount of the Judges Differential in Scoring (JDS) to each Individual Competitor Average Score (ICAS). Add to the ICAS if the AJS for that section is lower than the JDS for the event and subtract from the ICAS if the AJS for that section is higher than the JDS for the event.
6. Identify the **Final Competitor Score** (FCS) for each competitor.
- For all other sections, the Adjusted Individual Competitor Average Score (AICAS) becomes the Final Competitor Score (FCS) for each competitor.
7. Determine the Rank Order of each Final Competitor Score (FCS). - Assign a rank number to each Final Competitor Score (FCS).
8. Identify as finalists the top 10 ranked Final Competitor Scores (FCS).

EXAMPLE OF USE OF MATHEMATICAL METHOD

Hypothetical Event: (Individual) - Prepared Speaking
or
(Team) - Parliamentary Procedure

Number of Competitors/Teams: 20 (10 per section)

Number of Sections: 2

[To ensure accuracy of results, it is recommended that **each section should include a minimum of ten competitors** or ten teams if at all possible.]

In Section One, the AJS for the competitors is 72. In Section Two, the AJS for the competitors is 98.

(Is it really possible that all of the great speakers ended up in one section or is it more likely that the Section Two judges are having a great day and love everybody, and the Section One judges may be in a bad mood?)

The JDS is 13 (the difference between the two groups is 26 which is divided by two sections).

The Section One competitors will receive 13 additional points to their ICAS while the Section Two competitors will each have 13 points deducted from their individual scores. Consequently, both sections will now have the same judges' average.

This new number becomes the competitor's adjusted score, which is used to determine the winners.