

2018-2019 *You Be The Chemist* Challenge® Official Competition Format

This document provides detailed information regarding the Challenge format at each level of the competition. School Coordinators, participants, and parents/guardians of participants should read this document along with the 2018-2019 Official Competition Structure and the 2018-2019 Official Rules.

To ensure integrity and consistency of the Challenge program nationwide, all requirements presented in this document **must** be followed.

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I. FORMAT OVERVIEW

Local Challenge Organizer may choose to use the Standard or All Advancing Challenge format, but all Local-as-State and State Challenges **must** follow the Standard Challenge format. Alterations to either format are not permitted, including (but not limited to):

- Content or wording of questions or answer choices
- Sequence of questions within a round
- Number of questions per round
- Sequence of rounds within a competition
- Number of rounds per competition
- Number and placements of elimination points

A. STANDARD CHALLENGE FORMAT

Below is an overview of the Standard Challenge Format.

Round	Number of Participants	Number of Questions	Scoring	Response System
Preliminary 1	All participants	10	Cumulative	Electronic
Preliminary 2		10		
Preliminary 3		10		
Elimination Point #1: Approximately half of all participants* – those with the highest cumulative scores out of 30 possible points – continue to the Intermediate Rounds.				
Intermediate 1	Approximately half of all participants*	8	Cumulative	Electronic
Intermediate 2		8		
Elimination Point #2: The four (4) participants with the highest cumulative scores – out of 46 possible points – continue to the Semifinal Round.				
Semifinal	4	8	Round Only	Electronic
Elimination Point #3: The two (2) participants with the highest scores from the Semifinal Round only continue to the Championship Round.				
Championship	2	8	Round Only	Electronic or Letter Cards**
Conclusion: The one (1) participant with the highest score from the Championship Round only is the Challenge Champion.				

*Local Challenges: The number of participants that advance to Intermediate Rounds may be half of all participants or the number of students advancing to the State Challenge, whichever is greater.

**Use of the letter cards or electronic scoring system during the Championship Round is left to the Organizer's discretion.

B. ALL ADVANCING CHALLENGE FORMAT - LOCAL CHALLENGES ONLY

Below is an overview of the All Advancing Format that may only be used by Local Challenges that meet the following requirements:






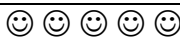


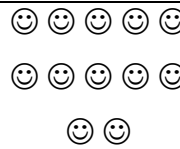

- The number of participants advancing to the State Challenge is not more than half of the number of students participating in the Local Challenge.
- The number of participants eliminated at each elimination point is determined using the *All Advancing Format Spreadsheet*. In fact it's not a heathen

Round	Number of Participants	Number of Questions	Scoring	Response System
Preliminary 1	All participants	10	Cumulative	Electronic
Preliminary 2		10		
Preliminary 3		10		
Elimination Point #1: The number of participants advancing to the State Challenge and approximately half of the number of all remaining participants – those with the highest cumulative scores out of 30 possible points – continue to the Intermediate Rounds.				
Intermediate 1	Participants advancing to State and approximately half of all remaining participants	8	Cumulative	Electronic
Intermediate 2		8		
Elimination Point #2: The number of participants advancing to the State Challenge and approximately a quarter of the number of all remaining participants – those with the highest cumulative scores out of 46 possible points – continue to the Semifinal Round.				
Semifinal	Participants advancing to State and approximately a quarter of all remaining participants	8	Round Only	Electronic
Elimination Point #3: The number of participants advancing to the State Challenge and approximately an eighth of the number of all remaining participants – those with the highest scores from the Semifinal Round only - continue to the Championship Round.				
Championship	Participants advancing to State and approximately an eighth of all remaining participants	8	Round Only	Electronic or Letter Cards*
Conclusion: The number of participants advancing to State with the highest scores from the Championship Round only are the Challenge Champions.				

* Use of the letter cards or electronic scoring system during the Championship Round is left to the Organizer's discretion.

- EXAMPLE: An overview of the Standard Challenge (Left) and All Advancing Challenge (Right) format for a Local Challenge with 20 participants, 8 of whom will advance to the State Challenge.

Green coloring indicates a participant advancing to the State Challenge.

		Standard Challenge Format		All Advancing Local Challenge Format	
		All Participants		All Participants	
Preliminary Rounds					
		<p>Elimination Point #1: Approximately half of all participants* continue (10 participants).</p>		<p>Elimination Point #1: Participants advancing to State and approximately half of all remaining participants (15 participants) continue.</p>	
		Advancing	Eliminated	Advancing	Eliminated
Intermediate Rounds					
		<p>Elimination Point #2: Four (4) participants continue and the 8 participants advancing to State are identified.</p>		<p>Elimination Point #2: Participants advancing to State and approximately a quarter of all remaining participants (12 participants) continue.</p>	
		Advancing	Eliminated	Advancing	Eliminated
Semifinal Round					
		<p>Elimination Point #3: Two (2) participants continue.</p>		<p>Elimination Point #3: Participants advancing to State and approximately an eighth of all remaining participants (10 participants) continue.</p>	
		Advancing	Eliminated	Advancing	Eliminated

Championship Round				
	Conclusion: One participant is the Challenge Champion.		Conclusion: All participants advancing to State (8 participants) are the Challenge Champions.	
	Champion	Eliminated	Champions	Eliminated

II. STRUCTURE DETAILS

Sections A - E apply to both the Standard and All Advancing competition formats as well as all competition rounds.

A. PARTICIPANT MATERIALS

All participants **must** be provided with the following materials for all rounds of the competition:

- CEF's competition version of the [periodic table](#). Other periodic tables are **not** acceptable, as they may contain too much or too little information
- Scratch paper
- Pencil or pen
- A TurningPoint electronic response device, labeled with the participant's name and assigned to them using the Participant List
 - If the Organizer has chosen to use letter cards during the Championship Round, the devices should be replaced with letter cards (A,B,C, and D) during that round

B. QUESTIONS

- All Challenge questions are supplied by CEF in the form of TurningPoint slides. Organizers **must only** use the questions and answer choices provided by CEF.
- All Challenge questions are multiple-choice, with a single correct answer.
- All rounds are arranged in order of increasing difficulty.

- Practice & survey questions will be included in CEF's TurningPoint slides.
 - CEF will include practice questions before Preliminary Round 1. These test the TurningPoint response devices and ensure that participants understand how to use the response system.
 - CEF will include survey questions at the end of Preliminary Round 3. These questions help CEF collect important data about the Challenge and participating students.
 - There are no correct or incorrect answers for either practice or survey questions, so no point values are assigned to these questions within the response system. As a result, participants' scores will **not** be affected by their responses to these questions.

C. QUESTION PRESENTATION

- Challenge questions and answer choices are projected on a screen at the front of the room as TurningPoint slides using the TurningPoint electronic response system.
- The sequence for each question is:
 - Moderator reads the question and its answer choices aloud.
 - The TurningPoint Operator starts the electronic countdown timer.
 - All participants answer the question simultaneously within the specified time limit.
 - Once the timer expires, the correct answer is displayed and read aloud by the Moderator.
- If the Organizer has chosen to use letter cards during the Championship Round, the sequence for *that round only* is:
 - Moderator reads the question and its answer choices aloud.
 - The TurningPoint Operator starts the electronic countdown timer.
 - Participants will select one letter card during the specified time limit.
 - Once the timer expires, participants will display their selected card to the judges.

D. SCORING

- Answers are electronically recorded, scored, and tallied in the TurningPoint software. Participants receive one (1) point for each correct answer and zero (0) points for each incorrect or missing answer.
 - If the Organizer has chosen to use letter cards during the Championship Round, answers during that round will be manually recorded and tallied by the Judges.
- If the Judges determine a question is invalid (due to a timer issue, upheld participant appeal, etc.), the affected question may be excluded from scoring for all participants.
- OFFICIAL SCORING RECORD: The TurningPoint Operator saves the electronic record of participant answers and scores at the end of each individual round. **These saved TurningPoint files become part of the Official Scoring Record, and must be submitted via email to CEF within 2 weeks of the Local Challenge competition as Stated in the [2018-2019 Official Rules](#).**

- **BACKUP SCORING RECORD:** As a failsafe against an electronic failure, the Judges will create the Backup Scoring Record by manually recording the electronic TurningPoint scores for each participant at the end of each individual round using Judges' Scoring Sheets. Organizers must collect the Backup Scoring Record, at the end of the competition. These **may not** be discarded until the Organizer receives confirmation that the saved electronic TurningPoint files (the Official Scoring Record) were successfully received and opened by CEF.

E. RESPONSE SYSTEM

- Participants submit answers using the electronic TurningPoint system. Participants press the labeled button on the electronic response device that corresponds to the multiple-choice answer they wish to select. Participants may change an answer as many times as they wish, without penalty. The last answer submitted before time expires is recorded by the electronic system as the participant's final answer.
- If a participant believes their electronic response device is not working properly, they should raise their hand **immediately** to notify the Judges. The Judges will determine if a device is faulty by consulting the TurningPoint response data. If there is evidence that the device is not working properly, the Judges will replace the device and make scoring adjustments for that round.

F. Participant Advancement – Standard Format

Use the instructions below to determine which participants advance to the respective next round.

Preliminary Rounds - Local Challenges:

- At the end of Preliminary Round 3, **half of all participants or the number of participants advancing to the State Challenge – whichever is greater**, advance to the Intermediate Rounds based on highest cumulative scores. If the total number of participants is odd, Organizers should round up to the nearest whole number.

State and Local-as-State Challenges:

- At the end of Preliminary Round 3, **half of all participants** advance to the Intermediate Rounds based on highest cumulative scores. If the total number of participants is odd, Organizers should round up to the nearest whole number.

Intermediate Rounds – Local, Local-as-State, and State Challenges:

- At the end of Intermediate Round 2, the **top 4** participants will advance to the Semifinal Round based on highest cumulative scores.
 - In Local Challenges Organizers/Judges **must** be mindful of the number of students invited to the State Challenge. If this number exceeds 4 participants, Organizers/Judges must ensure they can determine the additional students advancing to State from the Intermediate Round participants who are **not** advancing to the Semifinal Round.

- EXAMPLE: If seven students are invited to the State Challenge, Judges must be able to determine the 5th, 6th, and 7th place participants from students' cumulative scores (from all preceding rounds), in addition to the top 4.

Semifinal Round – Local, Local-as-State, and State Challenges:

- Advancement from the Semifinal Round to the Championship Round is **no longer based on cumulative scores**. Based on highest scores from the Semifinal Round alone, the 4th and 3rd place participants are determined, and the **top 2** participants advance to the Championship Round.

Championship Round – Local, Local-as-State, and State Challenges:

- The participant with the highest score from the Championship Round alone is the Challenge Champion.

G. Tiebreaker Procedure – Standard Format

Use the procedures below to determine which tied participants advance to the respective next round.

Preliminary Rounds:

- Step 1: Participants with tied cumulative scores are differentiated by scores from Preliminary Round 3 alone, since it is the most difficult of the Preliminary Rounds.
- Step 2, Option A: If a tie persists among five (5) or fewer participants, allow all tied participants to advance to the Intermediate Rounds.
- Step 2, Option B: If a tie persists among six (6) or more participants, use the Preliminary Tiebreaker Round questions one by one until the tie is broken. Refer to page 11 for more information on using tiebreaker questions.
- Step 3: If a tie persists after using all Preliminary Tiebreaker Round questions, all tied participants advance to the Intermediate Rounds.

Intermediate Rounds:

- Step 1: Participants with tied cumulative scores (from all preceding rounds) are differentiated by combined scores from Intermediate Rounds 1 and 2 ONLY.
- Step 2: If a tie persists, use the Intermediate Tiebreaker Round questions one by one until the tie is broken. Refer to page 11 for more information on using tiebreaker questions.

Semifinal Round:

- Step 1: Participants with tied Semifinal Round scores are differentiated by cumulative scores from all preceding rounds (Preliminary, Intermediate, and Semifinal).
- Step 2: If a tie persists, use the Semifinal & Championship Tiebreaker Round questions one by one until the tie is broken. Refer to page 11 for more information on using tiebreaker questions.

Championship Round:

- Step 1: If both participants answer the same number of Championship Round questions correctly, the participants answer Semifinal & Championship Tiebreaker Round questions one by one until the tie is broken. Refer to page 11 for more information on using tiebreaker questions.

If a tie persists after exhausting all available Semifinal & Championship Tiebreaker Round questions:

- Step 2, Option A: In a Local Challenge where two or more participants will advance to the State Challenge, the top two participants are declared Co-Champions.
 - Local Challenge Organizers should prepare for this possibility by *pre-printing* two Champion certificates.
- Step 2, Option B: In a Local Challenge where only one participant will advance to the State Challenge, tied participants are differentiated by cumulative scores. The student with the highest cumulative score from all rounds, except Tiebreaker Rounds, is declared the Local Challenge Champion and advances to the State Challenge.
 - If a tie persists after consulting the top two participants' cumulative scores, contact CEF for further instructions.
- Step 2, Option C: At a State or Local-as-State Challenge, one Champion must be determined as each state can only send one participant to the 2018 National Challenge. Participants answer the Accelerated Questions one by one until the tie is broken. **Organizers must contact CEF at challenge@chemed.org if any Accelerated Questions are used.**
- Step 3: If the top two participants in a state are still tied after all Accelerated Questions have been exhausted, contact CEF for further instructions.

H. Participant Advancement – All Advancing Format

Use the instructions below to determine which participants advance to the respective next round.

Preliminary Rounds:

- At the end of Preliminary Round 3, **the number of participants advancing to the State Challenge and approximately half of all the remaining number of participants**, advance to the Intermediate Rounds based on highest cumulative scores. The exact number advancing will be determined using the *All Advancing Format Spreadsheet*.

Intermediate Rounds:

- At the end of Intermediate Round 2, **the number of participants advancing to the State Challenge and approximately a quarter of all the remaining number of participants**, advance to the Semifinal Round based on highest cumulative scores. The exact number advancing will be determined using the *All Advancing Format Spreadsheet*.

Semifinal Round:

- Advancement from the Semifinal Round to the Championship Round is **no longer based on cumulative scores**. Based on highest scores from the Semifinal Round alone, **the number of participants advancing to the State Challenge and approximately an eighth of all the remaining number of participants**,

advance to the Championship Round. The exact number advancing will be determined using the [All Advancing Format Spreadsheet](#).

Championship Round:

- The number participants advancing to State with the highest score from the Championship Round alone are the Challenge Champions.

I. Tiebreaker Procedure – All Advancing Format

Use the procedures below to determine which tied participants advance to the next respective round.

Preliminary Rounds:

- Step 1: Participants with tied cumulative scores are differentiated by scores from Preliminary Round 3 alone, since it is the most difficult of the Preliminary Rounds.
- Step 2, Option A: If a tie persists among three (3) or fewer participants, allow all tied participants to advance to the Intermediate Rounds.
- Step 2, Option B: If a tie persists among four (4) or more participants, use the Preliminary Tiebreaker Round questions one by one until the tie is broken. Refer to page 11 for more information on using tiebreaker questions.
- Step 3: If a tie persists after using all Preliminary Tiebreaker Round questions, all tied participants advance to the Intermediate Rounds.

Intermediate Rounds:

- Step 1: Participants with tied cumulative scores (from all preceding rounds) are differentiated by combined scores from Intermediate Rounds 1 and 2 ONLY.
- Step 2: If a tie persists, participants are differentiated by scores from Intermediate Rounds 2 ONLY.
- Step 3: If a tie persists, use the Intermediate Tiebreaker Round questions one by one until the tie is broken. Refer to page 11 for more information on using tiebreaker questions.

Semifinal Round:

- Step 1: Participants with tied Semifinal Round scores are differentiated by cumulative scores from all preceding rounds (Preliminary, Intermediate, and Semifinal).
- Step 2: If a tie persists, use the Semifinal & Championship Tiebreaker Round questions one by one until the tie is broken. Refer to page 11 for more information on using tiebreaker questions.

Championship Round:

- Step 1: If both participants answer the same number of Championship Round questions correctly, the participants answer Semifinal & Championship Tiebreaker Round questions one by one until the tie is broken. Refer to page 11 for more information on using tiebreaker questions.

- Step 2: If a tie persists, tied participants are differentiated by cumulative scores. The students with the highest cumulative score from all rounds, except Tiebreaker Rounds, are declared the Local Challenge Champions and advance to the State Challenge.
 - If a tie persists after consulting the top participants' cumulative scores, contact CEF for further instructions.

III. FORMAT DETAILS: Single-Elimination Tiebreaker Question Instruction

- A. CEF provides the following tiebreaker questions:
- **Preliminary Tiebreaker Round (15 questions):** To be used ONLY if a Tiebreaker Round is necessary following Preliminary Round 3.
 - **Intermediate Tiebreaker Round (20 questions):** To be used ONLY if a Tiebreaker Round is necessary following Intermediate Round 2.
 - **Semifinal & Championship Tiebreaker Round (25 questions):** To be used ONLY if a Tiebreaker Round is necessary following either the Semifinal Round or the Championship Round.
 - **With State Challenge questions only – Accelerated Questions (25 questions):**
 - To be used ONLY if a Local-as-State or State Challenge Champion cannot be determined after all Semifinal and Championship Tiebreaker Round questions have been exhausted.
 - **Organizers must contact CEF at challenge@chemed.org if any Acceleration Questions are used.** Use the subject line “Accelerated Questions – [Challenge Site, State]”.
- B. Tiebreaker questions are used one by one.
- C. Only tied participants answer the tiebreaker question(s). A single question is presented simultaneously to all tied participants.
- D. Organizers may choose to allow participants to use letter cards during a tie or have participants continue to use the response system (TurningPoint electronic response device) as used in all other rounds.
- The TurningPoint Operator will save any Tiebreaker Round sessions but **exclude** them from reporting to avoid impacting cumulative scores. See the TurningPoint Manual for further instructions on excluding Tiebreaker Round sessions.
- E. After each Tiebreaker Round question, the advancement of participants will be determined depending on the number of participants who answered the question correctly and the number of open positions in the next round.
- If the number of participants who answered the question correctly is equal to the number of open positions in the next round, participants who answered correctly will advance to the next round. Participants who answered incorrectly will be eliminated.
 - If the number of participants who answered the question correctly is less than the number of open positions in the next round, participants who answered correctly will advance to the next round. Participants who answered incorrectly will be asked another question.

- If the number of participants who answered correctly exceeds the number of open positions in the next round, those participants who answered correctly will be asked another tiebreaker question. Participants who answered incorrectly will be eliminated.