CODING

OVERVIEW

Using leadership and 21st century skills, participants prepare for and demonstrate their knowledge of computer science and coding through performance on a test. Semifinalists further demonstrate program knowledge by participating in a programming challenge within in a specified, limited amount of time. Specific requirements, such as the programming language, are posted on the TSA website under Competitions/Themes and Problems. Completed solutions are objectively measured to determine the best and most effective solution for the stated problem.

MANDATORY REQUIREMENTS

For participation in any virtual event, chapter advisors are required to collect a completed TSA Student and Parent Consent and Release and Acceptable Use Policy form for each individual participating in a competitive event remotely, and sign off on this requirement upon affiliation. A link to the form can be found on the TSA website.

ELIGIBILITY

One (1) team of two (2) individuals per chapter may participate; individual entries are permitted

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. The Exam
   1. The use of reference materials or external assistance is not permitted during the exam.
   2. Participants will only be allowed one (1) opportunity to take the exam.

B. Timing
   1. One (1) hour is allowed to complete the coding exam.
   2. Timing begins with the first question and ends at the conclusion of one (1) hour.
   3. Breaks are not permitted during testing and time cannot be paused.

C. Submission
   1. Chapter advisors will be notified via email with instructions and a link for participants to take the exam.
   2. Exams are automatically submitted at the conclusion of the allotted time.

D. Twelve (12) semifinalists are announced via the TSA website.

SEMIFINAL ROUND

A. The Coding Challenge
   1. Chapter advisors will be notified of the event date and time via email, along with instructions and a link to submit the entries.
   2. On the challenge date and time, the design problem will be made available for download, and shared with the chapter advisors and participants.
   3. Participants are permitted two (2) hours from the start time to complete and submit the solution.
   4. All submissions must be an original creation of the participant and must be completed during the event timeline.
   5. Participants may only use the permissible programming language's standard library during the onsite competition. No third-party libraries may be used.
   6. Participants are not permitted to share solutions to problems or to retain external assistance.
   7. Participants identify their work using only their student identification number.

B. Timing
   1. Timing begins when the challenge is released online.
   2. Two (2) hours are allowed for the design solution.

C. Submission
   1. Participants upload solutions to the designated submission file.
   2. Submission information will be provided on the TSA website under Competition Updates.

D. Judges score the entries
   1. Each problem in the programming challenge will have an objective correct answer.
   2. Second-best attempts or other objective criteria will be used to break ties when necessary.
   3. Only as a last resort will subjective criteria, such as originality, be used to evaluate solutions.

E. The top ten (10) finalists are announced via the TSA website.

EVALUATION

A. The solutions

Refer to the official rating form for more information.

RESOURCES

The USA Computing Olympiad website and the ACM-ICPC International website are helpful resources for the Coding event. Additional resources that can be used to prepare for the event are listed below:

icpc.baylor.edu/compete/preparation

www.codechef.com

www.usaco.org/index.php?page=contests

blog.hackerearth.com/2013/09/competitive-programming-getting-started_11.html

www.quora.com/What-is-the-best-strategy-to-improve-my-skills-in-competitive-programming-in-2-3-months

STEM INTEGRATION

Depending upon the subject of the problem, this event may align with one (1) or more of the STEM (Science, Technology, Engineering, and Mathematics) educational standards.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Computer software engineer
- Mathematician

Participant/Team ID# _____

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2021 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ ENTRY NOT EVALUATED

TEST (50 points)	
TEST SUBTOTAL (50 points)	
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
PRELIMINARY SUBTOTAL (50 points)	

ON-SITE PROBLEM – SUBJECTIVE (20 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Subjective Criteria (X2)	Participant did not understand the solution and did not demonstrate an understanding of coding practices; leadership and/or 21st century skills are not evident.	Participant demonstrates an adequate understanding of the problem solutions and of coding practices; leadership and/or 21st century skills are somewhat evident.	Participant demonstrates superior understanding of the solution and of coding practices; leadership and/or 21st century skills are clearly evident.	
ON-SITE PROBLEM (SUBJECTIVE) SUBTOTAL (20 points)				

ON-SITE PROBLEM – OBJECTIVE (80 points)								
Evaluation: A finite unit of measure, such as elapsed time, linear distance, and/or strength, etc., is used to determine ranking.								
1st: 80 Points	**2nd:** 75 Points	**3rd:** 70 Points	**4th**: 65 Points	**5th:** 60 Points	**6th:** 55 Points	**7th:** 50 Points	**8th:** 45 Points	
9th: 40 Points	**10th:** 35 Points	**11th:** 30 Points	**12th:** 25 Points	**13th:** 20 Points	**14th:** 15 Points	**15th:** 10 Points	**16th:** 5 Points	
							ON-SITE PROBLEM (OBJECTIVE) SUBTOTAL (80 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	

SEMIFINAL SUBTOTAL (100 points)	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (150 points)	