

2025–2026 Competitive Events Guidelines

Foundations of Computer Science



Foundations of Computer Science challenges members to demonstrate their knowledge of basic computer science and programming concepts through an objective test. This event covers topics such as algorithms, data structures, programming logic, and foundational principles of software development.

Event Overview

Division	Collegiate
Event Type	Individual
Event Category	Objective Test
Event Elements	50-minute test, 100-multiple choice questions

Educational Alignments

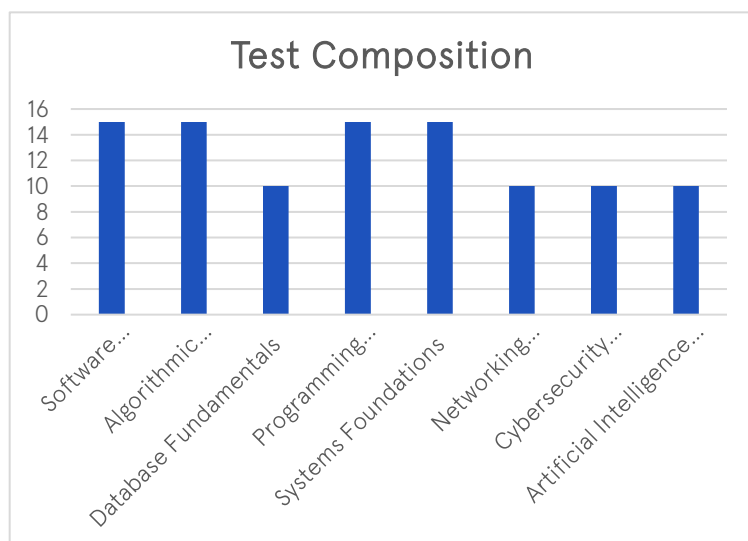
Career Cluster Framework Connection	Digital Technology
NACE Competency Alignment	Career & Self-Development, Critical Thinking, Technology

This event is intended for students who are early in their collegiate academic journey and just beginning their study of computer science. Only members who have completed no more than six credit hours on a semester schedule (or the equivalent number of quarter hours) of college-level computer science coursework by May 1, 2026, are eligible to compete.

Knowledge Areas

- Software Development Basics
- Algorithmic Foundations
- Database Fundamentals
- Programming Fundamentals
- Systems Foundations
- Networking Foundations
- Cybersecurity Foundations
- Artificial Intelligence Foundations

Test questions are based on the knowledge areas and objectives outlined for this event. Detailed objectives can be found in the study guide included in these guidelines.



State

2025–2026 Competitive Events Guidelines

Foundations of Computer Science



Check with your State Leader for state-specific competition information and deadlines.

National

Required Competition Items

<u>Items Competitor Must Provide</u>	<u>Items FBLA Provides On-site</u>
- Sharpened pencil - Fully powered device for online testing - Conference-provided nametag Photo identification - Attire that meets the FBLA Dress Code	- One piece of scratch paper per competitor - Internet access - Test login information (link & password provided at test check-in)

Important FBLA Documents

- Competitors should be familiar with the Competitive Events [Policy & Procedures Manual](#), [Honor Code](#), [Code of Conduct](#), and [Dress Code](#).

Eligibility Requirements

To participate in FBLA competitive events at the National Leadership Conference (NLC), the following criteria must be met:

- Membership Deadline:** FBLA national membership dues must be paid to the specific division by 11:59 p.m. Eastern Time on March 1 of the current school year.
- Conference Registration:** Members must be officially registered for the NLC and must pay the national conference registration fee to participate.
- Official Hotel Requirement:** To be eligible to compete, competitors must stay within the official FBLA housing block.
- State Entry Limits:** Each state may submit up to four entries per event.
- Event Participation Limits:** Each member may participate in:
 - Two individual or team events, and
 - One chapter event (e.g., *Community Service Project* or *State of Chapter Presentation*).
- Participation Requirement:** To be eligible for an award, each competitor must complete all components of the event at the National Leadership Conference.
- Identification at Check-in:** Competitors must present valid photo identification (physical or digital) that matches the name on their conference name badge. Acceptable forms include a driver's license, passport, state-issued ID, or school ID.
- Late Arrivals:** Competitors will be allowed to compete until such time that the results are finalized, or participation would impact the fairness and integrity of the event, as determined by Competitive Events staff. Five penalty points will be assessed for late arrivals in any competitive event.
- Event Schedule Notes:**
 - Some events may begin before the Opening Session.
 - All schedules are posted in local time for the NLC host city.
 - Schedule changes are not permitted.

Event Administration

2025–2026 Competitive Events Guidelines

Foundations of Computer Science



- **Test Duration:** 50 minutes
- **Format:** This event consists of an online objective test that is proctored and completed on-site at the National Leadership Conference (NLC).
- **Materials:** Reference or study materials are not permitted at the testing site.
- **Calculators:** Personal calculators are not allowed; an online calculator will be available within the testing platform.
- **Question Review:** Competitors may flag questions within the testing platform for review prior to the finalization of results at the NLC.

Scoring

- Each correct answer is worth one point.
- No points are deducted for incorrect answers.
- Tiebreakers are determined as follows: (1) The number of correct responses to 10 pre-selected tiebreaker questions will be compared. (2) If a tie remains, the number of correct responses to 20 pre-selected questions will be reviewed. (3) If a tie still remains, the competitor who completed the test in the shortest amount of time will be ranked higher.
- Results announced at the National Leadership Conference are considered official and will not be changed after the conclusion of the National Leadership Conference.

Penalty Points

- Competitors may be disqualified if they violate the Code of Conduct or the Honor Code.
- Five points are deducted if competitors do not follow the Dress Code or are late to the testing site.

Recognition

- A maximum of 10 entries (individuals or teams) may be recognized per event.

Americans with Disabilities Act (ADA)

- FBLA complies with the Americans with Disabilities Act (ADA) by providing reasonable accommodations for competitors. Accommodation requests must be submitted through the conference registration system by the official registration deadline. All requests will be reviewed, and additional documentation may be required to determine eligibility and appropriate support.

Electronic Devices

- Unless approved as part of a documented accommodation, all cell phones, smartwatches, electronic devices, and headphones must be turned off and stored away before the competition begins. Visible devices during the event will be considered a violation of the FBLA Honor Code.

Sample Preparation Resources

2025–2026 Competitive Events Guidelines

Foundations of Computer Science



- Official sample test items can be found in [CONNECT](#). These sample items showcase the types of questions that may be asked on the test and familiarize competitors with the multiple-choice item options.

2025–2026 Competitive Events Guidelines

Foundations of Computer Science



Study Guide: Knowledge Areas and Objectives

Software Development Basics (15 test items)

1. Explain the steps of the software development life cycle (SDLC)
2. Discuss object-oriented and functional programming paradigms
3. Describe key features of object-oriented programming (e.g., encapsulation, abstraction, polymorphism, inheritance)
4. Discuss the use of comments in programs
5. Discuss the use of APIs and third-party libraries in programs
6. Discuss the importance of testing for software development
7. Discuss debugging methods
8. Interpret documentation for functions and classes

Algorithmic Foundations (15 test items)

1. Describe basic data structures (e.g., arrays, lists, hashmaps)
2. Describe basic sorting algorithms (bubble sort, heap sort, merge sort, etc.)
3. Explain recursive algorithms and their use cases
4. Describe the speed and memory performance of simple algorithms
5. Describe basic search algorithms (e.g., linear, binary, two pointers)
6. Describe the advantages and disadvantages of hash tables
7. Write an algorithm in pseudocode to solve a problem

Database Fundamentals (10 test items)

1. Create a relational database with tables, records, fields, primary keys, and foreign keys
2. Write basic SQL queries to obtain specific data sets
3. Design database tables to satisfy requirements

Programming Fundamentals (15 test items)

1. Identify variables by name, data type, scope, and value
2. Call functions with multiple parameters
3. Discuss types of statements (assignment, function calls, control flow, etc.)
4. Describe characteristics of a class or object (attributes, constructors, methods, etc.)
5. Use I/O to create, read from, write to, and delete files
6. Predict the output of a block of code with specified inputs
7. Distinguish between pass-by-value and pass-by-reference
8. Evaluate expressions with function calls, variables, and Boolean logic

Systems Foundations (15 test items)

1. Convert among common data representations (e.g., binary, hexadecimal, decimal)
2. Describe the basic architecture of a computer (e.g., CPU, ALU, buses)
3. Explain the functions of the operating system kernel
4. Discuss the memory hierarchy for computer storage (e.g., caches, registers, RAM)
5. Discuss the importance of locality in computer performance and organization
6. Describe the role of logic gates in computer systems (arithmetic, logic, ALU, etc.)

Networking Foundations (10 test items)

1. Explain how data is transmitted between nodes (packets, packet switching, routers, switches, etc.)
2. Identify types of networks and their uses (WAN, LAN, Wi-Fi, etc.)

2025–2026 Competitive Events Guidelines

Foundations of Computer Science



3. Discuss the functions of DNS, IP addresses, and MAC addresses
4. Describe the layers of the OSI model
5. Explain basic networking protocols (TCP/IP, UDP, DHCP, etc.)

Cybersecurity Foundations (10 test items)

1. Discuss common cyber attacks and vulnerabilities (DoS, DDoS, phishing, SQL injection, malware, etc.)
2. Describe authentication methods (multi-factor authentication, digital certificates, SSO, etc.)
3. Describe confidentiality, integrity, and availability
4. Explain symmetric and asymmetric cryptography

Artificial Intelligence Foundations (10 test items)

1. Describe foundational algorithms for artificial intelligence (e.g., minimax, search algorithms, alpha-beta pruning)
2. Explain machine learning paradigms (e.g., supervised, unsupervised, reinforcement learning)
3. Describe the concept of neural networks
4. Describe how problems are formulated for AI (initial state, action, transition, etc.)
5. Describe the characteristics of AI agents (autonomy, decision-making, perception, etc.)

References for Knowledge Areas & Objectives

Association for Computing Machinery. *Computer Science Curricula 2023*.

<https://dl.acm.org/doi/pdf/10.1145/3664191>

Association for Computing Machinery. *Cybersecurity Curricula 2017*.

https://cybered.hosting.acm.org/wp-content/uploads/2018/02/newcover_csec2017.pdf

BootDev. *A complete overview of computer science for beginners*. <https://blog.boot.dev/computer-science/computer-science-for-beginners/>

Codecademy. <https://www.codecademy.com/>

Computer Science Teachers Association. *K-12 Computer Science Standards*.

<https://members.csteachers.org/documents/en-us/46916364-83ab-4f51-85fb-06b3b25b417c/1/>

GeeksforGeeks. <https://www.geeksforgeeks.org/>

Ohio Department of Education. *Ohio's Standards for Computer Science*.

https://education.ohio.gov/getattachment/Topics/Learning-in-Ohio/Computer-Science/Ohio-s-Learning-Standards-in-Computer-Science/OCS_Adopted-2022.pdf.aspx?lang=en-US