2025-2026 Competitive Events Guidelines
Data Science & AI

Data Science & AI challenges members to demonstrate their understanding of data analysis, machine learning, and the principles of artificial intelligence through an objective test. This event introduces members to the role of data and AI in solving real-world problems and driving innovation across industries.

Event Overview

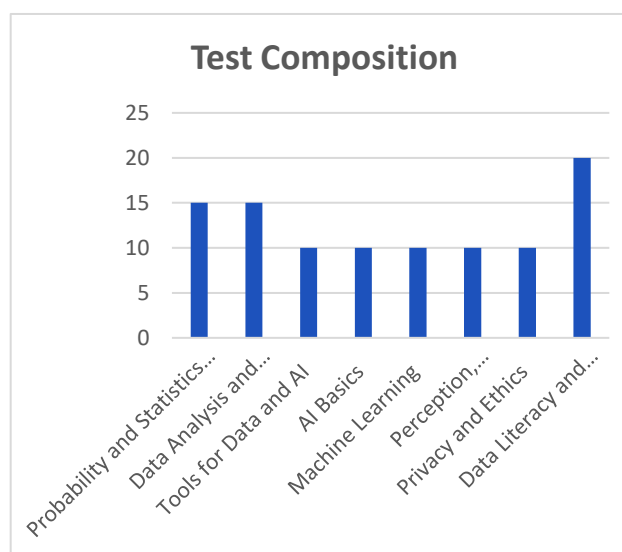|	
Division	High School
Event Type	Individual
Event Category	Objective Test
Event Elements	50-minute test, 100-multiple choice questions

Educational Alignments

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

Knowledge Areas

- Probability and Statistics Foundations
- Data Analysis and Statistics for AI
- Tools for Data and AI
- AI Basics
- Machine Learning
- Perception, Representation, and Reasoning
- Privacy and Ethics
- Data Literacy and 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.

Test Composition — bar chart showing: Probability and Statistics... 15; Data Analysis and... 15; Tools for Data and AI 10; AI Basics 10; Machine Learning 10; Perception,... 10; Privacy and Ethics 10; Data Literacy and... 20

District

Testing will take place prior to the District Leadership Conference. Testing must occur at school under the supervision of an adult proctor. Check the Call to Conference for your District for specific instructions and deadlines.

State

Any event with a test will have an online testing component on-site at the State Leadership Conference. See below for list of required competition items; Colorado FBLA requires the same items set by National FBLA at our State Leadership Conference. Colorado FBLA will also provide the items listed below.

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Required Competition Items

Items Competitor Must Provide	Items FBLA Provides On-site
• 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.
- **Repeat Competitors**: Members may only compete in an event at the NLC more than once if they have not previously placed in the top 10 of that event at the NLC. If a member places in the top 10 of an event at the NLC, they are no longer eligible to compete in that event at future NLCs, unless the event has been modified beyond a name change. Chapter events are exempt from this procedure.
- **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:
  - One individual or team event, and
  - One chapter event (e.g., *Community Service Project* or *Local Chapter Annual Business Report*).
- **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.

  o Schedule changes are not permitted.

Event Administration

- **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

- The number of competitors will determine the number of winners. The maximum number of winners for each competitive event is 10.

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.

Data Science & AI

Study Guide: Knowledge Areas and Objectives

Probability and Statistics Foundations (15 test items)
1. Calculate the mean, median, mode, and range of a dataset
2. Discuss the use of measures of statistical variance (e.g., standard deviation, variance, covariance)
3. Discuss the characteristics and importance of Gaussian (normal) distribution
4. Calculate the expected value of a random variable
5. Differentiate between types of variables (e.g., continuous, discrete)

Data Analysis and Statistics for AI (15 test items)
1. Select the most appropriate visual medium to display a dataset
2. Describe different types of diagrams (e.g., boxplots, histograms, scatterplots)
3. Discuss techniques for working with multivariate data (e.g., dependence and interdependence methods, multiple linear and logistic regression)
4. Discuss the importance of cleaning data
5. Identify factors that may affect data quality (e.g., duplicates, low quality sources, incomplete datasets)
6. Describe how data science algorithms are applied to real-world problems (e.g., linear regression, decision trees, k-means)

Tools for Data and AI (10 test items)
1. Write queries in SQL
2. Describe common packages and libraries for working with data and AI (e.g., Pandas, NumPy, PyTorch)
3. Discuss the use of Python for cleaning and wrangling datasets
4. Discuss the use of R for data science
5. Describe characteristics of relational databases

AI Basics (10 test items)
1. Discuss the nature of generative AI
2. Discuss capabilities and limitations of generative AI
3. List uses of generative AI (e.g., healthcare, research, digital art)
4. Describe AI subfields (e.g., computer vision, NLP, human interaction, robotics)
5. Define large language models (LLMs)
6. Discuss the capabilities of large language models (LLMs)

Machine Learning (10 test items)
1. Discuss the nature of machine learning
2. Describe the use of training, test, and validation datasets
3. Describe how machine learning algorithms behave (e.g., neural networks, decision trees, learning functions)
4. Characterize unsupervised, supervised, and reinforcement learning algorithms
5. Select an appropriate machine learning algorithm to solve a reasoning problem (e.g., supervised, unsupervised, reinforcement)
6. Explain the concept of deep learning

Perception, Representation, and Reasoning (10 test items)
1. Explain how predicate logic is used in AI models
2. Give examples of predicate logic
3. Discuss differences between logic-based and probability-based reasoning
4. Describe Bayesian networks and their components (e.g., nodes, edges, Directed Acyclic Graphs)
5. Discuss the nature of knowledge representation and reasoning for AI

Privacy and Ethics (10 test items)
1. Discuss dilemmas that arise from AI systems (e.g., self-driving vehicles, generative AI, surveillance)
2. Describe how AI inherits bias (e.g., algorithmic bias)
3. Discuss security and privacy risks associated with LLMs
4. Discuss credibility concerns of LLMs (e.g., hallucinations, misinformation)

Data Literacy and Foundations (20 test items)
1. Discuss the nature of data science
2. Describe differences between structured and unstructured data
3. Identify numeric and categorical data points
4. Convert among common data representations (e.g., binary, hexadecimal, decimal)
5. Describe the types of data that could be gathered from various sources
6. Describe the importance of data wrangling and transformation
7. Describe the stages of the data science process

References for Knowledge Areas & Objectives

AI4K12. *Grade Band Progression Charts.* https://ai4k12.org/gradeband-progression-charts/

Association for Computing Machinery. *Computing Competencies for Undergraduate Data Science Curricula.* https://www.acm.org/binaries/content/assets/education/curricula-recommendations/dstf_ccdsc2021.pdf

CodeHS. *Intro to AI Syllabus.* https://codehs.com/uploads/224a0c7cb8de30b494ec9c2286a73a28

Google Cloud. *What is artificial intelligence (AI).* https://cloud.google.com/learn/what-is-artificial-intelligence

Harvard. *Data Science Principles.* https://www.harvardonline.harvard.edu/course/data-science-principles

IBM. *IBM Data Science Professional Certificate.* https://www.coursera.org/professional-certificates/ibm-data-science/

Youcubed. *DS Learning Objectives and Standards by Unit.* https://hsdatascience.youcubed.org/resources-standards-and-course-approval/