Computer Problem Solving

FBLA High School

FBLA High School Competitive Events Guidelines

2022–2023

Objective Test Events

Overview

These events consist of a 60-minute test administered during the National Leadership Conference (NLC).

ELIGIBILITY

Each state may submit four entries. Competitors must have paid FBLA national and state dues by 11:59 p.m. Eastern Time on March 1 of the current school year. These events are for individual competitors only.

NLC Registration

Participants must be registered for the NLC and pay the national conference registration fee to participate in competitive events.

Accounting I
Accounting II
Advertising
Agribusiness
Business Calculations
Business Communication
Business Law
Computer Problem Solving
Cyber Security
Economics
Health Care Administration
Human Resource Management
Insurance & Risk Management
Introduction to Business Communication
Introduction to Business Concepts
Introduction to Business Procedures
Introduction to FBLA
Introduction to Financial Math
Introduction to Information Technology
Introduction to Marketing Concepts – ***NEW***
Introduction to Parliamentary Procedure
Journalism
Networking Infrastructures
Organizational Leadership
Personal Finance
Political Science
Securities & Investments
Supply Chain Management
UX Design

Computer Problem Solving

Objective Test Competencies

- Operating systems
- Networks
- Personal computer components
- Security
- Safety and environmental issues
- Laptop and portable devices
- Printers and scanners

Objective Test Guidelines

- No materials may be brought to the testing site.
- No calculators may be brought into the testing site; calculators will be provided.
- Electronic devices must be turned off and out of sight.
- Bring a writing instrument.

Competency A: Operating Systems	Minimum: 20
Task	
1. Compare and contrast the functionality of various operating systems.	
2. Explain what an operating system is, describe its purpose, and site examples of different operating systems including DOS, Windows, and Macintosh.	
3. Identify the fundamentals of using operating systems (e.g., Mac, Windows, and Linux) and describe operating system revision levels including GIU system requirements, application, and hardware compatibility.	
4. Identify names, purposes, and characteristics of the primary operating system components including registry virtual memory and file system.	
5. Install, configure, optimize, and upgrade operating systems using appropriate procedures and utilities.	
6. Describe features of operating system interfaces.	
7. Use command-line functions and utilities to manage operating systems, including proper syntax.	
8. Identify concepts and procedures for creating, viewing, and managing disks, directories, and files on operating systems.	
9. Demonstrate proficiency with file management and structure (e.g., folder creation, format, file creation, backup, copy, rename, delete, move, open, and save).	
10. Demonstrate file management skills and perform basic software configuration operations (e.g., install new software, compress and expand files as needed, and download files as appropriate).	
11. Identify the names, locations, purposes, and characteristics of operating system files.	
12. Demonstrate the ability to recover operating systems (e.g., boot methods, recovery console, ASR, and ERD).	
13. Recognize and resolve common operational problems, such as blue screen, system lock-up, input/output device, and application install.	
14. Recognize, explain, and resolve common error messages and codes.	
15. Identify the names, locations, purposes, and characteristics of operating system utilities.	
16. Use disk management tools (e.g., DEFRAG, NTBACKUP, CHKDSK, and format), system management tools (e.g., device and task manager and MSCONFIG>EXE) and file management tools (e.g., Windows Explorer and ATTRIB.EXE) to enhance optimization of operating system.	
17. Demonstrate the ability to perform preventive maintenance on operating systems including software and Windows updates (e.g., service packs), scheduled backups/restore, and restore points.	
18. Document computer system malfunction and software malfunction.	

Competency B: Networks	Minimum: 20
Task	
1. Define networking and describe the purpose, benefits, and risks of a network.	
2. Identify the types (e.g., LAN, WAN, and MAN), features, advantages, and disadvantages of different networks.	
3. Identify names, purposes, and characteristics of basic network protocols and terminologies.	
4. Identify names, purposes, and characteristics of technologies for establishing connectivity.	
5. Identify the purposes and interrelationships among the major components of networks (e.g., servers, clients, transmission media, network operating system, and network boards).	
6. Understand the differences between various network environments (e.g., peer-to-peer, client-server, thin client, n-tier, internetworks, intranets, and extranets).	
7. Analyze the advantages and the disadvantages of the client/server model.	
8. Identify and analyze the seven layers at which decisions must be made according to the OSI standard.	
9. Install, configure, optimize, and upgrade networks.	
10. Describe standard topologies, such as bus, star, ring, and broadband.	
11. Demonstrate knowledge of IP addressing schemes.	
12. Identify the types of wireless network media and the uses, advantages, and disadvantages of each.	
13. Install, identify, and obtain wired and wireless connection.	
14. Identify tools, diagnostic procedures, and troubleshooting techniques for basic network issues.	
15. Configure protocols such as TCP/IP (e.g., gateway, subnet mask, DNS, WINS, and static and automatic address assignment) and IPX/SPX (e.g., NWLink).	
16. Perform preventive maintenance of networks including securing and protecting network cabling.	
17. Install and configure e-mail applications.	
18. Differentiate areas of responsibilities between the telecommunications providers' responsibilities and their clients' responsibilities.	

Competency C: Personal Computer Components	Minimum: 15
Task	
1. Identify how hardware components interact and work with software to perform computing tasks.	
2. Install, configure, optimize, and upgrade personal computer components.	
3. Identify tools, diagnostic procedures, and troubleshooting techniques for computer components.	
4. Describe the characteristics and functions of CPUs, motherboards, random access memory (RAM), expansion connections, floppy drives, hard drives, and CD-ROM drives.	
5. Explain the functions and characteristics of system expansion devices (e.g., graphics cards, sound cards, and modems).	
6. Recognize and isolate issues with peripherals, multimedia, specialty input devices, internal and external storage, memory utilization, and CPUs.	
7. Identify the steps used to troubleshoot components (e.g., installation, appropriate components, error codes, connections, compatibility, functionality, settings, and drivers).	
8. Identify and apply common preventative maintenance techniques for personal computer components.	
9. Identify issues that must be considered when purchasing or upgrading a computer.	
10. Demonstrate the use of connectivity devices and peripheral equipment (e.g., portable storage devices, printers, cable modem, and wireless technologies).	
11. Identify the various types of computer storage devices and compare the advantages and disadvantages of certain storage devices.	
12. Identify and demonstrate resolutions to simple hardware and software problems as they occur (e.g., frozen screen, disk error, and printing problems).	

Competency D: Security	Minimum: 15
Task	
1. Identify the purposes and characteristics of access control and permissions, auditing, and event logging.	
2. Identify names, purposes, and characteristics of hardware and software security issues including wireless, data and physical security.	
3. Define the various virus types and describe the common symptoms caused by viruses and their potential effects.	
4. Implement virus protection and removal procedures for a stand-alone computer or a network.	
5. Describe importance and process of incidence reporting.	
6. Install, configure, upgrade, and optimize software, wireless, and data security.	
7. Recognize social engineering and address social engineering situations.	
8. Implement security preventive maintenance techniques such as installing service packs and patches and training users about malicious software prevention technologies.	
9. Define concepts such as phishing, viruses, e-mail attachments, social engineering, spoofing, identify theft, and spamming.	
10. Explain concepts such as denial of service, hacking/cracking, intrusion, and intellectual property.	
11. Implement procedures used to recover information from failures and security breaches (e.g., malware and viral infection).	
12. Assess security threats and develop plan to address.	
Competency E: Laptop and Portable Devices	**Minimum: 10**
Task	
1. Identify names, purposes, and characteristics of laptop-specific devices.	
2. Identify and distinguish between mobile and desktop motherboards and processors including throttling, power management, and Wi-Fi.	
3. Identify appropriate applications for laptop-specific communications such as Bluetooth, infrared, cellular Wan, and Ethernet.	
4. Identify appropriate laptop-specific power and electrical input devices and determine how amperage and voltage can affect performance.	
5. Identify the major components of the LCD including inverter, screen, and video card.	
6. Install, configure, optimize, and upgrade laptops and portable devices.	
7. Remove laptop-specific hardware such as peripherals, hot-swappable, and non-hot swappable devices.	
8. Describe how video sharing affects memory upgrades.	
9. Use tools, diagnostic procedures, and troubleshooting techniques for laptops and portable devices.	
10. Identify and apply common preventive maintenance techniques for laptops and portable devices, cooling devices, hardware and video, cleaning materials, operating environments including temperature and air quality, storage, transportation and shipping.	

Competency F: Printers and Scanners	Minimum: 10
Task	
1. Identify differences between types of printers and scanners including laser, ink dispersion, thermal, solid ink, impact printers, and scanners.	
2. Identify names, purposes, and characteristics of printer and scanner components (e.g., memory, driver, and firmware) and consumables (e.g., toner, ink cartridge, and paper).	
3. Identify the names, purposes, and characteristics of interfaces used by printers and scanners including port and cable types.	
4. Install and configure printers/scanners.	
5. Install and configure printer upgrades including memory and firmware.	
6. Optimize scanner performance including resolution, file format, and default settings.	
7. Optimize printer performance for example, printer settings such as tray switching, print spool settings, device calibration, media types, and paper orientation.	
8. Isolate and resolve identified printer/scanner problems including defining the cause, applying the fix, and verifying functionality.	
9. Identify appropriate tools used for troubleshooting and repairing printer/scanner problems.	
10. Perform scheduled maintenance according to vendor guidelines (e.g., install maintenance kits and reset page counts).	
11. Use recommended supplies and a suitable environment.	
Competency G: Safety and Environmental Issues	**Minimum: 10**
Task	
1. Explain how information technology affects the natural environment (e.g., disposal of equipment, energy use, and use of natural resources).	
2. Identify potential hazards and implement proper safety procedures including ESD precautions and procedures, safe work environment, and equipment handling.	
3. Identify potential hazards and proper safety procedures including power supply, display devices, and environment (e.g., trip, liquid, situational, atmospheric hazards, and high-voltage and moving equipment).	
4. Identify proper disposal procedures for batteries, display devices, chemical solvents, and cans.	
5. Describe methods to handle environmental and human (e.g., electrical, chemical, and physical) accidents including incident reporting.	
6. Determine safe working practices to avoid or eliminate electrical hazards.	
7. Use Material Safety Data Sheets (MSDS) or equivalent documentation.	
8. Use appropriate repair tools.	
9. Describe ergonomic issues related to input technologies and demonstrate proper safety techniques.	

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COMPUTER PROBLEM SOLVING SAMPLE QUESTIONS

1) Some pieces of equipment require tasks to be completed at exact moments in time. Operating systems such as Windows and macOS complete tasks as resources are made available. An operating system for use on the first example goes by what name?
A) live operating system
B) programmed operating system
C) real-time operating system
D) precision operating system

2) Which of the following manages memory access for an operating system?
A) kernel
B) driver
C) module
D) VHDL

3) Operating systems can offer ways to encrypt the hard drive data for the sake of data security. macOS calls this feature File Vault. What does Windows call this feature?
A) Gate Keeper
B) Matrix Determinant
C) BitLocker
D) Defragmentation Tool

4) _____ uses Port 25 to send emails.
A) SMPT
B) IMAP
C) POP3
D) ADC

5) Network connecting devices include _____, hubs, and _____.
A) repeaters, connectors
B) switches, repeaters
C) connectors, switches
D) switches, fuses

6) What is the standard mouse for a Macintosh?
A) scroll-wheel
B) three-button
C) one-button
D) two-button

7) The two basic types of RAM are _____ and _____.
A) dynamic, floating
B) dynamic, modular
C) static, floating
D) static, dynamic

8) A _____ is when, as part of a cyber-security attack, the attacker disrupts service to the network.
A) vishing attack
B) honey trap
C) denial-of-service attack
D) watering hole attack

9) Phishing comes in many forms, but **not** in _____.
A) telephone calls
B) whaling and pharming
C) trojan horses
D) spam and spim

10) On a laptop, this almost always takes the place of a mouse.
A) Trackball
B) Keyboard
C) Cursor arrows
D) Touch pad

11) Mobile form factors include smart phone, tablet, and _____.
A) tower
B) server
C) desktop
D) laptop

12) Printers can come in any of the following formats, **except** _____.
A) drum printer
B) dot matrix
C) chain mail printer
D) inkjet

13) Laser printers contain an ink-like substance, called ___, which can be fused on paper to create text and graphics.
A) paint
B) graphite
C) toner
D) charcoal

14) The best way to keep the inside of your computer clean is to power down and unplug it, _____.
A) but don't open the computer at all
B) open the cover, and vacuum it out
C) open the cover, and shake out the dirt
D) open the cover, and hand brush the dirt out

15) A _____ is used to protect the computer from sudden spikes in voltages.
A) UPS
B) static mat
C) battery pack
D) surge protector

1) C
2) A
3) C
4) A
5) B
6) C
7) D
8) C
9) C
10) D
11) D
12) C
13) C
14) D
15) D

General Competitive Events Guidelines

The general event guidelines below are applicable to all FBLA High School national competitive events. Please review and follow these guidelines when competing at the national level. When competing at the state level, check the state guidelines since they may differ.

All members and advisers are responsible for reading and following competitive event guidelines.

Eligibility

- Dues: Competitors must have paid FBLA national and state dues by 11:59 p.m. Eastern Time on March 1 of the current school year.
- NLC Registration: Participants must be registered for the NLC and pay the national conference registration fee in order to participate in competitive events.
- Deadlines: The state chair, or designee, must register each state competitor on the official online entry forms by 11:59 p.m. Eastern Time on the second Tuesday in May.
- Each state may submit four entries in all events.
- Each competitor can only compete in one individual/team event and one chapter event.
- Each competitor must compete in all parts of an event for award eligibility.
- A team shall consist of two or three members. The exception is Parliamentary Procedure, which must be a team of four or five members.
- All members of a team must consist of individuals from the same chapter.
- If competitors are late for a competitive event, there are no guarantees they will get to compete. Competitive event schedules cannot be changed. **PLEASE NOTE** that competitive events start in the morning before the opening session of NLC.
- Competitors may be disqualified if they violate competitive event guidelines.
- Picture identification (drivers' license, passport, state-issued identification, or school-issued identification) is required when checking in for competitive events.

General Competitive Events Guidelines

Repeat Competitors

- Members may compete in an event at NLC more than once if they have not previously placed in the top ten of that event at NLC. If a member places in the top ten of an event at NLC, they are no longer eligible to compete in that event. This eliminates the exceptions for team events that were previously in place, as this change will now affect all events.
- Modified Events: A competitor may compete in the same event when the event is modified, regardless of placement at a National Leadership Conference. Note, if the only modification is a name change, competitors may not compete in the renamed event if they have previously placed in the top ten at the National Leadership Conference.
- Chapter Events: Competitors may compete in a chapter event as many times as they wish, regardless of placement at a previous National Leadership Conference (American Enterprise Project, Community Service Project, Local Chapter Annual Business Report, and Partnership with Business Project).
- Pilot Event: Competition in a pilot event does not disqualify a competitor from competing in the same event if it becomes an official competitive event. The participant may compete in another event as well as a pilot event.

Breaking Ties

- Objective Tests: Ties are broken by comparing the correct number of answers to the last 10 questions on the exam. If a tie remains, the competitor who completed the test in a shorter amount of time will place higher. If this does not break the tie, answers to the last 20 questions will be reviewed to determine the winner.
- Objective and Production Tests: The production test scores will be used to break a tie.
- Objective Tests and Performances: The objective test score will be used to break a tie based on the tie-breaking criteria of objective tests.
- Reports/Projects and Performances: The report/project scores will be used to break a tie.
- Performances: Judges must break ties and all judges' decisions are final.

General Competitive Events Guidelines

National Deadlines

- State chair/adviser must register all competitors for NLC competitive events online by 11:59 p.m. Eastern Time on the second Tuesday in May.
- All prejudged components (reports and projects) must be submitted by 11:59 p.m. Eastern Time on the second Tuesday in May.
- All prejudged projects and reports must be submitted electronically.
- All production tests must be submitted by 11:59 p.m. Eastern Time on the third Tuesday in May.
- All production tests must be uploaded online on the required platform.
- State chair/adviser may make name changes only (no additional entries) by 11:59 p.m. Eastern Time on the first Tuesday in June. Competitor drops are the only changes allowed after this date and onsite.

National Awards

- 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-PBL meets the criteria specified in the Americans with Disabilities Act for all participants who submit an accommodation form.
- The form must be submitted by 11:59 p.m. Eastern Time on the second Tuesday in May.

Recording of Presentations

- No unauthorized audio or video recording devices will be allowed in any competitive event. Participants in the performance events should be aware the national association reserves the right to record any performance for use in study or training materials.