



West Virginia DEPARTMENT OF
EDUCATION

NOCTI
Partner Credential Blueprint



Power, Structural, and Technical Systems (WV)

Code: 8991 / Version: 01
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General Assessment Information

Blueprint Contents

General Assessment Information
Written Assessment Information

Specific Competencies Covered in the Test
Sample Written Items

Test Type: The Power, Structural, and Technical Systems assessment was developed based standards used in the State of West Virginia and contains a knowledge-based component. This assessment is meant to measure technical skills at the occupational level and includes items which gauge factual and theoretical knowledge.

Revision Team: The assessment content is based on input from West Virginia educators who teach in career and technical education programs.



01.0201
Agriculture
Mechanization, General



Career Cluster 1 - Agriculture, Food
& Natural Resources



17-2021.00 Agricultural
Engineers

Written Assessment

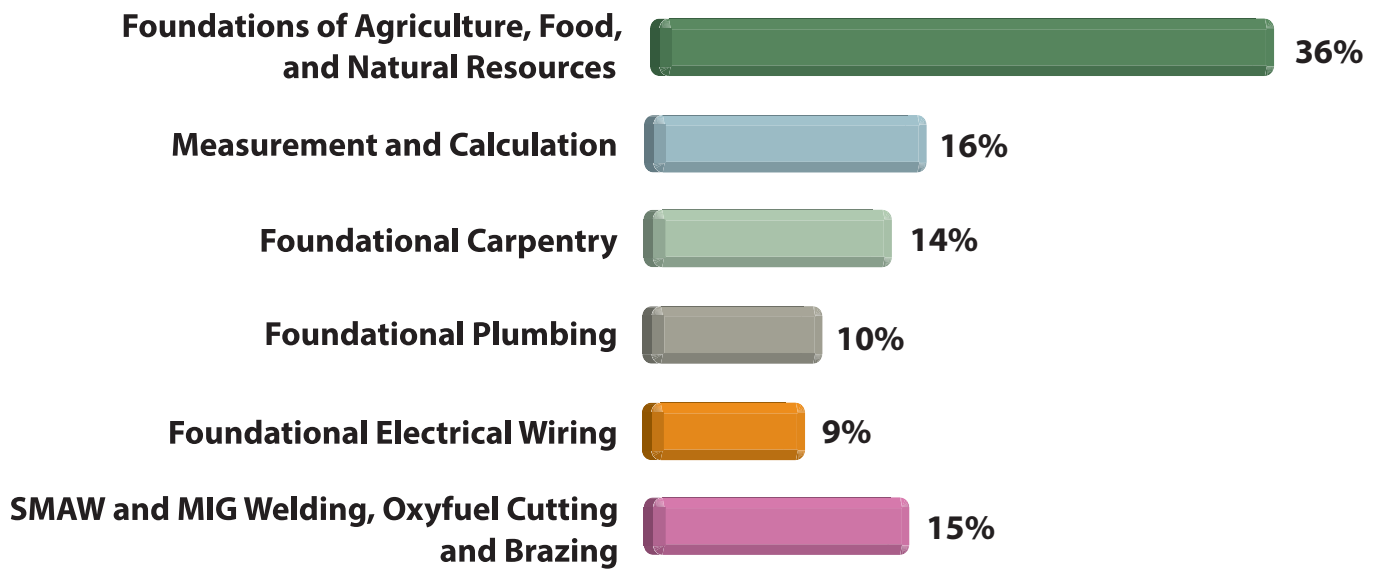
This written assessment consists of questions to measure an individual's factual theoretical knowledge.

Administration Time: 2 hours

Number of Questions: 112

Number of Sessions: This assessment may be administered in one, two, or three sessions.

Areas Covered



Specific Standards and Competencies Included in this Assessment

Foundations of Agriculture, Food, and Natural Resources

- Demonstrate understanding of agribusiness (e.g., SAE, expenses)
- Demonstrate understanding of animal systems (e.g., breeds of livestock, anatomy)
- Demonstrate understanding of agriculture innovation and technology
- Demonstrate understanding of food products and processing (e.g., protein sources, food preservation)
- Demonstrate understanding of natural resources (e.g., renewable resources)
- Demonstrate understanding of plant systems (e.g., plant parts, processes, soil)
- Demonstrate understanding of power, structural, and technical systems (e.g., measurement)
- Demonstrate knowledge of leadership development through FFA (e.g., motto, parliamentary procedure, official dress)

Measurement and Calculation

- Determine and interpret measurements (e.g., read micrometer, measuring tape)
- Discuss and perform basic math (e.g., calculate linear feet, percentage, cubic yards; convert feet to inches, fractions to decimals)
- Calculate units of weight, volume, and temperature

Foundational Carpentry

- Identify tools (e.g., tool care, tool identification)
- Discuss safety (e.g., power tool safety, welding PPE, Safety Data Sheets)

Foundational Plumbing

- Describe the plumbing process (e.g., preparing plumbing joints)
- Describe plumbing with copper and plastic (e.g., types of plastic pipes, joining pipes)
- Identify fixtures used for agricultural plumbing (e.g., flux, types of fittings)

(Continued on the following page)

Foundational Electrical Wiring

- Discuss basic electricity (e.g., grounding, wire selection)
- Identify the units of measurement used to measure electricity (e.g., electric meters, measuring units for electricity, electrical tests)
- Describe how to install breakers, switches, and sockets (e.g., electrical connections, circuit breakers, electrical safety)

SMAW and MIG Welding, Oxyfuel Cutting, and Brazing

- Identify types of welding joints (e.g., types of welds)
- Discuss welding methods (e.g., shielding gas, check valves, brazing, welder components)
- Describe welder set-up and process (e.g., lighting a torch, reading a pressure gauge, electrode selection, welding arc)



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Sample Questions

Agricultural innovations have allowed farmers to

- A. eliminate the use of chemical fertilizers
- B. increase the use of chemical fertilizers
- C. produce more crops on less land
- D. produce fewer crops on more land

FFA business meetings are run using an established set of rules known as

- A. Business Rules
- B. Meeting Rules
- C. Parliamentary Procedures
- D. Business Procedures

When making a cut, the space left in the line of the cut is called the

- A. drag
- B. rip
- C. lag
- D. kerf

Operating and safety switches are generally wired in

- A. series
- B. parallel
- C. series parallel
- D. vertical

What is an example of a shielding gas?

- A. argon
- B. nitrous oxide
- C. oxygen
- D. mapp gas