Building awareness of careers in construction, energy & utilities, public safety, and manufacturing for women.

WISE Pathways
Women in Sustainable Employment
Agenda

• Introduction
• Mechanical Reasoning
• Spatial Reasoning
• EEI Pre-employment Testing
• Action Planning
Introduction

Learning Objectives:

• Define mechanical and spatial reasoning
• Recognize how these reasoning skills are used on the job
• Identify the knowledge and skill sets required for EEI pre-employment testing
Mechanical Reasoning
Mechanical Reasoning

- Mechanical reasoning tests measure your knowledge of straightforward mechanical and physical concepts.
- They do not measure your underlying mechanical aptitude.
- You may have learned about these concepts in early science classes.
Mechanical Reasoning Ability Tests

• Your score will depend significantly on your knowledge of:
  • Levers
  • Pulleys
  • Gears
  • Springs
  • Simple Electrical Circuits
  • Tools
  • Shop Arithmetic
Mechanical Reasoning Questions

• You may be asked some questions about tools and how they are used.
• You should also expect some shop arithmetic questions.
  • Questions like the type of reasoning and math needed to estimate materials costs.
Mechanical Reasoning Questions

• Questions are likely industry-specific.
  • Aviation
  • Carpentry
  • Machine shop

• Scenario is incidental
  • Practice questions need not be specific to the industry you are applying for.
  • The substance of the questions is important.
Mechanical Reasoning Test

• Complete the assessment
• Solving difficult problems
  • Techniques
  • Hints
• Further Study
Spatial Reasoning
Spatial Reasoning

• Spatial reasoning ability involves visualizing and manipulating shapes or patterns
  • Two-dimensional
  • Three-dimensional

• A high level of spatial reasoning ability is essential in the construction and energy industries

• The ability to visualize transformations in shapes and patterns can be improve
Spatial Reasoning Questions

- Spatial reasoning ability questions cover:
  - Shape matching
  - Shape rotation
  - Combining Shapes
  - Views in 3-dimensions
  - Manipulation of other solid shapes in 2 and 3 dimensions

- Some questions use maps and plans to assess the ability to give or follow directions based on a map or construction plan
Spatial Reasoning Test

• Complete the assessment
• Solving difficult problems
  • Techniques
  • Hints
• Further Study
Mechanical & Spatial Reasoning

• Tests may be used in job screening
• Some employers may want to see prior scores
• Consult with your mentor, coach, or facilitator to study your scores and seek more preparation if needed
EEI Pre-employment Testing
Construction and Skilled Trades (CAST)

- Battery of aptitude tests designed and validated to aid in the selection of candidates across a wide variety of construction and skilled trades occupations.

- Two hours in length
CAST Test: Job Categories

• Transmission and Distribution
• Facilities and Repair
• Other Facilities (e.g., Carpenter)
• Electrical Repair
• Machining and Vehicle Repair
• Meter Service and Repair
CAST Test: Knowledge & Skill Sets

- Graphic Arithmetic (solve arithmetic problems using graphs and drawings)
- Mechanical Concepts
- Reading for Comprehension
- Mathematical Usage
Power Plant Maintenance Positions Selection System (MASS)

• Battery of aptitude tests designed and validated to aid in the selection of candidates across a wide variety of construction and skilled trades occupations.

• Two hours in length
Building awareness of careers in construction, manufacturing, public safety, and energy & utilities

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