WISE Pathways

Women in Sustainable Employment

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

Session 12 -- Presentation Thumbnails

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 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 improved

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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