

Engineering Derby: Tool Ingenuity Post-Assessment

Answer Key

1. After you completed the obstacle course for the first time, what did you talk about during your post-trial meeting? Did the meeting help your team or not? How did it help (or not help) your team? What did you do differently during your second attempt at the course? (**max 5 points**)

Expect students to summarize what was discussed during the post-job meeting. The ideal response relates the meeting topics to the obstacle course trial performance and identifies subsequent changes the group decided to make as a result of the meeting discussion.

Give 2 points for a summary.

Give 1 point if it was stated that the meeting was either helpful or not helpful.

Give 2 points for describing a change made during the next obstacle course run.

2. Explain, sketch and label a new obstacle course for the Engineering Derby. What challenges does the obstacle course have? (**max 5 points**)

Expect students to act as engineers and provide clearly labeled drawings (schematics) of a proposed obstacle course, along with explanatory text.

Give 2 points for explaining the obstacle.

Give 2 points for a sketch.

Give 1 point if the sketch is labeled.

3. Susan and José disagree about which tool to use for the first obstacle. How would engineers resolve the disagreement? (**max 1 point**)

A. Whoever speaks the loudest wins the argument.

B. José should be polite and not argue.

C. Make a list of the pros and cons for each tool.

D. All of the above.

4. Engineers who design projects and inventions must consider many constraints. A constraint is a type of requirement, restriction or limitation. Name three constraints you faced during the activity. (**max 3 points**)

Expect students to write down some of the many constraints that applied during the event.

Give 1 point per constraint listed, up to a maximum of 3

Examples: the time limit, the table tennis ball may not touch the participant's body, a tool can be used for only one obstacle, no more than two tools may be used per obstacle, as well as any other obstacle course rules that resulted in penalties if broken.

Total possible points = 14