

Student Log Book **Answer Key**

After each day, answer the questions in your notebook in complete sentences.

Day 1

1. What is sled hockey?

A Paralympic sport designed for those with physical disabilities to experience ice hockey.

2. What are the specifications for a sled hockey stick?

Length = 20.5 inches

Width = 0.75 inches

Height = 1.25 inches

3. What materials do you think are presently used to make sled hockey sticks?

Answers will vary but the following materials are used: Wood, aluminum, fiberglass, graphite, Kevlar, titanium, carbon blades.

Day 2

1. Explain what you learned from your research.

Should list information that they found when researching.

2. Sketch and label the materials of a design that you think that would withstand the most when tested.

Sketch should include dimensions, materials, and polygons they plan to use.

Day 3

1. What do you expect to happen when you do the tensile test? Will your stick bend? If so how much (in cm)? Is there a specific place in the stick that will bend?

Answers will vary

2. You are in the middle of step 5 of the engineering design process. Imagine if you didn't have step 2 in the process. Would it be difficult to create a sketch without research?

Difficult to know what the stick would be used for, the pros of polygon structures, not knowing the materials that are currently used to judge what materials should prominently be used in the design

Day 4

1. Did your testing go as predicted? What went differently than you expected?

Answers will vary

Name: _____ Date: _____ Class: _____

2. Where were the normal forces on the stick?

Between stick and table.

3. Where were the tension forces on the stick?

Where the weight was pulling the one end of the stick.

4. How could you redesign your stick to make it withstand more weight?

Different materials, polygon structure/internal design.

Day 5

1. Did you learn anything from the other groups in terms of materials or design that you would change for your redesign stick?

Answers will vary

2. What polygon structure did you use in your original design? Do you think it worked? Will you change the internal structure after hearing from other groups and analyzing your data?

Look for reflection on why their internal structure may need to change (quick to break, etc.)

Final Day

1. What is different about your redesign stick from your initial hockey stick?

Answers will vary

2. Now that you know what the testing procedure is, how well do you think your redesign would do if tested?

Answers will vary

3. What did you learn from this experience?

Answers will vary; include the different components of the activity