

Ready for the Road

Design Brief



Background:

In the book *My Papi has a Motorcycle*, you saw Daisy and her father using a helmet while riding the motorcycle. It is important that your riding gear is durable and comfortable. Wearing protective gear like a helmet while riding a bike is a practice that will help protect the body from injuries in the event of an accident.

Design Challenge:

Design, construct, and test a device that can be used to protect the head while riding something like a bike or skateboard.

Criteria and Constraints:

The device must:

- Be made from four (4) types of materials or fewer.
- Be comfortable to wear.
- Be able to stay on the head when the head is tilted.
- Maintain structure when dropped on the floor from a height of six (6) feet.

Materials and Tools:

Materials:

- Various recyclable materials (bottles, toilet paper rolls, tissue boxes, etc.)
- Cardboard
- Popsicle sticks
- Tissue paper
- String
- Paper cups
- Velcro
- Masking tape

Tools:

- Scissors
- Glue sticks
- Craft glue
- Rulers
- Measuring tape
- Computers or tablets

Name: _____



Ready for the Road
Design Packet




Research:

"What do you know about helmets?"

"What are you curious about helmets?"

Brainstorm Design Ideas:

A simple line drawing of a lit lightbulb with yellow rays emanating from it, symbolizing an idea.

Group Critique:

- What kind of feedback did you get from your peers?

- How will this feedback affect your design?

- If there are changes to your design, please show them below.

Testing:

- | | | |
|--|-----|----|
| • Is your device made from four (4) or fewer materials? | Yes | No |
| • Is your device comfortable to wear? | Yes | No |
| • Does your device stay on your head when being tilted? | Yes | No |
| • Can your device hold its shape when dropped from a height of six (6) feet? | Yes | No |

Self-Evaluation:

1. Were you successful in making a device that fits all of the criteria? If not, then why not?

2. Was the research stage helpful in creating an effective design? Why or why not?

3. Were there any tools or materials that could have helped improve your design that were not supplied? How would these tools or materials have helped you?

4. Would you change anything about your design if you were to start this challenge over? What would you change and why?

5. Did your group work as a team and collaborate with each other? Why or why not?

6. How did working with a team affect your final design?
