



## Colorado Science and Engineering Fair

## 2025 Individual Project Abstract Form

**Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.**

Title of Project: Beware of the Pocket Puck

Finalist's Name: Michael Caraher

School and City: St John the Baptist School, Longmont

Sponsor's Name: Patrick Caraher

Category: Physics & Astronomy

Division: Junior (grades 6 - 8)

Abstract (250 words or less):

A Hockey puck's temperature is constantly changing due to brushing against the ice, other players, and contact with the referee's hand. Do these temperature changes make a difference in the puck's behavior? The warmer a hockey puck gets, the bouncier it will become.

By observing how a puck bounces off of a surface at different temperatures, it's possible to measure how differently the puck will behave. Research included how pucks are stored before a game, and variables that could affect the puck's temperature, as well as research on what the puck is made of, elastic limits, and plastic deformation.

My experiment involved changing the temperature of three different pucks, and dropping them in the same environment to observe how differently they bounce. Methods for changing the puck temperature was to place them all in the same environment, such as a freezer, pot of water, or at room temperature. When these pucks were taken to the testing area, testing immediately began. Each puck was removed individually to ensure all pucks were at similar temperatures during testing. Data was collected using slow motion video. Data was then entered into a spreadsheet, put into charts, and analyzed.

The analysis showed that the bounce height of hockey pucks is correlated to the temperature of the puck. It was observed that the higher the temperature, the higher the puck bounced. This data can be used by players to change how they play based on how a puck is being handled on ice during a game.

*I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.*

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**