## Colorado Science and Engineering Fair

## 2023 <br> 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: Does Temperature Affect How High a Tennis Ball Bounces?<br>Finalist's Name: Lucas Miller<br>School and City: Genoa-Hugo School, Hugo<br>Sponsor's Name: Ellen Emmerling

Category:Physics \& Astronomy
Division: Junior (6th - 8th grades)
Abstract (250 words or less):
For my project, I was testing how temperature affected the bounce of a tennis ball. To start off we needed to get 3 tennis balls. I put one of the tennis balls in our freezer, the next tennis ball was wrapped in a heating pad and the last tennis ball was left at room temperature. I tested the roomtemperature ball and got an average of 40 inches on the bounce heights. I took the hot tennis ball out of the heating pad and the different bounce heights averaged out to 43 inches. The cold tennis ball was taken out of the freezer and tested. All the tested bounce heights of the cold ball averaged 20.6 inches. In my hypothesis, I did correctly state that the hot tennis ball would bounce the highest. The hot ball was the one to bounce the highest because when a tennis ball is heated the gas molecules expand increasing the energy in the ball. When the ball gets colder the opposite effect happens. The gas molecules shrink causing the ball to have less energy and not bounce as high.

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.

