Physics: Thermodynamics! _____ **Instructor: Barton Clark**

CREDO High School ⇧ *write the Due Date Here!* ⇧ **Fall 2026**

Poster Project 2: Kinetic Energy and states of matter.

After taking careful notes from lectures and recording data from the Kinetic Energy lab (throwing tennis balls, the Hot Bolt into Cold Water Lab and the Heat of Fusion of Ice lab, student should construct an artistic poster highlighting the following topics.

1. A section showing how the kinetic energy of a system of particles is related to the Temperature of that system (and how Celsius, Fahrenheit and Kelvin were conceived of and how we use them today). What is Absolute Zero and why is that considered 'the coldest' that any system can get to?
2. A section showing how we collected our data in the Kinetic Energy activity (i.e., showing the placement of the 'pitcher' and the 'catcher' and the associated Parabolic flight path and the 'simplified' Semi-circle that we used to approximate it. This drawing should show both the diameter of the semi-circle as well as the resulting radius and how you calculated velocity, both visually and in words)
3. A section discussing Phase Change diagrams including proper terminology for each as well as how we did our recent Heat of Fusion of Ice lab.
4. In addition, you should discuss/show how the Zero'th and 1st Laws of Thermodynamics were used in our two labs (Hot Bolt into Cold Water and the Heat of Fusion of Ice labs). (note: You should include 'playful' drawings showing how we did these two labs, as well as your data and results for each).
5. You should include drawings and discussions of how NASA uses special Thermal Tiles to protect the Space Shuttles (what was special about these?) and how they used an Ablative Surface to protect the Astronauts during Reentry for the Artimis II mission. (how hot did it get? What is a plasma? Why does it form? What is Ablation?)

Grading rubric

Did you complete the assignment? All of the required steps? Did you go beyond?	5	4	3	2	1
How well did you communicate your ideas? Using words, pictures, diagrams?	5	4	3	2	1
Was your data/analysis accurate? Is the calculations/descriptions correct?	5	4	3	2	1
Were you creative in your writing? Drawings? Organization?	5	4	3	2	1
Does your final product/report/poster look clean, organized and professional?	5	4	3	2	1

Your score _____/ 23 possible