

Physics Rubric: ALT 1 - I can find patterns in nature and use them to predict future results or understand past events.

AST 1.1 – I can investigate to find and communicate the relationship between an independent and dependent variable, a relevant mathematical pattern in the collected data, and a correct prediction an additional data point.

Highly Proficient (4)	Proficient (3)	Nearing Proficiency (2)
My data tables have: ☐ Headings that state the measurement, unit, and matching uncertainty. ☐ All calculated data columns display the formula used for calculation. My graphs have: ☐ Appropriately labeled and scaled axes. ☐ Accurate data points with error bars. ☐ An appropriate best-fit line with a stated mathematical model. My conclusions has: ☐ Evidence ☐ Claim ☐ Mathematical Model ☐ Prediction ☐ Reasoning	☐ I am missing only non-bold elements from the Highly Proficient column.	☐ I am missing only one or two bold elements from the Highly Proficient column.

AST 1.4 – I can represent the patterns: linear, quadratic, inverse and inverse square graphically, mathematically, in data tables, and in words.

Highly Proficient (4)	Proficient (3)	Nearing Proficiency (2)
☐ I can perfectly, or with only a single error, express the patterns graphically, mathematically, and in data tables.	☐ I can consistently, with less than four minor errors, express the patterns graphically, mathematically, and in data tables.	☐ I miscommunicate one entire pattern or type of representation. ☐ I have only four to six minor errors in representing the patterns.

AST 1.5 – I can make a high school level graph (labeled axis, scale, data points with error bars, applicable best-fit), explain its meaning (pattern and slope), and use the graph to make an accurate prediction.

Highly Proficient (4)	Proficient (3)	Nearing Proficiency (2)
☐ I meet everything in the Proficient Column. ☐ I can determine the slope of a linear graph. ☐ I can integrate my understanding of high school level graphs into a high school level conclusion, specifically communicating my: evidence, claim, mathematical model, prediction, and reasoning.	☐ I can make a high school level graph with the correct scale and three or more of the following elements: reasonably labeled axes, data points with error bars, and applicable best-fit line. ☐ I can explain the meaning of a slope (rate of change). ☐ I can use a pattern in a graph to make an accurate prediction.	☐ I am missing only two or less parts from the bold element and/or only one non-bold element from the Proficient column.

AST 1.6 – I can identify, compare, and contrast patterns, specifically including the concept of rate of change (slope).

Highly Proficient (4)	Proficient (3)	Nearing Proficiency (2)
☐ I meet everything in the Proficient Column. ☐ I can recognize and communicate important similarities and differences in comparing both the linear and quadratic patterns and the linear and inverse patterns. ☐ I can use actual data points from a best-fit line to identify what pattern the best-fit line is.	☐ I can consistently identify the pattern in a graph . ☐ I can recognize and communicate important similarities and differences in comparing either the linear and quadratic patterns and the linear and inverse patterns.	☐ I am missing only non-bold elements from the Proficient column.

AST 1.7 – I can communicate the value of finding patterns and explain the reasoning behind making data-informed decisions based on them.

Highly Proficient (4)	Proficient (3)	Nearing Proficiency (2)
☐ I can communicate two important reasons or a reason and a supporting example for the following two statements: why there is value in finding patterns in nature or why scientist prefer data-informed decision making over using wild guesses.	☐ I can communicate at least one important reason there is value in finding patterns in nature. ☐ I can communicate at least one important reason scientist prefer data-informed decision making over using wild guesses.	☐ I can communicate at least one important reason for the value in finding patterns in nature or why scientist prefer data-informed decision making over using wild guesses.