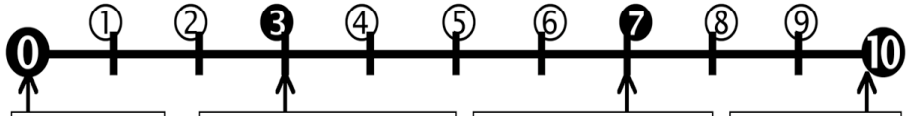
Science Fair Judging Rubric

Project Idea



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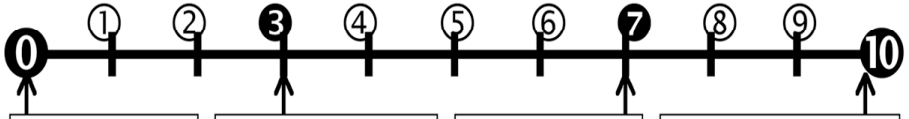
A commonplace topic *not* motivated by the student's interest and *not* formulated into a hypothesis.	Forming a commonplace hypothesis from a topic given to the student (e.g., by a parent, book, website, teacher) so that the project is more like following a recipe than doing science.	An independently motivated research question that is *not* creative or original but that showcases how the student can form of a testable hypothesis and follow through the scientific method.	A **creative** & **original** research question that is **independently motivated** by the student's own interests.

Rigor of Scientific Method



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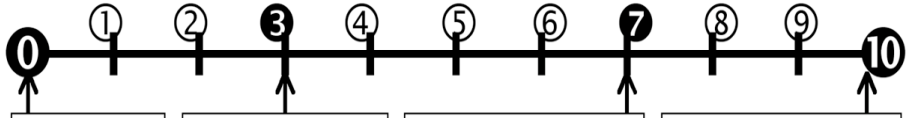
Invalid measures of the phenomenon. Careless method with confounds and inexactly measurements. Failing to include even a reasonable small number of measurements.	Obvious valid simple measures of relevant variables. Roughly following the scientific method by rote, with little care for precision, and without a clear understanding about how the method and hypotheses connect.	Thoroughly designed, if obvious, measures where the student has taken care to measure phenomenon repeatedly. The method relates to the hypothesis.	The study uses **creative operational definitions** so **measurements tap underlying constructs**. The student **repeatedly measures** the phenomena and takes care to **control possible confounds**.

Presenting & Framing of Study



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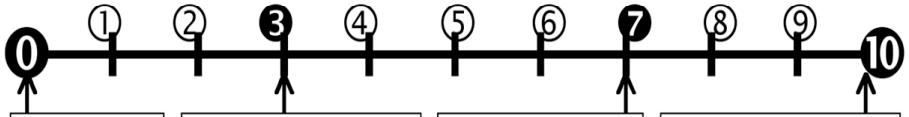
The poster was unorganized and sloppy. The student struggled to describe the study. No consideration of what scientists may already know about the topic.	Basic poster organization (i.e., intro, method, results, discussion) but otherwise little care to flow. The student can not discuss concepts beyond repeating the poster. The project loosely references scientific concepts	Organized poster that flows well with only subtle problems (e.g., too much text, over-complicated figures). The student can discuss the study comfortably though they struggle with subtlety. The study connects to previous scientific research, even if no primary sources are cited.	**Organized poster** that neatly and **intuitively flows** with **clear figures** and without clutter. The student **discusses comfortably** the study and its implication. A scholarly literature review of **primary sources** motivates the study from prior science.

Interpretation of Results



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Presenting *raw data* without any summary or presenting the most basic kind of summary (e.g., average) *incorrectly*. Analyses barely match the hypothesis.	A simple descriptive summary of data (e.g., averages, modes, and medians) that loosely matches the hypotheses. The student does not necessarily see what results mean for the hypothesis (e.g., seeing chance effects as real results, reaching causal conclusions from observational data).	Solid summary of results correctly using basic mathematics (e.g., average, mode, median, standard deviation). The student connects the results to the hypothesis and explains when results would or would not support the hypothesis.	Considered how best **summarize data** to best **test the hypothesis**. Use **sophisticated analyses** (e.g., t-tests, best-fit line). The student knows when data **supports or refutes the hypothesis** and understands **subtle data interpretation** (e.g., confound, correlation vs. causal).

PerplexingQuestions.org ~ Dr. Kevin Grobman