Scoring Guide for Labs.

STATE STANDARD:
8.3S.1 Based on **observation** and science principles, **propose questions** or **hypotheses** that can be examined through scientific investigation. **Design** and **conduct** a scientific **investigation** that uses appropriate **tools**, **techniques**, **independent** and **dependent** **variables**, and **controls** to collect relevant **data**.

FRAMING (Introduction)

Learning Target	5	4	3	2	1
Create and/or **Identify** scientific **QUESTIONS** and **HYPOTHESES** in correct format with **VARIABLES IDENTIFIED** (reasoning)	**Very** Detailed and Descriptive, **Clearly and Accurately** Identifies variables Has Question and Hypothesis in **Correct Format** **Adds** Additional detail, **Very** Neat.	**Mostly** Detailed and Descriptive, **Clearly and Accurately** Identifies variables Question and Hypothesis **Mostly** in **Correct Format** **Adds Some** Additional detail. **Mostly** neat.	**Somewhat** Detailed and Descriptive, **Accurately** Identifies variables Question and Hypothesis **Not In** in **Correct Format** **Missing** additional detail. **Somewhat** neat.	**Seldom** Detailed and Descriptive, **Accurately** Identifies variables Question and Hypothesis **Seldom In** in **Correct Format** **Missing** additional detail. **Not very** neat.	**Not** Detailed and Descriptive, **Does Not** identify variables Question and Hypothesis **incomplete.** **Not** Neat - **INCOMPLETE WORK**

DESIGNING (Materials/Procedures)

Learning Target	5	4	3	2	1
Design and Conduct (or evaluate) an investigation with **INDEPENDENT, DEPENDENT**, and **CONTROLLED VARIABLES** using correct **tools** and **techniques**.(skill)	**Very Detailed** and **Descriptive**, **Easily Followed** Clearly and Accurately **Identifies variables**, **Diagrams** help clarify **procedures and setup.** **A lot of trials/experimental groups**, **Very Neat**	**Mostly** Detailed and Descriptive. **Easily Followed** Clearly and Accurately **Identifies variables** **Diagrams** help clarify **procedures and setup.** **Enough trials/experimental groups**. **Mostly Neat and Organized.**	**Somewhat** Detailed and Descriptive, **Hard to Follow** **Hard to Identify variables** **Diagrams** insufficient or may not help clarify**.** **Insufficient trials/experimental groups. Not Neat**	**Not** Detailed and Descriptive, **Hard to Follow** Does Not identify variables. Lacking helpful diagrams Not Neat - INCOMPLETE WORK	**Does not** show **evidence** of design or is to incomplete.

8.3S.2 ORGANIZE, DISPLAY and ANALYZE relevant data, construct an evidence-based explanation of the RESULTS of a scientific investigation, and communicate the CONCLUSIONS including possible SOURCES OF ERROR. Suggest new investigations base on analysis of results.

RESULTS (Data Tables/Graphs/Data Summary)

Learning Target	5	4	3	2	1
Organize and Display data in data **TABLES** and **GRAPHS (product)**	**PROF. PLUS…** **Exceptional # of trials**, **very neat**, and **organized**. May have **several ways of displaying data**. May include **summary of data** in **written form** when appropriate.	**Sufficient Data**, **Averaged** Correctly, **Organized** Correctly, **Titled** correctly **Axis labeled** **Units** Included **Scale** of graph **Best fit line**(s) correct **Neat**	**May be missing some of the following:** Sufficient data. Organization is generally good. Variable on correct axis but might be forgetting labels or the scale is incorrect. May need best fit line or is not neat.	**LACKING** Sufficient data. Not organized Variables incorrect or placed in wrong spot. Scale missing or inappropriate.	**Not able to make a data table or graph**

ANALYSIS (Conclusion)

Learning Target	5	4	3	2	1
Analyze data to make reasonable **INFERENCES** and recognize limitations of the experiment including **SOURCES OF ERROR (reasoning)**	☐**Relates detailed** results to **question** or **hypothesis**. ☐**Clearly communicates** the **relevant data. (rates and trends)** ☐ **Comprehensive Inferences.** ☐Very relevant **sources of error** and **possible effect** on results. ☐**Relates** the **results** of the investigation to **other scientific information**. ☐**Describes further investigations** based on analysis of results **with justification**.	☐**Relates** results to **question** or **hypothesis**. ☐**Communicates relevant data. (rates and trends)** ☐ **evidence-based inferences** ☐Possible sources of error and how these might affect the results. ☐**Suggests** relevant **improvements** of lab design and explains why this would improve lab.	☐**Partially** relates **results** to **question** or **hypothesis**. ☐**Communicates conclusions** in a **general manner (might not include #s from data or rates and trends not clear.** ☐Constructs **overly simplistic inferences** ☐ stated**sources of error** are **irrelevant** or **overly formulaic**. ☐Suggests **relevant improvements** to the investigation, but **without justification(explanation as to why)**	☐**Does not relate** results to question or hypothesis. ☐**Incompletely communicates conclusions**. ☐Constructs a simplistic inference ☐ stated**sources of error are missing** or irrelevant ☐**Suggested revisions** are **irrelevant** to the investigation.	Analysis of lab is **not complete** or does not address the lab.