

Rochelle Township High School Hub of Science Manual

The RTHS science Hub is designed to develop students' growth in the field of science and application of science practices. Students will follow a scaffolded approach, by grade level, to skills and practices used in each of the science classes. The science department will have a targeted approach to tracking student progress. The hope of this approach is to see improvements in specific areas related to the scientific thinking process, while also providing the science department with data that is common amongst the entire department to bring to PLC meetings.

Freshmen:

The first level of the science hub will focus on the most basic principles used in all areas of science. In each of the categories freshman classes will learn, drill, and test in each of the areas outlined in the Hub.

Measurement Domain- Performing measurements is an integral part of science. Regardless of the discipline, all areas of science make measurements. The focus for freshmen at RTHS with respect to measurement will be to increase their skills in: estimation, making measurements, choosing correct instruments, and measuring in the correct units. These most basic of skills are paramount if the other areas of the focus outlined in this document are to be met. By the end of freshman year students should excel in the area of measurement. This will ensure that when they advance to their sophomore year they are ready and able to advance to the next level of measurement focus.

Data analysis domain- Data analysis builds directly off of measurements. The measurements students are making are the data they will use to argue and study the concepts they are learning about in the classroom. If the measurements are sub-par the students' data will be misleading and students will not arrive at reliable results. The data analysis will work in conjunction with the measurement domain. As freshmen the data analysis will take a couple forms, the data collection portion will be the most basic task. These activities will include both qualitative and quantitative activities. Once data is collected the students will perform simple analytics on their data including, organization and graphing. Students will demonstrate understanding, by not only looking at their own data, but studying other data sets. Students will need to identify variables in experimental set ups. Students will not only set up their own graphs correctly, including all important components of a well constructed graph, but also work backwards. When students are provided with graphs, they should be able to tell what variables are being tested and measured. They should be able to recognize simple trends in graphs as well. Students by the end of freshman year would hopefully be able to come to a simple conclusion based on data, both collected by them, or data provided for them to study.

Communication in science domain- Communication is the most advanced skill that freshmen will focus on. The science Hub is scaffolded through the grade levels, but the Hub domains work in close conjunction with one another. The goal of a freshmen in science is to focus on the basic methods of communication in science. Both as a producer of information, and a consumer of information. Freshmen will practice reading scientific text books, and simple articles written about science. These texts will include data and graphs so that students are getting reinforcement of the other domains. Included in the communication domain will be the students introduction to writing formal lab reports. As freshmen they will focus on developing strong testable hypotheses, and writing procedures for a simple experiment.

By the end of freshman year, students should be able to collect data, using their measurement techniques, organize and do simple analyses of their data or someone else's. They should be able to read a scientific article and outline the important aspects of the article along with design and write a start to a lab report.

Sophomores:

Measurement Domain- Measuring at the sophomore level will be an extension of the work students did as freshman. The focus will shift towards more advanced techniques. Students will start paying more attention to accuracy and precision. The students will also look at which device is best for a measurement based on the object being measured. For example choosing the correct graduated cylinder for the volume of liquid being measured. Students will learn that the correct type of instrument is important, but even among the correct type of instrument, there are varieties of those instruments that could be more appropriate for the task at hand. The main difference between freshman and sophomore level with respect to measurement will be that sophomores will be expected to incorporate unit conversions. As sophomores the overlap between the measurement domain and data analysis domain becomes larger.

Data analysis domain- Again as students enter sophomore year they will focus on growing their skills they acquired as freshmen. Students will explore relationships between variables. Students will also learn to recognize types of relationships found in data, like indirect, direct, exponential, etc. Being able to summarize a set of data in graphical form or from a data table will be a focus. Students will also incorporate technology into their data analysis. They will learn how to use google sheets to help them generate data tables and graphs. Students will learn how google sheets can be used to help analyze information.

Communication in science domain- As sophomores students will build upon the previous skills. Focus this year will shift to the more advanced parts of the lab report process. Students will focus on writing conclusions that incorporate the science content that is supported or not supported by the data they have collected. Students will also learn how to evaluate claims made by other individuals. Students will begin the very basic steps of peer

review. Students will also produce presentations that showcase their understanding of the work they have done. Students will have the opportunity to demonstrate their understanding of the domains they have learned. One last skill that will be focused on complex word problems. Students will learn to break down word problems so that they can extract the important information in order to complete a multi step calculation. Emphasis will be made to use the units in the problem to set up an equation that answers the question.

By the end of sophomore year students should have all of the basic skills needed to step into a higher level science course, or be done with science altogether and equipped to enter life after high school. Either a community college or even a workforce. The skills students would need to enter any number labor intensive jobs require some if not all of the domains covered in the science Hub.

Junior/Senior:

Measurement domain- Students taking science classes at this level tend to be college bound. The focus at this level is enrichment. Students will build and explore the skills they have acquired during their first two years of high school. Students will perform measurements with more sophisticated instruments, like the vernier probes. Students will engage in more engineering applications at this level. Students will focus on accuracy and precision along with the understanding of measurements they are making.

Data analysis domain- Students at this level should be able to set up and collect data for their own experiments and projects. More advanced analysis of graphs and data that incorporate skills from their math classes will be emphasized here. As students explore scientific ideas and analysis of articles their level of understanding should be greater with their more advanced mathematics.

Communication in science domain- Focus here will be on being a good consumer of information. Not only will students write and present their own lab reports and projects. They provide feedback and critiques of classmates. Peer review will be important. Students will use primary resources to write research papers. Students will learn to write a CER (claim, evidence, reasoning) to provide well rounded start to finish arguments about a given topic or idea in science. A CER will require students to utilize their full knowledge and understanding of the domains covered at RTHS. The last area covered in this grade level will be the ability to recognize pseudoscience. Encouraging students to understand how society uses and manipulates data to make a point is an important skill students need as they enter society.

Science Hub at a glance:

Domain # 1 Measurement

9th Grade (Honors, Bio, I.Bio)

10th (N/S Chem, Honors Chem)

11th and 12th (AP Chem, Honors Physics, Physics) (ES, Anatomy, Bio 2, Zoo)

Domain #2 Data Analysis

9th Grade (Honors, Bio, I.Bio)

10th (N/S Chem, Honors Chem)

11th and 12th (AP Chem, Honors Physics, Physics) (ES, Anatomy, Bio 2, Zoo)

Domain #3 Communication in Science

9th Grade (Honors, Bio, I.Bio)

10th (N/S Chem, Honors Chem)

11th and 12th (AP Chem, Honors Physics, Physics) (ES, Anatomy, Bio 2, Zoo)

Classroom poster

The RTHS science department is focused on fostering the skills necessary to prepare students for their futures. Whether that is in college or career path. The RTHS Science hub focuses on a tiered approach to build on common themes across all science classes getting more rigorous as students move through high school.

PLC Meeting documents: The following documents can be used to guide discussions in PLC meetings. Each document covers one of each of the domains in the science Hub.

Communication form

*not all activities above may be addressed.

PLC question 1: What do we want all students to know and be able to do as a result of this activity?

PLC question 2: How do we know if students achieved the goal of this lesson? Elaborate on results here.

PLC question 3: What should we do for those students who struggled with this?

PLC question 4: How can we extend learning for those students who are already proficient?

Data analysis form

*not all activities above may be addressed.

PLC question 1: What do we want all students to know and be able to do as a result of this activity?

PLC question 2: How do we know if students achieved the goal of this lesson? Elaborate on results here.

PLC question 3: What should we do for those students who struggled with this?

PLC question 4: How can we extend learning for those students who are already proficient?

Measurement form

*not all activities above may be addressed.

PLC question 1: What do we want all students to know and be able to do as a result of this activity?

PLC question 2: How do we know if students achieved the goal of this lesson? Elaborate on results here.

PLC question 3: What should we do for those students who struggled with this?

PLC question 4: How can we extend learning for those students who are already proficient?

Rubric for measurement domain

Communication rubric

Data analysis rubric

Grade	Task/Skill	Rationale
9	Measuring Estimation Choosing correct units of measure Appropriate instrument use	We have identified that these skills are below standards for freshmen. Focusing on these basic skills provides students with a strong foundation to take to their next level science classes. These are tied directly to the most basic portions of the data spoke which includes data collection.
10	Measuring Estimation Choosing correct units of measure Appropriate instrument use Unit conversions Derived units Dimensional analysis	Builds upon the skills they learned as freshman, such as effectively using dimensional analysis to convert their measurements to different units. Also connects directly to the data analysis portion of the data spoke.
11/12	Focus on accuracy and precision (sig. Incorporate math concepts from upper level math classes Use different forms of tech to make measurement Construct artifacts with complex dimensions (engineering) Using vernier probes to collect complex data.	The students college bound specifically in the science fields will get further skill enhancement from the skill they learned in previous years, preparing them for their lab classes at the next level

Grade	Task/Skill	Rationale
9	Data collection Variable identification Data organization Parts of a graph Construct a graph from a preorganized data set.	In conjunction with the measurements students will be using these techniques to build upon the most basic skills that scientific research uses.
10	Relationships among variables Manipulation of variables (calculations) Trend identification Using technology to analyze data (google sheets) Verbal summaries of information on a graph Constructing graphs from obtained data	Building upon the skills from 9th grade, students will use skills and content in their math classes to make sense of the data they are collecting. Also using data to make predictions about other data sets is a skill used in the science field. A goal of this would be for students to be able to analyze data and determine its accuracy/validity to recognize outliers
11/12	More complex statistical analysis of data Continued development of using technology	As upperclassmen students combine all of the skills and extend their data understanding and manipulation that will set them up for their next level

Grade	Task/skill	Rationale
9	Reading textbooks Writing hypothesis Producing papers/presentations Following lab procedure	Students will learn that science reading and writing is very different from the writing they do in English. Developing an effective hypothesis allows for focused research. Short papers/presentations to demonstrate understanding is a important step in experimental design
10	Writing procedures Writing conclusions Producing presentations Analyzing claims Word problems	Continue the skills of writing in depth lab reports. Using the skills from 9th grade, to add to lab reports. Writing procedures that narrow the focus of what is going on in an experiment. Writing effective conclusions that tie research together and use data to support is a skill that many students struggle with. Reading and extracting important information in word problems is something students struggle with across the board
11/12	Writing lab full reports in science Critiquing peers/peer review Supporting claims using evidence and reasoning (CER) Research papers, using primary work to understand the natural world Evaluating invalid claims and providing argument based in evidence Identifying pseudoscience in society (fake news)	Complete lab reports with all parts of the lab is a complex process. It incorporates all of the pillars in one way or another. Students headed to the next level of science should have experience before graduation. Peer review is an important aspect of the scientific process. It requires students to use other pillars to analyze and defend their critique of another student. Using primary literature to produce research is something students do as upperclassmen in other content areas, but analyzing primary literature and making sense of it is something only the highest of the high students do.

Domain	Grade	Skill
Measurement	Freshman	Measuring, Estimation, Units of measure, Instrument use
Measurement	Sophomore	Previous skills and Unit conversions, Derived units, dimensional analysis
Measurement	Junior/Senior	All previous skills and precision and accuracy, using technology and engineering
Measurement	Junior/Senior	All previous skills and precision and accuracy, using technology and engineering

Domain	Grade	Skill
Data analysis	Freshman	Data collection, Variable identification, Data organization, Parts of a graph, constructing graphs
Data analysis	Sophomore	Relationships among variables, Manipulating variables, Data Trend identification, using technology to analyze data, Verbal summaries of graphs
Data analysis	Junior/Senior	Statistical analysis of data and graphs, continued use of technology to analyze and build graphs
Communication in science	Freshman	Reading texts, hypothesis writing, producing papers and presentations, following lab procedures
Communication in science	Sophomore	Writing procedures and conclusions, producing presentations analyzing claims, solving word problems
Communication in science	Junior/Senior	Writing full lab reports, peer review, claim evidence reasoning, research using primary literature, evaluating claims, identifying pseudoscience (fake news)

Course	
Date	
Assignment/Activity	
Instructors	

What was the focus of the activity?	Explain how these items were addressed
Reading textbooks	
Writing hypothesis	
Producing papers/presentations	
Following lab procedure	
Writing procedures	
Writing conclusions	
Analyzing claims	
Word problems	
Writing lab full reports in science	
Critiquing peers/peer review	
Supporting claims using evidence and reasoning (CER)	
Research papers, using primary work to understand the natural world	
Evaluating invalid claims and providing argument based in evidence	

What was the focus of the activity?	Explain how these items were addressed
Identifying pseudoscience in society (fake news)	
**other activity	

Course	
Date	
Assignment/Activity	
Instructors	

What was the focus of the activity?	Explain how these items were addressed
Data collection	
Data organization	
Variable identification	
Parts of a graph	
Construct a graph from a preorganized data set.	
Relationships among variables	
Manipulation of variables (calculations)	
Trend identification	
Using technology to analyze data (google sheets)	
Verbal summaries of information on a graph	
Constructing graphs from obtained data	
More complex statistical analysis of data	
Continued development of using technology	
**other activity	

Course	
Date	
Assignment/Activity	

Course	
Instructors	

What was the focus of the activity?	Explain how these items were addressed
Description of activity	
Measuring	
Estimation	
Choosing correct units of measure	
Appropriate instrument use	
Units/Unit conversions	
Dimensional analysis	
Accuracy and precision	
Using technology in science	
Incorporating upper level math concepts	
**add your own category	

Category	Score (10)	Score (7)	Score (4)	Score (1)
Measuring	Consistently applies appropriate measuring techniques for various scientific phenomena.	Applies appropriate measuring techniques for most scientific phenomena.	Applies appropriate measuring techniques inconsistently.	Uses inappropriate measuring techniques or lacks understanding of measuring techniques.
Estimation	Makes accurate and well-reasoned estimations before and after measurements.	Makes reasonable estimations before or after measurements, but not consistently.	Makes estimations, but they lack reasoning or accuracy.	Does not attempt estimations.
Choosing Correct Units of Measure	Always selects the correct units of measure for the task and explains the rationale.	Usually selects the correct units of measure but may lack explanation.	Selects units inconsistently or incorrectly without explanation.	Uses incorrect units of measure throughout the task.
Appropriate Instrument Use	Demonstrates proficiency in using various scientific instruments, ensuring accurate data collection.	Uses most scientific instruments appropriately; minor errors may occur.	Shows difficulty using specific instruments, leading to potential inaccuracies.	Misuses instruments or lacks understanding of proper instrument use.
Units/Unit Conversions	Performs unit conversions flawlessly and explains the process effectively.	Performs most unit conversions accurately but may struggle with complex conversions or explanations.	Makes some errors in unit conversions and struggles to explain the process.	Makes significant errors in unit conversions or fails to understand the concept.
Dimensional Analysis	Effectively utilizes dimensional analysis to solve problems, analyze data, and interpret results.	Uses dimensional analysis to solve most problems but may struggle with complex scenarios.	Attempts dimensional analysis but makes significant errors or lacks understanding of the process.	Does not attempt dimensional analysis.
Accuracy and Precision	Consistently reports data with appropriate levels of accuracy and precision, understanding the importance of both.	Reports data with good accuracy, but precision may be inconsistent.	Reports data with some inconsistencies in accuracy or precision.	Reports data with significant inaccuracies or lacks understanding of accuracy and precision.

Category	Score (10)	Score (7)	Score (4)	Score (1)
Using Technology in Science	Selects and utilizes appropriate technology (e.g., calculators, graphing software) to enhance data analysis, visualization, and problem solving.	Uses technology to support some aspects of data analysis or visualization.	Uses technology inconsistently or ineffectively.	Does not utilize technology or uses it inappropriately.
Incorporating Upper Level Math Concepts	Applies relevant upper-level math concepts (e.g., trigonometry, calculus) to analyze scientific data and solve complex problems.	Applies relevant upper-level math concepts to analyze scientific data and solve problems, with minor errors or explanations that may need more detail.	Shows limited understanding of applying upper-level math concepts or avoids them altogether.	Does not demonstrate knowledge or application of upper-level math concepts.

Criteria	4 points (Exceeds Expectations)	3 points (Meets Expectations)	2 points (Approaching Expectations)	1 point (Needs Improvement)
Reading Textbooks	Identifies key concepts, analyzes arguments, and explains their significance in broader context. Connects ideas from different sections. Extends understanding beyond the text through additional resources.	Identifies key concepts and arguments. Connects ideas within a section. Seeks additional resources when needed.	Identifies key concepts in the text. Struggles to connect ideas or analyze arguments deeply. Uses minimal additional resources.	Struggles to identify key concepts or follow arguments. Does not use additional resources effectively.
Writing Hypothesis	Formulates a clear, testable, and specific hypothesis based on observations and research questions. Consider alternative explanations.	Formulates a clear and testable hypothesis based on observations. May not consider alternative explanations fully.	Formulates a somewhat clear or testable hypothesis. May lack connection to observations or research questions.	Formulates an unclear or untestable hypothesis.
Producing Papers/Presentations	Creates a well-organized, visually appealing paper/presentation with clear arguments, strong use of evidence (including graphics), and correct citations in a standard format. Delivers presentation confidently and effectively, engaging the audience.	Creates a well-organized and clear paper/presentation with logical arguments, appropriate evidence, and citations in a generally consistent format. Delivers presentation adequately with some engagement of the audience.	Creates a paper/presentation with some organization and clarity, but may contain logical flaws, limited evidence, or inconsistent citations. Delivers presentation with limited engagement of the audience.	Paper/presentation lacks organization, clarity, or logic. Evidence is weak or missing. Citations are absent or incorrect. Delivers presentation poorly or lacks confidence.
Following Lab Procedure	Follows instructions meticulously, ensuring accuracy and safety. Identifies and mitigates potential errors.	Follow instructions carefully, maintaining safety. May require occasional clarification.	Follows instructions with some errors or inconsistencies. May overlook safety concerns.	Frequently deviates from instructions or lacks understanding of procedures. May not prioritize safety.
Writing Procedures	Clearly and concisely outlines the steps of a procedure, ensuring replicability for others. Includes necessary details and safety precautions.	Outlines the steps of a procedure, but may lack clarity or specific details. Includes most safety precautions.	Outlines the steps of a procedure with some inconsistencies or missing information. May lack some safety precautions.	Provides a vague or incomplete outline of the procedure. May omit essential details or safety precautions.
Writing Conclusions	Analyzes data, draws logical conclusions supported by evidence, and acknowledges limitations of the study. Connects findings to broader scientific concepts.	Analyzes data and draws conclusions supported by evidence. May not fully acknowledge limitations or connect findings to broader concepts.	Analyzes data but struggles to draw clear conclusions or support them with evidence. May not address limitations.	Fails to analyze data or draw conclusions.
Analyzing Claims	Critically evaluates claims based on evidence, identifies logical fallacies, and recognizes potential biases.	Evaluates claims, considering evidence and potential biases. May identify basic logical fallacies.	Attempts to evaluate claims but struggles with complex evidence or biases.	Does not critically evaluate claims or recognize potential biases or fallacies.
Word Problems	Effectively applies scientific principles and mathematical skills to solve complex word problems, clearly demonstrating the thought process and solution.	Applies scientific principles and mathematical skills to solve word problems, with some minor errors or unclear explanations.	Attempts to solve word problems but struggles with applying concepts or demonstrating the thought process.	Unable to solve word problems or demonstrate understanding of relevant concepts.
Writing Lab Full Reports	Creates a comprehensive lab report with all essential sections (introduction, methods, results, discussion, conclusion) and detailed explanations throughout. Includes proper citations and accurate data presentation.	Creates a complete lab report with most essential sections, but explanations may lack detail or clarity. Citations and data presentation may have minor inconsistencies.	Creates a lab report missing some essential sections or including incomplete or unclear information. Citations or data presentation may have significant errors.	Creates an incomplete or unorganized lab report with missing sections or inaccurate information.
Critiquing Peers/Peer Review	Provides constructive feedback on peers' work, identifying strengths and weaknesses with specific suggestions for improvement. Maintains a respectful and professional tone.	Provides some feedback on peers' work, but may lack detail or constructive suggestions.	Provides limited or unclear feedback on peers' work. May lack a focus on improvement or maintain a disrespectful tone.	Does not provide any feedback or offer unhelpful or disrespectful comments.

Criteria	4 points (Exceeds Expectations)	3 points (Meets Expectations)	2 points (Approaching Expectations)	1 point (Needs Improvement)
Supporting Claims using Evidence and Reasoning (CER)	Clearly states a scientific claim, supports it with relevant and reliable evidence, and uses logical reasoning to explain how the evidence supports the claim.	States a scientific claim, supports it with relevant evidence, and includes reasoning that generally connects the evidence to the claim.	States a claim and includes some evidence, but the evidence may be limited or the reasoning may not clearly connect the evidence to the claim.	Makes an unclear or unsupported claim, uses little or no relevant evidence, or does not provide reasoning that connects evidence to the claim.

Category	1 Point	3 Points	5 Points	7 Points	10 Points
Data collection	Limited or no data collected.	Follow basic instructions, but data may contain errors.	Follows instructions well, collects relevant data with few errors.	Collects accurate and comprehensive data exceeding expectations.	Collects comprehensive and accurate data using advanced methods.
Data organization	Data is disorganized or not presented clearly.	Data is presented somewhat clearly but with minor inconsistencies.	Data is well-organized and easy to understand with clear labels.	Data is meticulously organized and presented for efficient analysis.	Data is exceptionally well-organized and presented using advanced methods (e.g., coding).
Variable identification	No variables identified or inaccurate identification.	Attempts to identify variables but with inconsistencies.	Accurately identifies relevant variables.	Clearly identifies all relevant variables and explains their types (quantitative/qualitative).	Accurately identifies and explains all relevant variables, including their types and potential scales.
Parts of a graph	Missing or inaccurate labeling of graph elements (title, axes, legend).	Labels some elements incorrectly or inconsistently.	Labels all elements correctly but with minor formatting issues.	Labels all elements clearly and correctly with proper formatting.	Labels all elements meticulously, uses proper formatting, and incorporates additional features (e.g., error bars, data points).
Construct a graph from data	Failing to construct a graph or graph is inaccurate.	Constructs a basic graph with significant errors.	Constructs a graph with some errors but conveys the general trend.	Constructs an accurate and well-formatted graph that clearly represents the data.	Constructs an exceptional and informative graph with effective use of technology and customization.
Relationships among variables	Fails to identify any relationships or misinterprets them.	Attempts to identify relationships but lacks clarity or overlooks key aspects.	Identifies basic relationships between variables but lacks detailed analysis.	Identifies and explains relationships between variables using appropriate language and terminology.	Provides a comprehensive and insightful analysis of relationships between variables, highlighting nuances and limitations.
Manipulation of variables (calculations)	Makes significant errors in calculations or fails to perform them.	Attempts calculations but with errors and limited understanding.	Performs calculations with some errors but demonstrates basic understanding.	Performs calculations accurately and demonstrates understanding of their purpose.	Performs complex calculations accurately and explains their significance to the analysis.
Trend identification	Fails to identify trends or misinterprets them significantly.	Attempts to identify trends but lacks clarity or overlooks key patterns.	Identifies basic trends but lacks detailed explanation or justification.	Identifies and explains trends accurately, considering potential limitations and alternative interpretations.	Identifies and explains complex trends including outliers and potential causes, considering limitations and alternative interpretations.
Using Technology (Google Sheets)	Limited or no use of technology for data analysis.	Uses technology with basic features but encounters significant difficulties.	Uses technology with some understanding but limited efficiency.	Effectively utilizes relevant features of Google Sheets for data analysis and visualizations.	Demonstrates advanced and innovative use of Google Sheets tools for complex data analysis and visualizations.
Verbal summaries of information on a graph	Inaccurate or incomplete description of information on the graph.	Description is partially accurate but lacks key details or clarity.	Provides a general understanding of the information depicted in the graph.	Provides a clear and concise summary of the information on the graph, highlighting key trends and relationships.	Provides a comprehensive and insightful summary of the information on the graph, including potential limitations and alternative perspectives.
Constructing graphs from obtained data	Fails to construct a graph from obtained data or graph is inaccurate.	Constructs a basic graph with significant errors from obtained data.	Constructs a graph with some errors but conveys the general trend using obtained data.	Constructs an accurate and well-formatted graph that clearly represents the obtained data.	Constructs an exceptional and informative graph with obtained data, using effective customization and advanced features.

Category	1 Point	3 Points	5 Points	7 Points	10 Points
More complex statistical analysis of data	Limited or no attempt at complex statistical analysis.	Attempts to use complex statistical analysis but makes significant errors.	Uses basic techniques for complex analysis with some errors and limited understanding.	Utilizes appropriate complex statistical analysis techniques accurately and explains their significance in the context of the data.	Demonstrates mastery of advanced statistical analysis techniques and utilizes them effectively to draw insightful conclusions.
Continued development of using technology	Limited or no development in using technology for analysis.	Shows minor improvement in using technology but significant difficulties persist.	Shows consistent development in using technology with some limitations.	Demonstrates continued and significant improvement in using technology for data analysis and visualizations.	Continuously explores and implements advanced technological tools and methods for data analysis, setting an example for others.