School District of Lancaster

Together We Can!

2nd Annual

Environmental STEM Fair

In Collaboration with the City of Lancaster's Mayor Danene Sorace

District Fair Held Thursday May 22, 2025

Public Viewing from 3:30-5:30

Table of Contents

Introduction

Welcome to the 2024 STEM Fair! This year, our theme is centered around environmental issues facing Lancaster City. Students are encouraged to tackle real-world environmental challenges affecting our community. You are invited to research, design, and present solutions to issues impacting Lancaster City, focusing on problems such as water contamination, air quality, and lead poisoning.Your task is to develop a project that proposes a solution to one of these challenges. This handbook will guide you through expectations, timelines, project ideas, and rubrics, organized by grade level.

Key Dates

Projects due to buildings
April 14, 2025*

Building winners selected by: April 30, 2025*

District-Wide STEM Fair
May 22, 2025

Deadline to pick up projects: May 29, 2025

SDoL STEM Fair 2024 - Students sharing their environmental solutions with Mayor Danene Sorace

*These are "last possible" dates. Individual buildings will identify a due date for students and the building-level competition/winner selection based on building needs.

Getting Started

1. **Choose a Topic:** Pick an environmental issue that interests you. Consider something affecting Lancaster City (examples provided in the next section).
2. **Research:** Start gathering information about your chosen topic. Identify a specific question that can be empirically tested. Use the library, internet, or local experts.
3. **Plan Your Investigation:** Select appropriate tools to collect, record, and analyze data. Plan an investigation that will produce data that serves as evidence for your proposed solution.
4. **Carry Out Your Investigation:** Make a hypothesis that specifies what happens when variables are manipulated. Collect data about the performance of a proposed solution.
5. **Analyze and Interpret Your Data:** Create tables and graphical displays of data to reveal patterns and show relationships between variables. Use mathematical concepts to make sense of observations and interpret results.
6. **Communicating Your Information:** Be ready to share your findings with clear visuals, data,and explanations. Explain the results of your investigation, both orally and in writing, as you use evidence to make and defend claims.

Expectations by Grade Level and Examples

Grade Level	Expectations
K-5	**Objective**: Explore and understand an environmental problem in Lancaster City. **Project**: Create a simple model or demonstration. **Report**: Write a short description of the problem and solution (1-2 pages). **Examples**: Build a model of water filtration or create a poster on reducing air pollution.
6-8	**Objective:** Investigate and present data on an environmental issue. **Project:** Develop a more detailed experiment or model. **Report:** Write a 3-5 page report including data, graphs, and conclusions. **Examples:** Test water samples for microplastics or measure air quality in different areas of the city.
9-12	**Objective:** Research and propose a detailed solution to a local environmental problem. **Project:** Conduct in-depth experiments or design innovative solutions. **Report:** Write a comprehensive research paper (6-10 pages) and present findings. **Examples:** Develop a plan to reduce lead poisoning or propose a city-wide recycling initiative to combat microplastics.

Topic-Specific Examples

Topic	Examples
PFAs and Microplastics	**Elementary:** Create a model showing how microplastics can enter the air and environment through everyday products like synthetic clothing, packaging, or tires. Explain how this can affect humans and animals. **Middle:** Investigate microplastics found in household dust or synthetic fabrics. Analyze where they come from (e.g., clothing, packaging) and suggest ways to reduce exposure, like choosing alternative materials. **High School:** Research how PFAs (also known as "forever chemicals") are present in everyday items like non-stick cookware, stain-resistant fabrics, or food packaging. Develop a plan to reduce the use of these items in Lancaster and raise public awareness.
Air Quality (Particle Pollution)	**Elementary:** Build a poster showing sources of air pollution. **Middle:** Measure air quality in different parts of Lancaster and present findings. **High School:** Research the effects of air pollution on public health and propose policies to improve air quality.
Lead Contamination in Consumer Products and Household Items	**Elementary:** Create a display identifying common products (such as spices, toys, jewelry, and makeup) that may contain lead, and explain how lead from these items can harm health. **Middle:** Test a variety of household products (spices, toys, ceramics, cosmetics, etc.) for lead contamination using safe testing kits. Suggest practical ways families can reduce exposure to lead in everyday products. **High School:** Research the presence of lead in consumer products sold locally, especially imported items, and develop a public policy proposal or educational campaign aimed at reducing exposure to lead from these sources. This could include suggesting new regulations, product bans, or raising awareness.

Project Guidelines for All Grades

- **Problem Identification:** Projects should focus on an environmental issue relevant to Lancaster City, such as:
  - PFAs (per- and polyfluoroalkyl substances) and microplastics.
  - Air quality issues, including particle pollution.
  - Water contamination.
  - High lead poisoning rates from consumer products and household items.
- **Solution Proposals:** Students are encouraged to be creative but realistic in proposing solutions. You can build a model, conduct an experiment, or research potential strategies.
- **Presentation Requirements:**
  - Display recommended
  - Any research data should be clearly labeled and explained.
  - Models or demonstrations are encouraged but not required.

Acceptable Displays

Choose from one of the 3 following Presentations:

Tri-Fold Display Board

- **Overview**: This is the most common and widely accepted format for STEM Fair presentations. A tri-fold board is freestanding and allows for a clear, organized presentation.
- **Contents**:
  - **Center panel**: Title, Problem Statement, and Hypothesis (if applicable).
  - **Left panel**: Introduction, Research, and Methods.
  - **Right panel**: Results, Conclusion, and Future Work.
  - Include visuals like pictures, graphs, charts, and diagrams.

Poster Presentation

- **Overview**: A large poster, typically around 36x48 inches, that includes all key sections of the project in a compact and visually appealing way.
- **Contents**:
  - Project title and abstract at the top.
  - Sections for hypothesis, research, methods, results, and conclusions.
  - Visual elements such as graphs, charts, and photos.

Digital Presentation (Slideshow or Multimedia)

- **Overview**: Some fairs allow for digital presentations using a computer or tablet. This can be a slideshow (e.g., PowerPoint, Google Slides) or a multimedia presentation (e.g., video).
- **Contents**:
  - Introduction slides with the project title, hypothesis, and problem statement.
  - Slides or sections for research, data, and results.
  - Use multimedia elements like video clips, animations, or interactive graphs to enhance the presentation.
- **Important**: Ensure all tech equipment is working before the fair and bring backups like a USB drive.

With your presentation, please include a Notebook or Binder of Research

- **Overview**: A notebook or binder can be included as part of your display to show your research, experiment logs, and data collection process.
- **Contents**:
  - Detailed research notes.
  - Data tables, charts, and experimental results.
  - Diagrams and sketches used during the project's development.

In addition to these requirements, it is highly recommended that you include at least one of the components on the following page.

Choose at Least One

Physical Model

- **Overview**: A physical model or demonstration can be used alongside a display board to illustrate your solution or experiment.
- **Examples**:
  - Water filtration system model to demonstrate how different materials clean contaminated water.
  - 3D model showing the impact of lead contamination through consumer products and household items.
- **Requirements**: Models must be safe, stable, and manageable for transport and presentation. Ensure there's a clear explanation of how the model works.

Experiment or Demonstration Setup

- **Overview**: If your project involves a live experiment or demonstration, you may set up your experiment on a table along with a tri-fold board or poster explaining the project.
- **Examples**:
  - A demonstration of air particle testing using a simple air quality sensor.
  - A working model of a water purification process.
- **Requirements**: All live demonstrations must be safe and meet safety guidelines (e.g., no open flames, hazardous materials, or dangerous chemicals).

Infographic or Data Visualizations

- **Overview**: Create a large, visually appealing infographic or series of data visualizations to represent your findings.
- **Contents**:
  - Key data points in charts or graphs.
  - Simplified explanations of your hypothesis and results.
  - Pictures, icons, and other graphics that help tell the story of your research.

Interactive Element

- **Overview**: If your project involves technology, such as coding or robotics, you may include an interactive element (e.g., touch screens or moving parts) that engages visitors.
- **Examples**:
  - A simple robot that helps reduce waste or clean polluted areas.
  - An interactive map showing pollution levels in Lancaster City.
- **Requirements**: Ensure the interactive element is easy to use and doesn't require excessive maintenance.

Key Considerations

- **Visual Clarity**: Your display should be easy to read from a distance. Use large text for titles and important sections, and keep text concise.
- **Organization**: Arrange sections logically (problem, research, methods, results, and conclusion) so viewers can follow your thought process.
- **Safety**: All materials used in displays must be safe. Avoid any sharp objects, flames, or dangerous chemicals.
- **Neatness**: Make sure your display is clean, neat, and professional. Use borders, headings, and straight lines for a polished look.
- **Interactive Elements**: Any interactive features or models must be functional and easy to explain.

Recommended Timeline: Simple Exploration Projects Grades K-2

October 15-31:

- **Choose a Topic**: Discuss environmental issues with your teacher and pick one that interests you.
- **Learn About the Problem**: Read books or watch videos about your topic.

November 1 - November 15:

- **Plan Your Project**: Talk to your teacher or parent about what you want to do. Will you make a model or do an experiment?

November 16 - January 31:

- **Work on Your Solution**: Build your project! Gather materials and put your solution into action.
- **Ask for Help**: If you need help with your project, ask your teacher or family for guidance.

February 1 - February 28:

- **Test & Improve**: If you're doing an experiment, try it out and make improvements if needed.

March 1 - March 15:

- **Prepare Your Presentation**: Create a simple display or poster to explain your project. Use drawings, photos, or labels.

March 16 - April 3:

- **Finalize Your Project**: Make final touches and get ready to turn it in!

Recommended Timeline: Practical Solution Projects Grades 3-5

October 15 - October 31:

- **Identify an Environmental Issue**: Choose a problem that you want to solve, such as air quality, water pollution, or recycling in Lancaster.

November 1 - November 15:

- **Research the Problem**: Gather information from books, websites, or local experts.
- **Start Brainstorming Solutions**: Think of ways you can solve the problem you've researched.

November 16 - January 31:

- **Design and Test Your Solution**: Begin building your project. If you're doing an experiment, start collecting data.
- **Document Your Work**: Keep notes and record any data you collect. Take photos if you're building a model.

February 1 - February 28:

- **Evaluate Your Results**: If you're running an experiment, analyze the results. Does your solution work? How can you improve it?
- **Make Improvements**: Revise your solution or experiment based on what you learned.

March 1 - March 15:

- **Build Your Presentation**: Prepare a display board or presentation. Include pictures, data, and information about your solution.

March 16 - April 3:

- **Final Review & Submission**: Make sure everything is complete and practice explaining your project!

Recommended Timeline: Research and Data-Driven Projects Grades 6-8

October 15 - October 31:

- **Choose a Research Question**: Pick a specific environmental problem to investigate, such as water contamination or lead poisoning in Lancaster.

November 1 - November 30:

- **Conduct Preliminary Research**: Use resources like books, websites, and local experts to gather background information on the issue.
- **Formulate a Hypothesis**: Develop a question you will answer through your project and decide how you will collect data.

December 1 - January 31:

- **Experiment or Design Your Solution**: Begin conducting experiments or designing your solution. Collect data, document findings, and adjust as needed.
- **Analyze Results**: Look for trends in the data and evaluate your hypothesis. Is your solution feasible? Can your experiment be improved?

February 1 - February 29:

- **Make Adjustments**: Refine your project based on results. Make changes to your solution or experiment if necessary.

March 1 - March 15:

- **Prepare Your Presentation**: Create your display or presentation with a clear outline of your problem, research, data, and solution.

March 16 - April 3:

- **Final Review & Submission**: Finalize your project, double-check your data and presentation, and submit it on time.

Recommended Timeline: Comprehensive Research Projects Grades 9-12

October 15 - November 15:

- **Select a Complex Environmental Issue**: Identify a significant problem like PFAs in Lancaster's water supply or air quality issues and develop a research question.
- **Conduct Initial Research**: Review existing literature and gather as much information as possible about the issue.

November 16 - December 31:

- **Develop Your Research Plan**: Plan your project, including how you will collect and analyze data. Decide if you'll be conducting experiments, field research, or data analysis.

- **Start Data Collection**: Begin gathering data through experiments, interviews, or secondary sources. Keep detailed notes of your findings.

January 1 - February 15:

- **Analyze Data and Draw Conclusions**: Review the data you have collected. Begin forming conclusions and evaluating whether your research supports your hypothesis or offers a viable solution.

February 16 - February 29:

- **Refine and Adjust**: Based on your analysis, refine your research or solution. Consider other variables or improvements.

March 1 - March 15:

- **Prepare Your Final Presentation**: Create a professional, data-driven presentation that explains your research process, findings, and solution.

March 16 - April 3:

- **Final Edits and Submission**: Review your project, ensure all data and research are presented clearly, and submit your final work.

Rubric K-2

	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
Asking Questions	The student demonstrates a deep and thorough understanding of the environmental issue. The problem is clearly defined, including a question that can be answered by an investigation.	The student shows a solid understanding of the issue, but the question may lack clarity or specificity.	The student shows a basic understanding of the issue but struggles to ask a clear question that could guide an investigation, or the question posed is too broad or unrelated to the topic.	The problem is unclear or not well defined, with no specific question or one that is irrelevant to the task.
	27-30 _____	**21-26 _____**	**15-20 _____**	**0-14 _____**
Creativity	The project presents a highly creative and unique solution. The student demonstrates original thinking and innovative problem-solving.	The project is creative and has some unique elements, but may follow familiar approaches.	The project has minimal creativity, relying on common solutions or standard approaches.	The project shows little to no creativity or originality. It may copy existing ideas with no new perspectives.
	18-20 _____	**14-17 _____**	**10-13 _____**	**0-9 _____**
Obtaining, Evaluating, and Communicating Information	The presentation is clear, highly organized, and easy to follow. The information is well-structured with strong visual elements (graphs, charts, models).	The presentation is mostly clear and organized. The structure is logical, but some areas could benefit from better visuals or explanations.	The presentation is somewhat clear, but may be difficult to follow or lacking in structure. Limited use of visual aids or unclear information.	The presentation is confusing, unorganized, or lacks clarity. Information is hard to understand, with minimal or poor visual aids.
	27-30 _____	**21-26 _____**	**15-20 _____**	**0-14 _____**
Effort	The project shows a high level of effort. The student has clearly invested time, thought, and energy into the research, design, and presentation.	The project shows solid effort, but may lack depth in one or two areas. The student has worked hard but could have expanded further.	The project shows moderate effort. Some aspects seem rushed or underdeveloped, and more work could have been done.	The project shows minimal effort. Work is incomplete or poorly executed, with little attention to detail.
	18-20 _____	**14-17 _____**	**10-13 _____**	**0-9 _____**

Rubric Grades 3-5

	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
Asking Questions	The problem is clearly and thoroughly explained. Student(s) ask questions that can be investigated through what would happen if a variable is changed and would provide evidence of a relationship between the variables.	The problem is well explained with a good understanding of the environmental issue. Student(s) attempt to formulate questions that could be investigated by altering variables and may provide some evidence of a relationship between the variables. However, the questions may lack specificity or clarity in establishing the relationship.	The problem is identified, but the explanation lacks detail or depth. Student(s) struggle to formulate questions that can be investigated by changing variables, and the evidence of the relationship between variables is weak or unclear.	The problem is poorly explained or unclear. Student(s) fail to ask questions that can be investigated through changing variables or provide evidence of a relationship between the variables.
	22-25 _____	**17-21 _____**	**10-16 _____**	**0-9 _____**
Solution Feasibility	The solution is well thought out, practical, and achievable. The student clearly explains how the solution can be implemented with realistic considerations.	The solution is mostly practical and achievable. Some aspects may need further development or clarification, but the core idea is solid.	The solution is somewhat practical, but feasibility is unclear or underdeveloped. The student may not fully explain how the solution can be implemented.	The solution is impractical, vague, or unrealistic. It lacks details on how it could be achieved or implemented.
	22-25 _____	**17-21 _____**	**10-16 _____**	**0-9 _____**
Analyzing and Interpreting Data	The project includes strong data support, with clear observations, measurements, or experiments. Student(s) represent data in tables and/or other graphical displays, and analyze and interpret their data to reveal patterns that indicate relationships.	Data is used effectively but may lack some detail or clarity. Student(s) represent data in tables or other graphical displays and attempt to analyze it to identify patterns indicating relationships.	Some data is provided, but it is minimal or lacks organization. Student(s) attempt to represent data in tables or other graphical displays, but the analysis and interpretation may be limited or unclear.	The project lacks data or includes only superficial observations. The understanding of the data presented is limited or absent.
	18-20 _____	**14-17 _____**	**10-13 _____**	**0-9 _____**
Creativity and Innovation	The project is highly creative and presents a unique or innovative solution to the problem. The student shows original thinking and approaches the issue in a new way.	The project demonstrates some creativity and offers an interesting solution, though it may follow more conventional approaches..	The project has limited creativity or uniqueness. The solution is fairly standard with few innovative elements.	The project shows little to no creativity. The solution is common or lacks original thought.
	13-15 _____	**10-12 _____**	**6-9 _____**	**0-5 _____**
Presentation Quality	The presentation is clear, well-organized, and polished. Information is presented with strong attention to detail, and visual elements enhance understanding.	The presentation is mostly clear and organized, but may have minor issues with clarity or detail. Visuals are effective but could be improved.	The presentation is somewhat unclear or disorganized, with several areas lacking detail. Visuals may be minimal or not fully helpful.	The presentation is unclear, disorganized, or lacks attention to detail. Visuals are poor or missing.
	13-15 _____	**10-12 _____**	**6-9 _____**	**0-5 _____**

Rubric Grades 6-8

	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
Asking Questions and Depth of Research	The student asks questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles.The student has consulted multiple credible sources and provides strong evidence to support the project.	The student attempts to ask questions that can be investigated within various environments, framing hypotheses based on observations and scientific principles. However, there may be some limitations in the scope or clarity of the questions posed.The research is solid, though more depth or sources could be added to strengthen the project.	The student struggles to ask questions that can be investigated within different environments, and the framing of hypotheses based on observations and scientific principles may be weak or unclear. Research is somewhat limited or lacks depth. The student provides basic information about the problem but may rely on fewer or less credible sources.	The student fails to ask questions that can be investigated within different environments or frame hypotheses based on observations and scientific principles. Minimal or inadequate research is presented, with little to no evidence supporting the problem.
	27-30 _____	**21-26 _____**	**15-20 _____**	**0-14 _____**
Planning and carrying out investigations	The student plans an investigation and in the design: identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how much data is needed to support a claim.	The student makes an effort to plan an investigation, identifying variables, controls, tools needed, recording methods, and data requirements. The design of the investigation demonstrates some understanding of experimental design principles, although there may be some limitations or oversights.	The student struggles to plan an investigation effectively, resulting in a design that may lack clarity or completeness. There may be inconsistencies or gaps in identifying variables, controls, tools, recording methods, or data requirements.	The student demonstrates difficulty in planning an investigation, resulting in a design that is unclear or inadequate. There may be a lack of understanding of experimental design principles, leading to significant oversights or omissions.
	27-30 _____	**21-26 _____**	**15-20 _____**	**0-14 _____**
Analyzing and interpreting data	The student constructs, analyzes, and/or interprets graphical displays of data and considers limitations of data analysis (e.g., measurement error), and/or seeks to improve precision and accuracy of data with better technological tools and methods (e.g., multiple trials).	The student constructs, analyzes, and interprets graphical displays of data effectively, considering limitations of data analysis and seeking to improve precision and accuracy with better technological tools and methods. The interpretation demonstrates a clear understanding of the data presented.	The student attempts to construct, analyze, and interpret graphical displays of data, but there may be some weaknesses in considering limitations of data analysis or in seeking to improve precision and accuracy. The interpretation of the data may be incomplete or unclear.	The student struggles to construct, analyze, and interpret graphical displays of data, resulting in interpretations that are limited or incorrect. There may be a lack of consideration of limitations in data analysis or efforts to improve precision and accuracy.
	18-20 _____	**14-17 _____**	**10-13 _____**	**0-9 _____**
Innovation	The solution is highly innovative and presents a unique or creative approach to solving the problem. The student demonstrates original thinking and fresh ideas.	The solution is creative, though it may not be entirely unique. The project demonstrates some originality or a new approach to the issue.	The solution is somewhat creative, but it may follow more conventional approaches. There is limited originality in the project.	The solution shows little to no creativity or innovation. The project follows a standard or well-known approach without any novel elements.
	9-10 _____	**7-8 _____**	**5-6 _____**	**0-4 _____**
Engaging in Argument from Evidence and Communicating Information	The presentation is highly organized, professional, and easy to follow. The student constructs, uses, and/or presents an oral and written argument supported by empirical evidence and scientific reasoning.	The presentation is organized and professional, but some areas could be more polished or clarified. The student constructs, uses, and presents oral and written arguments partially supported by evidence and scientific reasoning.	The student attempts to construct, use, and present oral and written arguments supported by empirical evidence and scientific reasoning, but there may be inconsistencies or weaknesses in the arguments presented. Some areas may be unclear or difficult to follow.	The student struggles to construct, use, and present oral and written arguments supported by evidence and scientific reasoning, resulting in arguments that are unsupported or illogical. The presentation is disorganized, unclear, or lacks attention to detail.
	9-10 _____	**7-8 _____**	**5-6 _____**	**0-4 _____**

Rubric - Grades 9-12

	Excellent	Good	Fair	Needs Improvement
Asking Questions	The student asks questions that can be investigated within the scope of the school laboratory, research facilities, or field (e.g., outdoor environment) with available resources and, when appropriate, frame a hypothesis based on a model or theory.	The student attempts to ask questions that can be investigated within various environments, framing hypotheses based on models or theories. However, the questions posed may lack specificity or clarity in establishing a hypothesis based on the provided model or theory.	The student struggles to ask questions that can be investigated within different environments, and the framing of hypotheses based on models or theories may be weak or unclear. There may be a lack of connection between the questions posed and the provided model or theory.	The student fails to ask questions that can be investigated within different environments or frame hypotheses based on models or theories. The questions posed may be irrelevant or insufficient to guide any investigation based on the provided model or theory.
	27-30 _____	**21-26 _____**	**15-20 _____**	**0-14 _____**
Planning and Carrying Out Investigations	The student plans and conducts an investigation to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly..	The student makes an effort to plan and conduct an investigation, producing data to serve as evidence. The design of the investigation demonstrates consideration of the types, amount, and accuracy of data needed, as well as limitations on data precision, and adjustments are made accordingly.	The student struggles to plan and conduct investigations effectively, resulting in a design that may lack clarity or completeness. There may be inconsistencies or gaps in deciding on the types, amount, and accuracy of data needed, or limitations on data precision may not be adequately considered.	The student demonstrates difficulty in planning and conducting an investigation, leading to a design that is unclear or inadequate. There may be a lack of consideration of the types, amount, and accuracy of data needed, or limitations on data precision may be ignored.
	27-30 _____	**21-26 _____**	**15-20 _____**	**0-14 _____**
Constructing Explanations	The student applies scientific ideas, principles, and/or evidence to provide an explanation (taking into account possible unanticipated effects) and link evidence to the claims to assess the extent to which the reasoning and data support the explanation or conclusion.	The student attempts to apply scientific ideas, principles, and evidence to provide explanations and link evidence to claims, but there may be some weaknesses in the extent to which reasoning and data support the explanation or conclusion. Consideration of possible unanticipated effects may be limited.	The student struggles to apply scientific ideas, principles, and evidence effectively to provide explanations and link evidence to claims, resulting in explanations or conclusions that are unsupported or illogical. There may be a lack of consideration of possible unanticipated effects.	The student fails to apply scientific ideas, principles, and evidence effectively to provide explanations and link evidence to claims, resulting in no explanations or conclusions. There may be no consideration of possible unanticipated effects.
	18-20 _____	**14-17 _____**	**10-13 _____**	**0-9 _____**
Innovation	The solution is highly innovative and presents a unique or creative approach to solving the problem. The student demonstrates original thinking and fresh ideas.	The solution is creative, though it may not be entirely unique. The project demonstrates some originality or a new approach to the issue.	The solution is somewhat creative, but it may follow more conventional approaches. There is limited originality in the project.	The solution shows little to no creativity or innovation. The project follows a standard or well-known approach without any novel elements.
	9-10 _____	**7-8 _____**	**5-6 _____**	**0-4 _____**
Engaging in Argument from Evidence and Communicating Information	The presentation is clear, well-organized, and polished. The student constructs, uses, and/or presents an oral and written argument that reflects scientific knowledge and student-generated evidence.	The presentation is mostly clear and organized, but may have minor issues with clarity or detail. The student attempts to construct, use, and present oral and written arguments, but there may be inconsistencies or weaknesses in reflecting scientific knowledge and student-generated evidence.	The presentation is somewhat unclear or disorganized, with several areas lacking detail. The student struggles to construct, use, and present oral and written arguments effectively, resulting in arguments that are unsupported or illogical.	The presentation is unclear, disorganized, or lacks attention to detail. The student fails to construct, use, and present oral and written arguments effectively.
	9-10 _____	**7-8 _____**	**5-6 _____**	**0-4 _____**