# INFORMATION PACKET 2026-27

***District 8 Vision***

***Ensure Equity and Excellence for All District 8 Students***

This information packet has been developed to provide clarity and support a coherent rollout of our district-wide and borough-wide Science Expo. The guidance outlined reflects District 8's commitment to strengthening science instruction through **phenomena-based investigations, three-dimensional learning, and evidence-based explanation**.

This packet has been prepared in alignment with the K–12 Science Expo Guidelines and Expectations for New York City Public Schools and STEM Matters NYC. It is designed to support educators, students, and families in engaging in science learning that prioritizes **investigation, data analysis, and the use of Claim–Evidence–Reasoning (CER)** to explain scientific phenomena.

Through this work, schools will build their capacity to deliver rigorous, standards-aligned science instruction that not only deepens content knowledge, but also develops students' ability to think critically, communicate scientifically, and apply their understanding to real-world contexts.

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## OVERVIEW

Welcome to the District 8 Science Expo!

The Science Expo is a celebration of student learning in science through phenomena-based investigations and evidence-based explanations. As we continue to evolve our vision for science instruction, this year's theme—From Phenomena to Proof: Explaining Our World Through Science—emphasizes students' ability to make sense of the world through data, analysis, and scientific reasoning.

The Expo is designed to reflect authentic three-dimensional learning, where students engage in:

- Investigating real-world phenomena
- Collecting and analyzing data
- Constructing explanations using Claim–Evidence–Reasoning (CER)

This year, the focus shifts from simply creating projects to demonstrating understanding. Students are expected to explain the "why" and "how" behind scientific events and systems, using evidence to support their thinking.

Projects should provide students with opportunities to:

- Ask testable questions
- Investigate relationships between variables
- Analyze data and identify patterns
- Develop and communicate evidence-based explanations

Projects may be:

- Experimental Investigations, or
- Engineering Design Projects (only when grounded in scientific understanding and supported by data)

All projects must demonstrate alignment to three-dimensional learning (SEPs, DCIs, CCCs) and reflect students' ability to think and communicate like scientists.

We look forward to working with our District 8 students to create a rigorous, engaging, and intellectually meaningful Science Expo Science Expo!

## CONSIDERATIONS

When supporting students in selecting and developing projects, consider:

- What phenomena will anchor student investigation?
- Does the topic allow for data collection and analysis, not just demonstration?
- How will students explain their findings using evidence (CER)?
- How does the project connect to grade-level standards and content (DCIs)?
- Which Science and Engineering Practices (SEPs) will students engage in?
- How will students identify patterns or relationships using Crosscutting Concepts (CCCs)?

Teachers should prioritize projects that promote deep investigation and explanation, rather than surface-level activities or product creation.

## NON-NEGOTIABLES

To ensure alignment to district expectations, all projects must adhere to the following:

### Instructional Non-Negotiables:

- All projects must be anchored in a clearly defined phenomenon
- All projects must include data collection, analysis, and interpretation
- All projects must include a Claim–Evidence–Reasoning (CER) explanation
- Projects must reflect three-dimensional learning (SEPs, DCIs, CCCs)

### Projects that do NOT meet expectations:

- Demonstrations without investigation
- "Build-only" projects without explanation of the science behind them
- Replications of well-known experiments without analysis or reasoning
- Projects lacking data, evidence, or scientific explanation

### Science Safety

The following items are **NOT** permitted for display of presentation:

- Living, Dead or Preserved Animals.
- Fungi or Bacteria. (*For these items, the substitution of illustrations or photographs is encouraged.)
- Projects which involve the injury or death of an animal.
- Fresh or Preserved Human or Animal tissue.
- Hazardous materials. This includes but is not limited to, fire and heating materials, acids or bases, hazardous microbes, carcinogenic materials, and unsealed food that may attract pests. (*For these items, the substitution of illustrations or photographs is encouraged.)

# Project Design Expectations

**For Experimental Investigations**

All projects must include:

- **Phenomenon Introduction**
  - Clear description of the observable event or system being investigated
- **Testable Question & Prediction**
  - Question aligned to the phenomenon
  - Prediction supported by scientific thinking
- **3D Learning Connections**
  - Identification of:
    - Disciplinary Core Idea (DCI)
    - Science & Engineering Practices (SEPs)
    - Crosscutting Concepts (CCCs)
- **Variables**
  - Independent, dependent, and control variables clearly defined
- **Data Collection & Analysis**
  - Tables, charts, and graphs
  - Identification of patterns or relationships
- **Claim–Evidence–Reasoning (CER)**
  - Claim: Answer to the investigation question
  - Evidence: Data collected during the investigation
  - Reasoning: Scientific explanation connecting evidence to the claim
- **Conclusion & Next Steps**
  - Reflection on findings
  - Opportunities for further investigation

**For Engineering Design Projects**

Engineering projects must be grounded in scientific understanding.

Students **must include**:

- Phenomenon & Problem Identification
- Scientific Explanation of the Problem (what is happening and why)
- Design Plan & Creation
- Testing & Data Collection
- Analysis of Results
- CER Explanation of Design Effectiveness

Students **must explain**:

- Why their design works
- What scientific principles support it
- How data informed improvements

## PROJECT SUBMISSION / PRESENTATION

All projects will be submitted digitally (Google Slides, PowerPoint, video, etc.) and must clearly communicate:

- The phenomenon being investigated
- The investigation process and data collected
- A clear CER-based explanation
- Visual evidence (graphs, charts, models)

Physical models or prototypes may be displayed but **do not replace the requirement for scientific explanation**.

## RUBRIC ALIGNMENT

All project evaluations will prioritize:

- Depth of **scientific understanding**
- Quality of **data and analysis**
- Strength of **Claim–Evidence–Reasoning (CER)**
- Alignment to **three-dimensional learning**

**Class Projects and Students Working Together**: For grades K-2, class projects are allowed. Upper elementary (3-5), middle school, and high school students can work on projects individually or in groups of no more than 3. Schools can send up to three students to represent the class' project at the expo.

# “District Expectation Call-Out”

All projects must begin with a phenomenon and culminate in an evidence-based explanation (CER).

## “What This Is / What This Is Not”

**This IS:**

✔ Investigation
✔ Data analysis
✔ Explanation

**This is NOT:**

❌ Poster projects
❌ Replications without thinking
❌ Build-only models

## What Should Student Explanations Include?

Claim: What did you figure out?
Evidence: What data supports your claim?
Reasoning: Why does your evidence make sense scientifically?

# SCHEDULING & IMPORTANT DATES

*It is important to help your students plan out the amount of time it will take to complete an experimental investigation. Students should plan on finishing their project two weeks before the science fair so that they may practice their presentation several times. Begin by having students make a list of the things that must be done. Include due dates along the way for different parts of the project to ensure you can give feedback. Throughout the project timeline, teachers must provide opportunities for students to analyze data, refine explanations, and practice communicating their thinking using CER.*

| Month View | Task | Completed by Deadline Date(s) |
|---|---|---|
| September<br>October | • Choose a topic/phenomenon<br>• Research the topic<br>• Plan the Procedure<br>• Gather Materials | ***November 3*** |
| November | • Begin the first experiment/design<br>• Complete the first experiment/design<br>• Repeat experiment/design | ***December 1*** |
| December | • Complete the research<br>• Begin creating digital presentation | ***January 5*** |
| January | • Edit digital presentation.<br>• Begin creating the display<br>• Select items from experiment to display | ***February 2*** |
| February | **Confirmation of Project Completion** | ***February 6*** |
| | • Practice presentation in front of a mirror, with parents, and friends<br>• ****In-School Science Expo** | ***Week of February 9-13*** |
| | Schools Identify projects for submission to the district.<br>• ES: 3-6 projects (**1 per grade level)<br>• MS: 3-5 projects (**1 per grade level)<br>• IS/HS 3-6 projects (**1 per grade level) | ***February 13*** |
| | Drop off QR Code poster (*max 3'x3') to TBD location | **Week of February 19-23** |
| | **District Science Expo<br>Justice Sonia Sotomayor Community Center<br>1000 Rosedale Ave., BX** | ***February 25*** |
| June | **Prepare for Borough Expo<br>Drop off Projects: Yankee Stadium** | ***TBD*** |
| June | **Bronx Borough Science Expo** | ***TBD*** |