

FOR PARENTS/GUARDIANS

Scientific Method Projects (All Grades)

What is the Scientific Method?

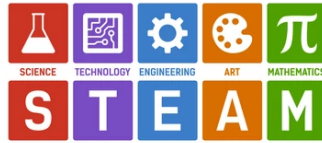
- An approach for acquiring new knowledge by constructing, testing, and refining a hypothesis or developing new hypotheses in a sequential and rational manner.
- Involves making an observation, asking a related question, developing a hypothesis, performing an experiment to collect data and test the hypothesis, and using the experimental results to draw conclusions and refine the hypothesis or develop new hypotheses.

How will Scientific Method Projects be judged?

- Question Phase: Was an observation made and an associated question asked that has a testable answer?
- Research Phase: Was thorough background research conducted on the topic?
- Hypothesis Phase: Was an appropriate hypothesis developed that provided a 'best guess' answer to the question?
- Experiment Phase: Was an experiment designed with a control and was the experiment performed to directly test the hypothesis?
- Data and Analysis Phase: Were data collected from the experiment, were data clearly presented, and was an analysis of the data performed?
- Conclusions Phase: Was at least one conclusion derived that was based on the data and was the conclusion presented in the context of the original question and hypothesis?

Format Instructions:

- Ideate and conduct your experiment at home.
- Create a visual aid (tri-fold presentation board, poster, or printed booklet) to share during interview process.
 - This visual aid should clearly outline the six phases of the Scientific Method (Question, Research, Hypothesis, Experiment, Data, Conclusions).
 - Get creative! Include photographs, drawings, graphs, text, etc. to bring your at-home experiment to life.
 - Don't forget to include your name, grade, and class.
 - Components/materials from your experiment can be brought in for Open House and Interview, within the following criteria:
 - Must fit on half a tabletop.
 - Must be safe/non-toxic and not messy (no liquids or powders).
 - Do NOT bring in valuable items (i.e. technology or breakable/fragile equipment).
 - No live animals.
- Practice your presentation and interview skills at home by talking through your Scientific Method Experiment with family and friends.



FOR PARENTS/GUARDIANS

Design Thinking Projects (Grades 3–5 only)

What is Design Thinking?

- A human-centered approach for developing solutions to problems that are often difficult to define.
- Involves identifying Users (the people who need solutions), developing empathy and understanding of Users' needs, defining the problem(s), identifying opportunities for designing solutions, creating and visualizing ideas for solutions, and developing and testing prototypes for solutions.

How will Design Thinking Projects be judged?

- Empathy Phase: Was a User or User Group identified, and were their needs/wants and challenges presented?
- Define Phase: Was a problem identified and thoroughly described in detail?
- Ideate Phase: Were multiple possible ideas or solutions for the problem developed and described?
- Prototype Phase: Was the best idea/solution selected (the prototype) and presented with justification for the selection?
- Test Phase: Was the prototype presented (or imagined presenting) to the User or User Group, was the prototype tested, and was an analysis conducted to evaluate if the prototype solved the problem or not?
- Discussion Phase: Was a discussion provided that described how the prototype solved the problem, or if the prototype did not solve the problem, was a discussion provided that described what the student might change to better solve the problem and why?

Format Instructions:

- Ideate and conduct your project at home.
- Create a visual aid (tri-fold presentation board, poster, or printed booklet) to share during interview process.
 - This visual aid should clearly outline the six phases of the Design Thinking Process (Empathy, Define, Ideate, Prototype, Test, and Discussion).
 - Get creative! Include photographs, drawings, graphs, text, etc. to bring your at-home project to life.
 - Don't forget to include your name, grade, and class.
 - Components/materials from your experiment can be brought in for Open House and Interview, within the following criteria:
 - Must fit on half a tabletop.
 - Must be safe/non-toxic and not messy (no liquids or powders).
 - Do NOT bring in valuable items (i.e. technology or breakable/fragile equipment).
 - No live animals.
- Practice your presentation and interview skills at home by talking through your Design Thinking Project with family and friends.

