

## CHECKPOINT 1: PROJECT SETUP

*Scientist/Engineer Best Practice: Throughout this project, stay organized by keeping each of the completed checkpoint rubrics and artifacts in order within a 3-ring binder or folder. Each checkpoint will build upon the previous checkpoint, so keeping them all in one place allows for easy reference.*

### Log Setup

A log is like a scientist's diary. The log will include information about the project, including the investigative question, hypothesis, materials, procedures, measurements, results, and data analysis. The more details and observations included, the better. The reader should be able to read through the log and feel like they followed right along with you during the process. The log may include sketches, photos, and any other information that pertains to the project.

Log requirements:

- Use loose-leaf paper to record entries in your log. Keep this loose-leaf paper in your science and engineering fair binder or folder.
- Date each entry.
- Make a new entry **every** time work is done on the project. Record everything, including all observations, measurements, etc.
- **USE A PEN.** Use only a pen and neatly cross out mistakes. Example: The experiment will use a 20 cm wire.

The following are examples of entries you should include in your log:

- Initial brainstorming ideas
- Description of the project topic
- Investigative question, project variables, constants, and control group
- Brainstorming of different hypotheses that would answer the investigative question (this step is completed after researching but before experimenting)
- Complete list of the materials needed/used
- Complete list of the procedures
- Thoughts about how the process is going
- Observations during the experiment
- Charts, graphs, and tables of data collected from the results of the trials
- Conclusion
- Questions that arise during the project

**NOTE: Judges look for organized data collection and analysis, so keep your notes thorough!**

# TOPIC SELECTION

Due Date: \_\_\_\_\_

## Ask a Question:

Think of something in the natural world that interests you or that you are curious about. Since you will be investigating this question for the next couple of months, really take some time to think about this. You will need to form an **investigative question**. Your science project will be designed to help you answer this question about the natural world. This question should be **measurable, observable, and testable** and should have a **cause-and-effect relationship**.

Example: Will the color of light affect how tall a bean plant grows?

Refer to this [list of investigative questions](#) to help you construct your own.

After brainstorming a few topics to investigate, pick your favorite and complete the following questions.

1. What do you want to find out by doing this project? (In other words, what is your investigative question?)

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2. What is the cause-and-effect relationship for your idea? (In other words, a change in one thing causes something else to change.)

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3. How will the investigative question be tested? (Make sure the question is **testable, observable, and measurable!**)

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**Please note:** The following rubric is intended to support students in determining their quality of work. Rubrics help students understand what success looks like and what they should strive for in order to excel in the state Science and Engineering Fair. The results of this rubric are not to be used toward grade-level content grades.

| <b>TOPIC SELECTION RUBRIC</b>     |  |  |                     |
|-----------------------------------|--|--|---------------------|
|                                   | <b>1 point</b>   | <b>0 points</b>  | <b>Total Points</b> |
| <b>Investigative question</b>     | Identified investigative question in question 1.                       | Did not identify the investigative question in question 1.                   |                     |
| <b>Cause/effect relationship</b>  | Identified cause-and-effect relationship in question 2.                | Did not identify cause-and-effect relationship in question 2.                |                     |
| <b>Explanation of testing</b>     | Explained how the investigative question will be tested in question 3. | Did not explain how the investigative question will be tested in question 3. |                     |
| <b>Grade-level appropriate</b>    | The topic is grade-level appropriate.                                  | The topic is not grade-level appropriate.                                    |                     |
| <b>Total for Topic Selection*</b> |  |  | <b>/4 pts</b>       |