This document is broken into two sections: one that describes the scientific method ([https://en.wikipedia.org/wiki/Scientific_method](https://en.wikipedia.org/wiki/Scientific_method)) as a discrete set of steps and another that provides an outline to record these steps. Both of these will prove useful in working through your science fair project.

**STEP ONE: Come up with a TOPIC.**
To do this, think of a topic that is interesting to you. From this topic, you will need to come up with a testable question to research. You know you have a good topic when you can answer “yes” to the following questions:
1. Is my topic realistic? Is it something I can do?
2. Is my topic interesting to me?
3. Can I investigate my topic by experimenting and collecting data?
4. Can I afford what I will need to investigate my topic?

****Often students want to do a science fair project on “The Solar System” or “Volcanoes”. While these make impressive models, it is pretty hard to come up with a question that is “testable” with materials available to the average person within the time frame we are given. The scientific process must be followed.

**STEP TWO: Turn your TOPIC into a QUESTION that you will answer in your scientific investigation.** (This is probably the most challenging part. However, a good question is key to a good project!) Keep your question as simple as possible.
See Sample Science Investigation Questions document also posted on the Spiritridge Science Fair website.

**STEP THREE: Make a PREDICTION.**
A prediction is what you think or expect the result might be from your experimenting. It is a statement that initially attempts to answer your question. A prediction can be incorrect at the end of the scientific process. That is okay! Your investigation is about the learning, not whether you were right or wrong with your prediction.

**STEP FOUR: Create a list of the MATERIALS you will need.** Think of the experiment you will do to help you answer your scientific question and record the materials you will need to gather to conduct your experiment. Be specific. Ex: Instead of saying “water”, say “1 quart room temperature water.” A materials list is a vertical list. It is NOT numbered.
STEP FIVE: **Describe the PROCEDURE of your experiment.** This means to write about how you will conduct the experiment using the materials that you have gathered. A procedure must be a numbered list. Think of the idea of writing a recipe. Each numbered step must be clearly articulated. Ask yourself, “If I gave my procedure to someone, could they successfully complete my investigation all by themselves?” If the answer is no, then you need to be more clear.

STEP SIX: **Record the DATA/RESULTS.** This means that you need to write down things that you discovered while performing your experiment. This is often in the form of a data table. It is what you are measuring. Multiple trials are required.

STEP SEVEN: **State the VARIABLES.** You will need to list one controlled variable (look at the materials list), the changed variable (there is only 1) and the measured variable (there is only 1).

STEP EIGHT: **State your CONCLUSION.** Your conclusion is the answer to your prediction. What did you learn from this experiment? In classroom curriculum, the conclusion always starts like this: My prediction was correct/incorrect. Students should plan on following the formula they have used in class, and should talk with their teacher with any questions.
Scientific Investigation Outline Sheet
Name: ____________________________  Teacher: ____________________________

QUESTION: What do you want to find out?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

PREDICTION: Make a scientific guess about the result.
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

MATERIALS: All the supplies you need to conduct the experiment.
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

PROCEDURE: The steps you take to complete the experiment.
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
DATA/RESULTS: What happened during the experiment?

_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

VARIABLES:
  Controlled: __________________________________________________________
  Changed: __________________________________________________________
  Measured: __________________________________________________________

CONCLUSION: The answer to your prediction based on the results. Be specific and explain what you learned.
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________