



# SOMERS HIGH SCHOOL SCIENCE RESEARCH

## Science Research Summer Assignment

*The summer assignment for returning Juniors and Seniors consists of three parts. Successful completion of this assignment will count as your first grade of the new school year in September.*

### 1. Summer Check-Ins

Just because it is summer doesn't mean we stop sciencing! As always, there will be mandatory summer check-ins to help you stay on track with your research.

Here's what you need to know:

- You only need to attend 2 of the 3 office hours scheduled during the summer.
- You must register for a time slot on 2 of the 3 days using this link:
- These time slots have a limited number of signups available, so make sure to book yours as soon as possible to ensure you get your desired date and time!

[RESERVE YOUR OFFICE HOURS TIMESLOT HERE](#)

### Summer Check-In Dates | 7:00-9:00pm

**#1: Wednesday, July 8, 2026**

**#2: Wednesday, July 29, 2026**

**#3: Wednesday, August 19, 2026**

*Hint- Set reminders in your phone **NOW***

**Google Meet for Office Hours: [Meeting Link](#)**

### 2. Written Assignments

#### **Rising Juniors:**

A 2-3 page summary (double spaced) of your summer research will be collected on the first day of class. This summary should be an overview of the following: 1. the work that was done, 2. the hypothesis that was tested or goal that was set, 3. the data that was collected, 4. the findings that were concluded, 5. and the significance of the work. If you did not conduct research this summer, your summary should include descriptions of all the attempts that you made to secure a mentor, as well as any attempts that were made to design and conduct research of your own. If you can create an independent research project that you are able to conduct while still looking for a mentor, this will allow you to participate in competitions your Junior year. (Note- If you are not able to secure a mentor by the end of the second quarter of your Junior year, you will be removed from the course.)

## Rising Seniors:

### Part 1:

A draft of your responses to the Science Talent Search application essay questions must be completed by the first day of class. You will find these questions/prompts at the end of this document (**Appendix A**).

### Part 2:

A draft of your **Introduction / Review of Literature (ROL), Objectives, Hypothesis, and Methods** must be completed by the first day of class. It must contain all the appropriate sections and meet all the criteria in the attached rubric. The focus of the beginning of the school year will be on you and your submission to the REGENERON Science Talent Search. You will find a rubric for these sections of the research paper at the end of this document (**Appendix B**).

### 3. Regeneron Science Talent Search Account (**Rising Seniors Only**)

Seniors need to simply create an account for the 2027 Regeneron Science Talent Search by the first day of class. Please use the link below to visit the website and create an account. You must bring a printed screenshot of your confirmation that shows the account was created on the first day of class.

<https://sciencetalentsearch.smapply.org/>

#### **General overview of work that should be completed during the summer months:**

**Rising Juniors without a mentor-** Your summer work is to find a mentor by reading journal articles and sending out e-mails. When you secure a mentor, you should start designing an experiment. Complete your 2-3 page summer summary (double spaced).

**Rising Juniors with a mentor-** Your summer work is to complete your experimental design, continue reading journal articles and get into the lab to collect data. You should plan to enter WESEF next year. If data collection is completed over the summer, you should also plan to enter WR-JSHS, NYSSEF, Tri-County, and GENIUS Olympiad. Also, complete your 2-3 page summer summary (double spaced).

**Rising Seniors-** Your summer work is to complete your experimental design, continue reading journal articles and get into the lab to collect data. You **MUST** enter Regeneron Science Talent Search (STS), WR-JSHS, NYSSEF, GENIUS, Tri-County and WESEF next year. You must also have a rough draft of your STS Essay Questions and Research Paper (Introduction, Review of Literature, Objectives, Hypothesis, and Methods) completed by the first day of classes.

## **Appendix A.**

### **REGENERON Science Talent Search Essay Questions (RISING SENIORS ONLY)**

Tell us about your project, inspiration, and impact. The word limit is the maximum allowed; concise answers below this limit are encouraged. First or third person responses are acceptable.

1. Research Project “Layperson’s Summary” (maximum 200 words) Summarize your project in layperson’s terms, while maintaining scientific accuracy. Your explanation should be easily understandable and include background, procedures, conclusions and relevance. This summary will aid readers, including evaluators, journalists and the public.
2. Project Benefits and Impact (maximum 200 words) What benefits do you think your research will bring to the world, and/or to your field? What additional steps, and by whom, might be needed for this benefit to be realized?
3. How did you get the idea for your research? Explain the development of your research question and/or engineering goals. What inspired you to conduct this research project? What is the story behind your topic? Was the project assigned to you? What % credit can you take for the idea? (maximum 250 words)
4. Your Potential as a Scientist, Mathematician or Engineer (maximum 200 words) Address through specific and concrete examples what characteristics you have that best demonstrate your affinity and aptitude for being a good scientist.
  - a. What have you done that illustrates scientific aptitude, leadership, curiosity, inventiveness and/or initiative?
  - b. What are your other STEM-related interests besides your project?
  - c. What do you plan to study in post-secondary education and what occupation do you plan to pursue? What do you hope to be doing 10 years from now?
5. Greatest Accomplishment or Challenge (COMMON APP). Please answer ONE of the prompts below from the Common App; we prefer that you think beyond your research project in this essay. (maximum 200 words)
  - a. Discuss an accomplishment, event, or realization that sparked a period of personal growth and a new understanding of yourself or others. OR
  - b. The lessons we take from obstacles we encounter can be fundamental to later success. Recount a time when you faced a challenge, setback, or failure. How did it affect you, and what did you learn from the experience?
  - c. Some students have a background, identity, interest, or talent that is so meaningful they believe their application would be incomplete without it. If this sounds like you, then please share your story.

# Appendix B.

## Research Paper Rubric

### Fundamental Paper Structure \_\_\_\_\_ 15 \_\_\_\_\_

- Name your doc file "**LASTNAME.FIRSTNAME.AREACODE**" (the area code of your own phone number)
- Your default format should be an adaptation of the **American Psychological Association (APA)** style
- Do ask your mentor** if your discipline preferentially uses another style, and if your mentor prefers that you use it, then you can **defer to your mentor**. You will need to learn that style so ask for a sample paper or two.
- Four alternatives** to APA style:
  - AIP (American Institute of Physics)
  - ACS (American Chemical Society)
  - AMA (American Medical Association)
  - AMS (American Mathematical Society)
- Links to other styles can be found at: <https://subjectguides.library.american.edu/c.php?g=175008&p=2628912>
- For STS, **set 1" margins** (NOT 1.25"), **12 pt TNR font**, **1.5 line spacing** (reduce to 11pt only if needed)
- Insert page # and date of draft at lower right in footer** (remove draft date before submitting to STS)
- Use multiple **APA style tiered headings** (Google: "Owl Purdue APA headings") to organize your paper
- Use no photos of people** (including yourself) unless they are from your data set and necessary
- Generally, use the passive voice**. Exception: if the 1<sup>st</sup> person plural [I, we] is used in peer-reviewed papers in your discipline, you should definitely take advantage of this to showcase important contributions. This helps judges to discern what you were personally responsible for in the project, which is critically important.
- 2MB limit** for the final paper. Use Photoshop, etc., to reduce each photo/figure size to 75-150KB maximum.
- Limited to 20 Pages**, less title page, abstract, and bibliography/references - its okay to exceed this limit initially
- Proof** for grammar, spelling, and context (this is very important - do the sentences make sense in order?)
- Your teacher should not find a single spelling/grammar error**, so get help from a trusted friend if this is not your strong suit. Just one error (e.g., effect vs. affect, or insignificant vs. non-significant) can lose the respect of your reader (and disqualify your work in the eyes of a judge).

### Introduction / Review of Literature (ROL) \_\_\_\_\_ 15 \_\_\_\_\_

- The words "Review of Literature" or "Introduction" form a **Tier One** heading (see Table 1 on last page)
- A strong ROL is typically **five to fifteen concise paragraphs** in length
- Each paragraph expresses **only one main idea or concept**
- Each paragraph contains **one or multiple appropriate citations** from peer-reviewed literature
- You need to **cite and document all sources** that you have consulted, even if you present the ideas in your own words; you do not have to cite "common knowledge" in the field (e.g., you should not cite a fundamental physics equation, or a biological process taught in every college biology class). See Table 1 (last page) for examples.
- The paragraphs must form a **logical sequential funnel** from the most general relevant idea/concept to the most specific. The ROL leads the reader directly to the Objectives and Hypothesis(es) - it has no other function.
- Avoid any teaching** in your writing. It can appear condescending to your reader.
- The ROL must include **only what is necessary** for understanding the context of your project
- Overview of the research problem **is defined early** in the ROL
- Uses multiple cites for emphasis on key ideas. Example: (Finkleheimer, 2014; Schnickelfritz, 2018; Jones, 2017)
- The funnel must demonstrate a **credible "critical mass"** of citation to support the research hypothesis(es)
- The ROL should be fundamentally understandable by the **informed** lay reader while being directed towards the professional audience. It is to be **written at the university level**

### Objectives \_\_\_\_\_ 5 \_\_\_\_\_

- The word "Objectives" forms a **Tier One** heading
- Objectives are the **key tasks** that you intend to accomplish (e.g., "Create a statistical model that will...")
- Objectives are helpful but not required. Some engineering papers use objectives in lieu of a hypothesis(es)
- Objectives are pithy and usually **numbered** (not lettered and not written in prose)
- Each term in the objectives must have been **referenced in some manner in the ROL** for continuity
- Objectives can also be **referred back to** in the discussion and/or conclusion to reinforce validity

## Hypothesis(es) \_\_\_\_\_ 5 \_\_\_\_\_

- The word "Hypothesis" forms a **Tier One** heading
- It should be stated in proper form ( $H_1$ ,  $H_2$ , etc.) with a null ( $H_0$ ), when appropriate
- The hypothesis(es) logically and directly **follow from the end of the ROL**
- The hypothesis(es) **must** be stated in a manner that can be **tested**
- Engineering projects do not always have a testable hypothesis, and use some form of objectives instead
- Include the **null** if appropriate. The null hypothesis states that there is no statistical difference between the population groups that isn't caused by random fluctuations
- Each term in hypothesis(es) **has to have been referenced in the ROL**

## Methods \_\_\_\_\_ 10 \_\_\_\_\_

- The word "Methods" forms a **Tier One** heading
- The methods section is a **succinct, prose description** of the methodology designed to show **reproducibility**
- The methods section is generally written in **past tense**
- It must include sufficient detail for **complete replication** of the experiment, however: All standard lab techniques should simply be named as such. E.g., there is no need to describe all the steps of PCR or electrophoresis.
- Write your methods in **passive voice** (the subject of the sentence is acted on by the verb. For example instead of "The pitcher threw the ball," the passive voice would state "The ball was thrown by the pitcher.")
- Exception to the above: **Use first person for key personal contributions** and where appropriate to the discipline
- Flow charts, figures, and photos are used to **help the reader** where needed
- Substances, quantities, dilutions, surveys, and the like**, are **described**, in the style customary for the discipline
- There is no need to include a full survey, but sample questions can be most helpful to your reader
- Does not get bogged down in details**. Simply say you used a 1 Molar solution; you do not need to describe how to make a 1 Molar solution. If you used the same method as another researcher, cite their paper and simply state what changes you made to their protocol, if any.
- Cite **all important equipment**: E.g., "A flow cytometer (Model 34, Beckman-Coulter) was utilized..."
- Clearly and completely **differentiate between work done by you and work you had assistance with**. You would not do this in a peer-reviewed journal article, but this is a high school paper - the form absolutely requires this.
- Clearly & accurately delineate and highlight **unique contributions** made by you wherever appropriate