

Science Fair 2025-2026

Log Book

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September 1st, 2025

Objectives: Decide upon and finalize an idea for science fair this year.

Notes: My basic idea for this year is to map the movement of specific landmarks on your mouth to watch for specific tendencies (e.g. recurring and extreme lip protrusion.) I would then analyze this across as many languages as possible, looking for any peculiar tendencies that may emerge. This data would then be compared to a language evolution chart to see how these tendencies may have evolved

Review: This is a great starting point, but it is extremely vague. Next time, I would like to further specify my question, and figure out the formatting for a proper research project.

October 8th, 2025

Objectives: Complete the Basic Project Information and Ethics Due Care forms on the CYSF website.

Notes: Since I will have human participants this year, I would like to complete these two forms as early as possible, so the Ethics form can be confirmed as soon as possible to allow me to start work.

Starting with the Basic Project Info form, Name of Project: A Two Pronged Analysis of Speech through Language Evolution (this is a placeholder name,) Grade: 9. Project Type: Research, Language: English, Project Category: Life Sciences, Project Topics: Computer Science and Psychology (I am going to ask my parents if it falls under any other categories,) Brief Description of Project: As the title indicates, this is a two pronged analysis of speech through the evolution of language. The first prong will be the development of software to track mouth movements, and the second will be a study of sound usage in different languages.

It is rather late now, and I only want to produce my best work for the Ethics Due Care form, so I will do that and more during the session.

Review: I will have to have a lot of this work confirmed with supervisors as, due to the time, I may have missed some details.

October 14th, 2025

Objectives: Complete the Ethics and Due Care Form.

Notes:

Purpose of Experiment or Research: To explore the potential development of linguistic tendencies in mouth movement and sound usage in as many of the branches of linguistic evolution as possible.

Description of Experiment or Research Study: As the title indicates, this is a two pronged analysis of speech through the evolution of language. The first prong will be the development of software to track mouth movements. For this, I will have participants in front of a camera based mouth movement tracking software run through my computer. The software will report to me the three dimensions of the requested facial landmarks per however many frames is necessary. I will then use this data to watch for specific trends (ie: high amount of time spent farther from the gums than average. This prong will also be accompanied by a sub-prong of a qualitative analysis of a video recording. The second prong will be a study of sound usage in different languages. In etymology, for pronunciation and word construction, they use the IPA (international phonetic alphabet). I will use this, as well as artificial intelligence software, to analyze books, and other pieces of writing and literature in the languages of the participants to watch if any trends emerge, especially localised in a specific, larger branch of linguistic evolution.

Where Will Experiments Take Place?: If I am able to find a suitable space and time, the experiments will be performed at my school, preferably in the classroom of the Science Fair Coordinator.

Are There Human Participants: Yes.

Are There Animal Participants: No.

What is the Animal Species?: N/A.

Risk Level: Low Risk.

Submit for Review to Ethics and Due Care (CYSF)?: Yes

Review: I will submit it as soon as I can have my parents' confirmation.

October 15, 2025:

Objectives: Submit the Ethics and Due Care Form, lay out a potential time line, plan and commence literature review.

Notes: I had my parents' confirmation without any changes.

Review: Sadly, this was all that I could do today. I will finish today's objectives tomorrow.

October 16th, 2025:

Objectives: Lay out a potential time line, plan and commence literature review.

Notes: Starting with the time line:

Rest of October: Literature review.

November: Language selection, sound usage analysis.

December: Software development, and participant recruitment.

January: Mouth movement analysis study.

February: Data analysis, and conclusion.

March: Final touches and back-up time.

April: Presentation preparation.

Review: My session was cut short, so I will continue this session's objectives next time.

October 21, 2025:

Objectives: Go more in-depth on the timeline, plan and commence literature review.

Notes:

Rest of October: Literature review.

For this section, I will be writing three or so literature review papers, one on language evolution, one on the International Phonetic Alphabet, and another on speaking anatomy. I expect this section to potentially go overtime, especially if I find something important that can lead to more. I would also like to further specify my question and hypothesis.

November: Language selection, sound usage analysis.

Language selection will primarily be based on access. I go to a french immersion school so I will definitely have a few participants (teachers or students) from that group. The problem is that I only really know of access to romantic languages, so I will have to do a bit of scouting to see what else I might be able to study. The selection will also be based on checkpoints in language evolution. I want to have a wide array of different branches to study, as I believe that this may be where I find the most potent results.

December: Software development, and participant recruitment.

Before landing on the software based idea, I had many mental prototypes, so I will draw those out to present to judges. I will also create posters, and google forms, as well as potentially making school announcements to see if anyone could join the study.

January: Mouth movement analysis study.

For this, I will try to find a CTF day or something like it, during which I could bring the participants aside and conduct the study. Much of it will also take place in other spaces due to many of the participants potentially not being in my school.

February: Data analysis, and conclusion.

This section will consist of taking all of the data gained in the other parts of the project and analyzing them, as well as trying to finish the projects.

March: Final touches and back-up time.

This time is reserved for in case anything goes wrong, as well as to make everything much cleaner.

April: Presentation preparation.

In this time period, I only have around a week, so I will use this time to make my tri-fold, and make a website.

For literature review pages, I will make them on separate docs.

I would also first like to confirm the layout for a research project such as this. Because of the order of and description of the different sections, I think that I will use the time in March to format the project into the form of a professional research paper.

<https://www.scribbr.nl/wp-content/uploads/2022/04/Structure-of-a-research-proposal.webp>

This is the format that I will use. It is from this website:

<https://www.scribbr.com/research-process/research-proposal/>

My Ethics and Due Care form was approved today.

Review: I believe that I did a sufficient amount of work for the day.

October 23, 2025:

Objectives: Start in-depth work on one literature review paper.

Notes: As a late night project, I started work on an application form for the study. I am getting ahead of myself, but I will need to start putting up posters and such around the beginning of December if I hope to do the software based study in mid-January.

Review: I only really did late night work, and even then, it was just a side project.

October 27, 2025:

Objectives: Complete the first literature review paper.

Notes: I started the day by completing whichever sections of the Ethics Consent Form 2C. After selecting my participants, I will have to distribute these among them, as they are not allowed to participate if they have not signed it.

Review: Sadly, I was unable to complete the rest of the work.

November 11, 2025:

Objectives: Confirm the ethics forms track, and start the first literature review.

Notes: I started the day by submitting my Declarations. I do not want to have forgotten at the very end, so I will submit them now, and will confirm them later.

The first literature review paper that I will do is the Language Evolution paper. In some of the last sessions I found three sources, though one of my primary sources will be <https://www.theguardian.com/education/gallery/2015/jan/23/a-language-family-tree-in-pictures>, as it talks on the main point of this literature review, finding key points in language evolution to target. The downfall of this article is that it is ten years old, and is made up entirely of images.

Review: I was not able to complete any objectives.

November 12, 2025:

Objectives: Create advertisement posters for the studies.

Notes: I know that I really do not have time to complete or even really start a literature review paper, so I am just going to try to create advertisement posters that I will post when I need to recruit participants. To create them, I will use Canva.

Review: I ended up not having time to complete the objective.

November 21, 2025:

Objectives: Create advertisement posters for the study.

Notes: I have been extremely busy recently, and have not been able to work. Regardless I was able to complete my first draft of the poster, all I need are potential dates.

Review: I completed the first draft of my posters.

December 18, 2025:

Objective: Finish most of my first literature review.

Notes: I have been very busy recently and have thus been unable to work as much as I would have liked. Due to this, I may have to condense one of my prongs, or change the order of the prongs, depending on how much I can work in the next few weeks.

I have been thinking about the first literature review paper, language evolution, and I have decided on a format. I am going to try to create my own tree of languages, and describe some of the major splits in this evolution, especially those that affect my project.

Review: I did not even start.

December 28, 2025:

Objective: Complete literature review.

Notes: I am on a plane at this moment, and though there is wifi, my research capabilities may still be limited. That said, I have a decent amount of free time today, and even if I do not finish, I should be able to get close.

I am starting with the language evolution paper. As described in my last work session, the format for this paper will be the creation of an evolution tree, paired with a brief explanation concerning each major language split.

Luckily, I was able to find a wonderful tree with all of the languages that I needed on Reddit, so all I need to do is add the information. Specifically, this tree concerns primarily the indo-european based branches, and the uralic languages.

Review: My research capabilities ended up being much more restricted than I had previously expected, especially with some of my more core information sources. Due to this, I was not able to complete much work at all.

January 1, 2026:

Objective: My objective during today's session, the first of the year, will be to continue work on the literature review, as well as revamping my science fair habits.

Notes: I know that during the last year, or so, my habits related to working on science fair have been absolutely wretched for progress. This year, I promise to continue to stoke the flame that is my love of this program, and to work harder on it than ever.

Doing this research on the first paper, I have really been enlightened to the complexity of language evolution as a whole, but especially to the complexity of the Hungarian language. Luckily, I know of at least three people in my school alone who speak Hungarian, two of which I could probably convince to participate in the study.

Review: I finished part of the first part of the first literature review, making very little real progress.

January 7, 2026:

Objective: Continue work on the literature review portion of this project.

Notes: Today, I mostly worked on ironing out some logistical problems. I finalized the poster and Google form that potential participants will have to complete. I also have my date for the study, February 4. It is closer than I would have liked, but that just means that I will have to work very hard until then. Further, I have changed my schedule. I am going to leave all of the literature review for now, except, I am going to quickly complete the facial anatomy paper. This will allow me to then spend two and half weeks designing the experiment while at the same time, recruiting participants.

Tomorrow, I will have the opportunity to talk to my science fair coordinator, so I will finish working out the logistics tomorrow.

Review: Though the objective was not completed, I believe that I still completed some very good work.

January 8, 2026:

Objective: Finish working out the logistics, and start on the literature review.

Notes: I am starting the session today by working on the literature review paper on speech anatomy. This project has two major parts, major speech production anatomy and minor speech production anatomy. Major speech production anatomy will primarily focus on how sound itself is actually produced in our bodies. Minor speech production will focus primarily on the smaller muscles in the actual face that help to control specific noises. Minor speech production will also have a lot more focus on the actual muscular anatomy of the face to help select points for the experiment.

Review: The literature review has not been finished, but has been started well.

January 14, 2026:

Objective: Create participant profiles, and finish the literature review.

Notes: On January 12, I put up the posters to advertise being a participant in the study. Since then, I have only received one application. To hold all of the information of the participants, I hope to create a profile on a google doc for each participant. I am starting today by creating a template for the profiles.

I only barely started the profile template due to time constraints.

I was having some difficulty having my recruits follow through, so I printed off a few hand-out QR codes so that people could access the form outside of school.

Review: The objectives were in no way completed. I need to start focusing on the main stream of work and on fully finishing the design of the experiment.

January 15, 2026:

Objectives: Finish the profile template and literature review paper.

Notes: I finished the template.

Review: I did not complete a sufficient amount of work.

January 26, 2026:

Objective: Organise the participants.

Notes: So far, I have seven participants. Though I would like to have more, this should do for now. The problem is that most of these participants improperly completed the application, or did not complete it at all. Today, I will be drafting and then sending out emails to try to organise them.

Review: I sent several emails trying to correct any missed information.

January 27, 2026:

Objectives: Start the participant profiles.

Notes: For the privacy of the participants, I am going to use a code consisting of their initials followed by a random three-digit number, henceforth referred to as their participant ID. This ID will be used on the graphs as well as any other public information or graphics. I have started the profiles for many of the participants, though I still need to start some of them and complete all of them.

Review: They have been started, though the progress was insufficient.

February 1, 2026:

Objectives: Complete participant profiles, complete the Informed Consent Form 2C, and make considerable progress on the literature review papers.

Notes: I started by completing the Informed Consent Form 2C, and beginning to collect all of the documents needed for this section of the project. When finished with that, I organized all related documents into a binder.

Review: Insufficient work completed. The study is coming up, and I really need to advance the progress on the core parts of this project.

February 8, 2026:

Objectives: Plan a meeting for all of the participants, and finish the participant profiles..

Notes: Now that I have the list of participants finalized I can really start to concentrate my research both in literature review and the actual original research. The final list of languages is the following: English, French, Hungarian, Spanish, Arabic, Russian, Ukrainian, and Slovak. Considering that I had very little control over the selected languages, I believe that this list should provide sufficient diversity to bring about a conclusion.

Review: Insufficient progress was made.

February 10, 2026:

Objectives: Complete the participant profiles.

Notes: The participant profiles were completed. These should help in storing their data in a presentable yet quasi-secure fashion. They were primarily made for my own usage in designing Prong 2 (the software based prong.)

Review: All objectives were completed.

February 14, 2026:

Objectives: Complete the three literature review papers, design and commence Prong 1 (analysis.)

Notes: I barely contributed to what was already there, completing a significantly insufficient amount of work.

Review: I may need to revise my plan for the completion of this project.

February 15, 2026:

Objectives: Commence Prong 1, and complete a literature review paper if time permits.

Notes: I need to start working quickly, and I feel as though summarizing the information that I have gained has been impeding on my progress. I still feel as though a sufficient amount of background information has been integrated into the making of this project, it just has not been formalized.

I will now start with the design and execution of Prong 1, Text Analysis. I have gained a lot of the experiment process from the following link:

<https://www.scribbr.com/methodology/experimental-design/#:~:text=Consider%20your%20variables%20and%20how,before%20bedtime%20affects%20sleep%20patterns.>

I have created an experiment design template that I will need to fill out for both prongs.

Review: The template has been completed, but the design remains utterly unstarted.

February 21, 2026:

Objectives: Design and execute Prong 1.

Notes: I finished the design, but am having problems finding short stories in Russian, and Ukrainian.

Review: Insufficient work.

February 24, 2026:

Objective: Execute Prong 1, and design Prong 2.

Notes: When analyzing Arabic using ChatGPT, the IPA phonemes had to be approximated since it uses a different IPA language for Russian, Ukrainian, Russian, and Arabic. Having completed the design I ended up only using a few select paragraphs from each excerpt. I ended up having trouble analyzing Slovak since ChatGPT interpreted Slovak as all of the languages that could fall under the Slovak umbrella.

I had ChatGPT translate the results of the experiment into sentences that could be said, though they were suspiciously similar, and could be incorrect.

Review: A lot of work was completed, though I still feel underprepared, and should have input more of my thought process into the log book.

February 25, 2026

Objective: Execute Prong 2.

Notes: When I was recording MN594, she used a different dialect (Syrian) than the Arabic that I had translated to, which could cause some confounding variables. Also, RF124 had to refrain from participating due to a lack of parental consent.

Review: All objectives completed; full notes of the videos will be taken later.

March 1, 2026:

Objective: Complete Prong 1, finish coding Prong 2.

Notes: In completing the Slovak section of Prong 1, I noticed that this language in particular seemed to have more outliers than the others. Though I do not have any evidence to support this claim, it could be something to explore later.