

Finding a Research Topic Part 2: Exploring Past Projects at Niles West

- How do I come up with a research topic?
- Where do I get my idea from?
- How do I know what I am supposed to research if I have never done a project before?



Great questions! Any good STEM project builds on and improves upon existing ideas and research. At Niles West we have hundreds of students who have done research projects. Students have been doing research projects at Niles West since 2009. You can learn a lot, by looking at some of those projects.

Let's start by looking at some of the general types of projects, some of the available resources, and some previous project completed by Niles West students.

- 1) **Use a model organism:** Grow living organism to study a disease or system, test an environmental pollutant, or understand the effects of a contaminant.
- 2) **Build a device:** Identify a problem and build a device to solve it.
- 3) **Run a chemical reaction:** Complete chemical reactions and analyze the result, characterize the results of a reaction (e.g. making nanoparticles), or test the properties of a material.
- 4) **Create a computer program:** Developing a computer model for a process or problem.
- 5) **Analyze Big Data:** Looking at public data to analyze a health problem, understanding weather patterns based on looking records, understanding genetics by analyzing DNA sequences, and lots more.
- 6) **Survey people:** Use test subjects to analyze human behavior patterns, test cognitive processing related to memory.

Assignment:

Part 1

Make a document including the following...

- 1) Identify the type of project from the list above that you are most interest in.

E.g. *"I am most interested in creating a computer program, because I took AP computer science last year and I know two computer languages, and gaming is my favorite thing to do. I like the idea of using computers to analyze a problem and make predictions to improve outcomes".*

- 2) **Make a table using LANDSCAPE page layout.**

Title and category	Grade of student	New vocabulary and definition OR model organism with description	Project title in my own words	Extension of project idea

- 3) **PROJECT IDEAS:** Look at the list of previous Niles West IJAS projects under the **PROJECT IDEAS** tab Identify 10 projects from Niles West that are the type of project you are interested in.

Stick to your project type as close as possible.

- 4) Look at the list of project from the 2017 IJAS State Science Fair Best in Category Winners.

- Identify 1 or more **high school** projects from this lists that are the type of project you are interested in.

Part 2:

If you are interested in working with an organism, look at the list of model organisms on the Project Ideas page.

- List three model organisms you are interested in.
- For each model organism, find a university website with information about the organisms. Take notes about the model organism in your lab journal. Write one half page for each organism. Drawings/printed pictures are great too. Be sure you title and date the pages in your lab journal.

OR

Look through the sample SIRs research papers in categories you are interested in.

- List three projects/papers by student, title, and topic.
- For each paper read through the abstract. Take a few notes about each project in your lab journal. Write one half page for each project.