

# Research Project

## Purpose

You will prepare a **5- to 7-minute presentation** to teach your classmates a physics concept.

## Topic

For this project, you must choose a topic that you want to learn more about. The topic can be a physics topic that we have not yet covered in detailed, or it can be a real-world application of a topic that we have covered.

You can find a list of available topics by using the QR code at the right or by navigating to [go.rohrbachscience.com/project-topics](http://go.rohrbachscience.com/project-topics). If there is a topic you are interested in that is not on the sheet, please check with Mr. Rohrbach to have it approved.



## Research

We will spend some time in the library working on this project. Both book and internet sources are valid. You must have at least 3 sources of information. WIKIPEDIA IS NOT A VALID SOURCE FOR THIS PROJECT.

## Presentation

The core of your presentation will be a visual that you design. This can be an image, a graph, a photo, a video, or a model. Your visual should substantially contribute to understanding the topic. Pretty pictures are welcome to be included, but pretty pictures alone do not count for this requirement. (For example, a picture of a person does not count.)

Examples of visuals might include:

- 3D model/diaramma
- experiment
- comic book
- graph
- diagram
- pop-up book
- flow chart
- model
- skit

In addition to your visual, you will likely have a PowerPoint, poster, or other presentation aid. This is not necessarily a requirement. However, it is often helpful and highly encouraged to have a presentation aid, especially if your visual alone cannot sustain a 5- to 7-minute presentation.

Your presentation must include specifics as to the science of your topic (for example: equations, explanations, scientists who helped figure it out, history, benefits to society). *The explanation of the science should be in your own words, not just copied down out of a book.* I want you to understand a little of what's going on.

## On the Grading Rubric

This is an extended project, and every year I have students who think my grading rubric is a little harsher than they are used to seeing. As such, I think it is important to summarize what differentiates A-level, B-level, and C-level projects.

- **C projects** are projects that generally meet the requirements. Usually they are a simple power point or poster. The student explains the topic well enough, but the explanation does not go very far in depth. A C-project gets the idea across, but it lead me to learning more about the topic than I could have done by simply reading one of your sources.
- **B projects** are good, solid projects. Students are well aware of what they are talking about and can answer my questions. A well-done poster or power point is probably a B project. You should be proud of a B project!
- **A projects** go above and beyond. There is something about the project that makes it stick out: either a creative flair, a passion in how the student presents it, or a description that makes me think about something in a way I never have before
- **A+ projects** are projects that I could not imagine having been done any better!

If you look at the rubric, you will realize that if you meet all standards, you will get a 90%. Does that mean it is impossible to get a 100%? No, of course not. But perfect projects go above and beyond in multiple respects: they are remarkably well researched, they are very creative (something I have either not seen before or not seen completed nearly as well), and they really stick in my mind as outstanding projects. If you want a 100% you will need to work very hard and have a fantastic idea that you learn inside and out!!!

## On Plagiarism

What is plagiarism? If ever you are copy and pasting something from a website, you better indicate the website where this material came from and it better be in quotation marks. However, even if it is cited, a presentation still counts as plagiarism there is too much use of others' words and not enough use of your own. *This is not an exhaustive list.* You are responsible at this point in your high school career for knowing what is and is not plagiarism. *If you are unsure whether or not you are plagiarizing, talk to Rohrbach.*

## Timeline

Mon, Jan 15	Sign up for your top 3 topic choices
Tue-Wed, Jan, 23-24	Library Research Day #1
Sun, Jan 28	Annotated Citations due on Schoology by 11:59pm
Wed-Thu, Feb 14-15	Library Research Day #2
Week of Mar 11-15	Presentations in class
Sat, Mar 16	Spring Break!

Name: \_\_\_\_\_

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

Period: \_\_\_\_\_

## Rubric

**Creativity (15 points):** Your project is not just a generic “book report”-style presentation. There is some level of creativity to it.

- ☐ Exceeds Standard (15/15)
- ☐ Meets Standard (13/15)
- ☐ Almost Meets Standard (11/15)
- ☐ Needs Work (7/15)

**Effectiveness and Self Sufficiency (35 points):** There is evidence that you know and understand what you are talking about and are not merely parroting something you read. (*If you are reading off of slides and are not able to answer questions about your project, your explanation is not self-sufficient.*)

- ☐ Exceeds Standard (35/35)
- ☐ Meets Standard (32/35)
- ☐ Almost Meets Standard (25/35) - Although the words are your own, your presentation seems more like a paraphrase of your sources than it seems like your own presentation.
- ☐ Needs Work (18/35) - You have not done enough to make the explanation “your own.”

**Scientific Accuracy and Thoroughness (30 points):** You thoroughly and accurately explain the *\*\*science\*\** (not just the history) behind your topic.

- ☐ Exceeds Standard (35/35)
- ☐ Meets Standard (32/35)
- ☐ Almost Meets Standard (25/35) - Perhaps you could have gone into more depth. Perhaps everything you said was pretty good, but the organization and way you said it was a little hard to follow. Perhaps your explanation was mostly right, but showed a few misunderstandings in how your topic worked. Perhaps you weren’t as prepared for the Q&A session as you could have been.
- ☐ Needs Work (18/35) - Perhaps you focused more on historical and biographical details than on the science.

**Your Visual [Image/Diagram/Picture/Model] (15 points):** Your visual substantially contributes to understanding of the topic *and* is well explained. (A picture of a person does not count for this standard.)

- ☐ Exceeds Standard (15/15)
- ☐ Meets Standard (13/15)
- ☐ Almost Meets Standard (11/15) - Perhaps you have a very well done graphic but it could use some more explanation. Perhaps it is explained well but could use some more detail in the graphic itself.
- ☐ Needs Work (9/15) - Your visual is good, but it has just been copied and pasted from the internet
- ☐ Visual exists but does not meet standard (7/15)
- ☐ No visual is provided, except maybe some generic pictures (0/15)

**Total Score:** \_\_\_\_\_ / 100