

Google Web Search: Fun With Physicists!

AP Physics 2/Any subject/grades 11-12

Materials: Students will need access to the internet, their Google Drive, and the class Moodle. If this assignment is to be done in class, computer lab time will need to be reserved.

The teacher will need a projector connected to a computer with internet access.

Instructions for the teacher: This assignment can be given at any time throughout the course.

Personally, I would do this after the AP test in the spring when students are exhausted and have been introduced to all of the main areas of physics. The idea of this assignment is to have students choose a particular physicist and then do a Google search. The point of this assignment is two-fold. First, students will learn a bit more about the physicist they selected. Second, students will learn about some features of Google Search.

- To introduce this assignment, I would ask students to name some physicists, and I would make a list of names on the board. There should be many names by the spring of AP Physics 2. For example: Einstein, Newton, Schroedinger, Dirac, Heisenberg, Faraday, Maxwell, Meitner, Bethe, Oppenheimer, etc.
- I would then display the [assignment instructions](#) on the board using a projector. Students can access the instructions through the class Moodle but a link could be provided on the teacher/class website instead. The instructions can also be found on page 2 of this document.
- I would go over the instructions, and answer any questions.
- This assignment could be done either in class (with a computer lab reserved ahead of time) or outside of class. The due date can be chosen accordingly.
- Students will have the allotted time to conduct the search and record their results in a Google Doc which will be submitted through the class Moodle.
- The search results are then graded according to the [grading rubric](#) which students can view through a link on the Moodle. The rubric is also given on page 4 of this document. I will use the rubric feature on the Moodle, but an online rubric could be created using Google Forms instead.

Standards: This assignment addresses the following standards for AP Physics 2 as written by the College Board. The standards can be found in the [AP Physics 2 course description](#).

- Science practice 3: The student can engage in scientific questioning to extend thinking or to guide investigations within the context of the AP course.
- Science practice 4: The student can plan and implement data collection strategies in relation to a particular scientific question.
- Science practice 5: The student can perform data analysis and evaluation of evidence.



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AP Physics 2

Google Web Search: Fun with Physicists!

Purpose: At this point in the course, we have looked at the contributions of many physicists from Einstein's Special Theory of Relativity to Lise Meitner and Otto Hahn's discovery of fission. But what if you wanted to know more about the person or about their work? Where would you go to find more information? Why, to the internet, of course! The purpose of this activity is not only to learn about a physicist of your choice but to also explore some of the features that make Google Search a very useful tool.

Write-up: As you perform this activity, you will want to compile your search results in a Google Doc which will be submitted through the class Moodle. Please be sure to organize your Doc so that the results are easy to find. I recommend a numbered list that corresponds to the procedure. And remember, grammar and spelling always count!

Procedure:

1. Choose a physicist and record the physicist's name on your Google Doc so that I know who you are searching.
2. Fire up Google Search, type in your physicist's name and hit enter. Examine the first three results that appear, whatever they happen to be. In your Google Doc, record the url for each of these results and explain whether or not you think each link is a credible source of information.
3. Return to the main Search page for your physicist. Just under the search box at the top of the page are a number of tabs. Choose the Images tab. As you know, this is a quick way to find a photo or drawing of a search subject. But let's delve a little deeper. Click the Search Tools option at the end of the tab options. Notice a whole new range of options, complete with drop down menus appear. You can search for images by size or color or even by when the images were uploaded. We are interested in the Usage Rights option. Click the Usage Rights option and then select "labeled for reuse." The resulting images can be used by you for reports and assignments without any sort of copyright infringement concerns. Select an image that you like and copy and paste the image and its url into your Google Doc.
4. Click the Web tab to return to searching the web. Now type "google scholar" into the search box. Click on the very first link that appears. Google Scholar is a special search engine that can be used to find academic, peer-reviewed sources. Type your physicist's name into the Google Scholar search box and hit enter. Again, examine the first three results that appear, whatever they happen to be. In your Google Doc, record the url for each of these results and explain whether or not you think each link is a credible source of information AND how these results differ in general from your results in step #1.
5. Return to the regular Google Search engine. Once again type your physicist' name into the search box. As you type, notice that Google suggests some keyword options in a drop down menu. Record these options in your Google Doc. Choose one of these options (be sure to tell me which one) and explore a resulting link that looks interesting to you. Record the link and what you found there on your Google Doc.



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6. Type just your physicist's name into the Google search bar one last time. Now click on News and then on Search Tools. Notice that new options appear. Click the arrow next to "any time" to access the drop down menu. This allows you to limit the time range on the search results. Say, for example, that you want to see if any news items regarding your physicist have appeared in the last month. Choose "past month" and examine the first result that appears. In your Google Doc, record the url and briefly explain what the news item was about. If there were no news items in the last month, then say so.

7. Lastly, in your Google Doc, describe one thing you learned about your physicist through this search that you didn't know before. And finally, describe one thing you learned about Google Search that you didn't know before.



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AP Physics 2
Google Web Search: Fun with Physicists Grading Rubric

1. Name of Physicist	Nothing submitted 0points			Name given 2 points
2. Three results from general web search	Nothing submitted 0points	One result. 1 points	Two results. 2 points	All 3 results. 3 points
2. Discussion of credibility	Nothing submitted 0points	Vague or flawed reasoning or only one site addressed. 1-2points	Some reasoning is given or only two sites are addressed. 3 points	ALL sites are discussed with sound reasons given. 4points
3. image and url	Nothing submitted 0points	url only. 1points	Picture but no url. 2points	Both image and url are given. 3points
4. Three results from google scholar web search	Nothing submitted 0points	One result. 1 points	Two results. 2 points	All 3 results. 3 points
4. Discussion of credibility	Nothing submitted 0points	Vague or flawed reasoning or only one site addressed. 1-2points	Some reasoning is given or only two sites are addressed. 3 points	ALL sites are discussed with sound reasons given. 4points



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4. Comparison of google scholar results with general search results.	Nothing submitted. 0 points.	Vague comparison with little or no reasoning. 1-2 points.	Some reasoning given. 3 points	Detailed comparison with references to specific sites and valid reasoning. 4 points
5. Google suggested searches	Nothing submitted. 0 points			List of suggestions. 2 points.
5. Suggested search results	Nothing submitted. 0 points	url only. 1 points	Vague description or missing url. 2 points	Detailed description of link with url. 3 points.
6. Recent News Item	Nothing submitted. 0 points	url only. 1 points	Vague description or missing url. 2 points	Detailed description of link with url. 3 points.
7. New info about physicist	Nothing submitted. 0 points	Vague or unclear or flawed statement. 1-2 points.		Detailed description of new info. 3 points.
7. New info about Google Search	Nothing submitted. 0 points	Vague or unclear statement. 1 point		Detailed statement. 2 points
Grammar/Punctuation	Nothing submitted 0points	Unnecessary number of punctuation, formatting and spelling errors which make	Some punctuation, formatting, and spelling errors. Spell check may	No or few punctuation, formatting, and spelling errors. Writing is clear and



		<p>report difficult to read. Spell check would have fixed many of these mistakes.</p> <p>1points</p>	<p>not catch the difference between, say, "form" and "from" but proofreading would have helped.</p> <p>3points</p>	<p>conforms to standard grammar and spelling conventions. Words are used correctly.</p> <p>4points</p>
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