Essential Unit Guiding Question:

How can I search for the best evidence to satisfy my task?

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Advanced Lesson 4:

What is Google Scholar? How can it help me satisfy my search need?

What other Google tools exist that help me look at the world in different ways?

LESSON OVERVIEW: In the last lesson, students honed their skills with operators. This lesson challenges advanced searchers to transition into using more formal sources for scholarly research. It is also a call to students to push the boundaries of what they have considered "research," to take advantage of contemporary tools that allow for new ways of engaging with the world.

STANDARDS:

- *K-12 College and Career Readiness (CCR) Anchor Standards for **Reading 7***: Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.
- *K-12 College and Career Readiness (CCR) Anchor Standards for **Writing 1***: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient **evidence.**
- *K-12 College and Career Readiness (CCR) Anchor Standards for **Writing 2***: Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of **content.**
- *K-12 College and Career Readiness (CCR) Anchor Standards for **Writing 7***: Conduct short as well as more sustained **research projects** based on focused questions, demonstrating understanding of the subject under investigation.
- *K-12 College and Career Readiness (CCR) Anchor Standards for **Writing 8***: **Gather relevant information** from multiple print and **digital sources**, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
- *K-12 College and Career Readiness (CCR) Anchor Standards for **Writing 9***: Draw **evidence** from literary or informational texts to support analysis, reflection, and research.

RESOURCES/MATERIALS:

- [Advanced 'Searching for evidence for research tasks' presentation](#) (individual slides linked lesson points provided)
- Internet access (required)

ESTIMATED TIMING:

- approximately two 50-minute lessons, plus homework time

NOTE TO TEACHER: Throughout this lesson, there are opportunities to click links for search results if you have live Internet access. These links are expressed within most query brackets (e.g., [[constitution](#)]). If you do not have Internet access in your classroom, click the links for slides (e.g., Slide 7) prior to class and print out screen shots to show on a document camera to your students, on an overhead, or through hard copies. In some lesson points, there are slides only as an instructional tool. Also please note that the actual square brackets around each query

should not be typed into Google. They represent what words and phrases should be actually typed into the search box.

LESSON DETAILS:

1. **Set the stage.**
   - Building on the search strategies covered in Advanced Lesson #2, this lesson explores further the idea that sometimes a searcher "Can't see the forest for the trees." In the past, research was about trying to find enough resources to cover a research topic. Today, the challenge is to find the best resources in a flood of information. The number of matches a search engine finds for a given query can be quite large, but sometimes knowing where to look for the strongest evidence is the first step to figuring out how to access it. Scoping is the art of identifying the "forest," or specific collection, in which a student should look for the best evidence.
   - In the foundational and accomplished-level lesson about evidence students started practicing these skills, first thinking about finding evidence by the type of media, and then by the format of the website that might have the answer.
   - The class will begin by exploring Google Scholar.
   - **Note:** Due to the high reading level of sources retrieved by Google Scholar, it is appropriate to carry out this segment of the lesson for students in 11th and 12th grade, and based upon reading readiness and topic.

2. **Discuss the meaning of scholarship.**
   - Ask students what *scholar* means, and have a brief, oral brainstorm. Guide the discussion to include the notion that a scholar is a specialist who is highly educated in a particular field of study.
   - Note that Google Web search is developed for a broad commercial use, and so Google Scholar was created to help identify and access works written by scholars for the use of other scholars. As students increasingly engage in scholarly writing, it is anticipated that they move to using scholarly sources where appropriate in their research.
   - Work with your librarian. Scholar includes articles that appear in scholarly databases, which are fee-for-use. If your school subscribes to article databases the students should be aware that they may have access to even more of Scholar's content than they think.

3. **Describe what is different about Google Scholar.** Students may like searching in one place for their sources, so briefly outline *Why is Google Scholar important to know?*
   Google Scholar:
   - Represents a collection of more sophisticated materials, written by professional scientist, historians, social scientists, and so on, for the use of other people doing research in their field.
   - Identifies and brings to the surface sources with a scholarly format.
   - Includes articles that users can access via subscription-based article databases. The school library or local colleges and university libraries might subscribe to some of these, so if a student cannot access an appropriate article through Scholar, he should save the citation and check with a librarian.
   - Is appropriate to use when a research task calls for the use of scholarly analysis and the record of primary research. Other types of information may also be crucial to completing academic research, but may not be represented in Google Scholar. For example, Google Scholar is a good place to look for analysis of economic theories about the impact of the national debt; Google Web Search might be a more appropriate place to look for public reaction to and opinion about the national debt.
   - Has a different layout to the search results compared with the other parts of Google explored so far. Each search results has a different set of links associated with it, providing scholars with information they need specifically to carry out research in an academic setting.
   - Uses drop-down boxes at the top of the results for filtering, instead of a Left-hand panel, and has an

Advanced Search link to the right of the search box to help them construct more targeted searches.
- Uses primarily the same operators students use with Google Web Search.

4. **Explore with Scholar.** Invite students to work with a partner, each using a computer. One student should go to Google.com, the other to Scholar.Google.com. Using the same student-selected academic topic of interest, such as imperialism, states' rights, the poems of T.S. Eliot, Norton's Theorem of the Two Loop Problem, etc., the partners can develop a simple query. After entering the same query into Google.com (Web Search) and Scholar.Google.com (Google Scholar), the partners can talk about the results, noting:
   - Usages of each Google tool—what types of resources do each find, and thus what are some kinds of evidence students can anticipate locating with each.
   - Differences in the links associated with each result. (Elements of the Scholar interface labeled in Slide 2-5.)

   Optional: Partners may fill out a comparison/contrast graphic organizer that compares and contrasts the two Google search tools.

   Optional: Slide 6 has a few simple search challenges to try out some of the functions unique to Scholar.

   As a class, conclude the group exercise with a discussion of students' findings. Brainstorm examples of the kinds of evidence they might best use Scholar to locate, and those that are best located.

5. **Apply understanding to research project.** Ask students to spend the remainder of the period searching for scholarly sources appropriate to their research projects, using Google Scholar.

6. **Prepare to learn.** In the last class period, students learned about Google Scholar. What are some other tools that Google offers to help with the process of "organiz[ing] the world's information and making it universally accessible and useful?" This section of the lesson will give students a taste of some other tools they may not otherwise encounter. However, the reason for introducing them is to explore the fundamental changes that are taking place in how students should be thinking about what it means to do research. This portion requires that students have access to the Internet, with at least one computer for each working group.

7. **Take the challenge.**
   - Ask students to try and solve the following challenge:
   - ***Legendarily decorated by Merlin with pieces from the "Giant's Ring," is there moss on all sides of these stones?*** (Slide 7)
   - Give them several minutes, as the answer is uses unusual resources. When several students/groups have solved it, discuss it as a class. (Answers on slides 8-9.) After the students share that Google Maps Streetview was the tool for solving this problem, ask how they felt when the figured out the solution.
   - Explain that the Search Education team at Google has found that when people do not think a question is possible to answer, they do not even get as far as asking it. Questions like whether there is moss growing on all sides of Stonehenge go unasked, mostly because searchers are not familiar with their options for finding a solution, and so their research creativity is stifled. In this lesson, students will chose an innovative tool that intrigues them, and figure out the basic of what it does and how to use it, as well as creating a case study to describe how to put it into action.
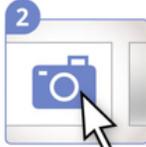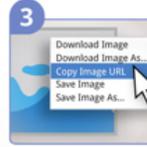
8. **Case study.**
   - Share "Great Google tools for research in high school and beyond." Working individually or with a partner, students select one tool that appears interesting. As homework or in class, get to know the tool. Some ways to do this include:
     - Searching for [help product name] (e.g., [help Google moderator]).
     - Finding tutorials (e.g., [tutorials Google moderator]).
     - Finding blogs or other web pages that discuss how to use the tool.

- - Playing with the tool and seeing what happens.
- Once students have a passing familiarity with the tool, they should create a case study. The teacher should determine whether this can be a document, and oral presentation, or a page on a class Google Site.
- The case study should:
  - Name the tool being tested.
  - Outline its basic purpose and outstanding features.
  - Highlight a use-case, a particular need a student might have with school work or personal life and how this tool can help solve it.

- For example:

Tracing an image to its source

Drop in an image. Google identifies it.
Search by image: http://www.google.com/insidesearch/searchbyimage.html

Four ways to search by image

Drag and drop
Drag and drop an image from the web or your computer into the search box on images.google.com.

Upload an image
On images.google.com, click the camera icon, then select "Upload an image." Select the image you want to use to start your search.

Copy and paste the URL for an image
Found an image on the web you're curious about? Right-click the image to copy the URL. On images.google.com, click the camera icon, and "Paste image URL".

Right-click an image on the web
To search by image even faster, download the Chrome extension or the Firefox extension. With the extension installed, simply right-click an image on the web to search Google with that image.

Sally Searcher wanted to include an image in her report--one of Martin Luther King, Jr., sitting on a swing with his children. However, the location she had for the picture on the web was not its original source, but just some random blog. She wanted to cite the photographer or original publisher. So, Sally clicked on the camera icon in the Google Images search bar. She then simply copied the picture address and dropped it into the Search by image tool.

Google turned up that same picture, posted in many places across the web. Sally skimmed them until she found one which indicated from where the picture was originally taken online. That website, it turned out, was posting numerous old AP photos, which does appear to be the original source.

- At the end of class, groups should either orally present their case studies, or they should be posted to a website or placed into a book in the classroom to be used as a resource. Using a Google Doc, Google Form, or other collaborative writing tool, ask students to build on their classmates' case studies with additional ideas about uses for the tools presented for scholarly research or application in daily life.
- Encourage students to think particularly about whether any of these tools will help with their current

research project. In the next lesson, students explore bias and how to track facts back to their source.

ASSESSMENTS:

- Participation in discussion
- Appropriate sources gathered from Google Scholar
- Case study of a Google tool as used for high school research
- Brainstorming feedback for case studies