**How to Complete Your Scientific Literature Review Matrix**

Portions adapted from *Writing a Literature Review* University of Guelph

<https://www.lib.uoguelph.ca/get-assistance/writing/specific-types-papers/writing-literature-review>

**Literature Review Definition**

A literature review is both a summary and explanation of the complete and current state of knowledge on a limited topic as found in academic books and journal articles. There are two kinds of literature reviews you might write at university: one that students are asked to write as a stand-alone assignment in a course, often as part of their training in the research processes in their ﬁeld, and the other that is written as part of an introduction to, or preparation for, a longer work, usually a thesis or research report.

**Freshmen students** in the STEM program will compile a list of resources and complete a [literature review matrix](https://drive.google.com/file/d/1cDebpmevcB14CA5NS9emxspJ2MRDiYNC/view?usp=sharing) to assist their science fair research design.

**Sophomore students** in the STEM program will compile a list, complete a [literature review matrix](https://drive.google.com/file/d/1cDebpmevcB14CA5NS9emxspJ2MRDiYNC/view?usp=sharing) , and write a [literature review](https://drive.google.com/file/d/1imINeM7inU9O3GCWI8I3NClCY2-nSCtY/view?usp=sharing) as part of a longer [research paper](https://drive.google.com/file/d/17DURuJZtPEkDn8VvZuxuLjkQ5FKpUu13/view?usp=sharing) that details the entire science fair project.

**Junior students** in the STEM program will compile a list, complete a [literature review matrix](https://drive.google.com/file/d/1cDebpmevcB14CA5NS9emxspJ2MRDiYNC/view?usp=sharing) , and write a [literature review](https://drive.google.com/file/d/1imINeM7inU9O3GCWI8I3NClCY2-nSCtY/view?usp=sharing) as part of the science fair project.

**Senior students** in the STEM program will compile a list and write an [annotated bibliography](https://docs.google.com/document/d/1PQ8rzwXsZ7UxkfU7KetX0yAyXN0G_rj3xPTm-scCwbc/edit?usp=sharing) to document research progress for either an internship or the science fair project.

**Purpose of the Literature Review**

* It gives readers easy access to research on a particular topic by selecting high quality articles or studies that are relevant, meaningful, important, and valid and summarizing them into one complete report.
* It provides an excellent starting point for researchers beginning to do research in a new area by forcing them to summarize, evaluate, and compare original research in that speciﬁc area.
* It ensures that researchers do not duplicate work that has already been done.
* It can provide clues as to where future research is heading or recommend areas on which to focus.
* It highlights key ﬁndings.
* It identiﬁes inconsistencies, gaps, and contradictions in the literature.
* It provides a constructive analysis of the methodologies and approaches of other researchers.

**Steps To Completing A Literature Review Matrix:**

**1. Find a Working Topic**

Look at your speciﬁc area of study. Think about what interests you, and what is fertile ground for study. Talk to your advisers, brainstorm, and read lecture notes and recent issues of periodicals in the ﬁeld. Do an internet search for “Calls for Research” or “Broad Agency Announcements” to help you find a topic.

**2. Find the Literature**

**Begin with Cobb Virtual Library databases available through the county.**

* Go to [www.harrisonhigh.org](http://www.harrisonhigh.org).
* Under the Student Support tab, choose Learning Commons.
* Under Online Resources, choose Cobb Digital Library.
* You will be redirected to cobb.mackinvia.com.
	+ - **School:** HARRISON HIGH SCHOOL, KENNESAW, GA
		- **User Name:** your student number
		- **Password:** read—or the password you use for school computers
* Under the GROUPS tab, choose **Databases**.
* Open the database **Academic Search Complete**.

**How to Use Database Search Tools**

* **VIEW THIS VIDEO!!!** [**https://www.youtube.com/watch?v=4dOICAZlMbc**](https://www.youtube.com/watch?v=4dOICAZlMbc)



**Use Advanced Search to Find Relevant Articles:**

1. In the database of your choice, under the search bar, choose “**Advanced Search**.”
2. Enter **one** of the keywords from your initial list in the first bar. ie. Cheerleading
3. In the second and third bars, you can qualify your first word by using the **AND, OR, NOT** dropdown and entering another word. ie. AND Sport NOT Olympics.
4. Under the keyword bars, check “Also search within the full text of the articles” and **“Full Text.”**
5. If the publication date is relevant, you can also search within a specific time frame.
6. Continue to use a combination of words and qualifiers until you find relevant information.
* **Choose articles that scientists have written to detail their own scientific studies. You may read articles that give you general information about your topic, but these are NOT included in the literature review. You are looking for scientific RESEARCH articles.**
* Remember that the reference lists of recent articles and reviews can lead to valuable papers
* Make certain that you also include any studies contrary to your point of view

**3. Read the Selected Articles Thoroughly and Evaluate Them**

* What assumptions do most/some researchers seem to be making?
* What methodologies do they use? What testing procedures, subjects, material tested?
* Evaluate and synthesize the research ﬁndings and conclusions drawn.
* Note experts in the ﬁeld: names/labs that are frequently referenced.
* Note conﬂicting theories, results, methodologies.
* Watch for popularity of theories and how this has/has not changed over time.

**4. Complete the Cells in the Matrix**

* **Article Title and Link** Copy the entire article title and the URL
* **Citations** While you are in the database, click on the CITE icon on the right side of the article in the database. Find the APA citation, copy and paste it in under Citations on the bottom of the matrix. (See also *How to Cite* below.)
* **Theoretical/Conceptual Framework** Identify the scientific field of study and the theory the study is working from/against.
* **Research Question(s)/Hypothesis** Identify the question and hypothesis of the study.
* **Methodology** Describe the research process the scientist used to gather data.
* **Analysis & Results** Describe the results of the scientist’s data.
* **Conclusions** Describe the conclusions the scientist made after analyzing the data.
* **Implications for Future Research** Identify the work the scientist suggests should be done to further the study. If it is not directly stated, suggest next steps that could be taken.

**How to Cite Articles**

**Copy the complete citation in Cobb Digital Library**

When you have opened an article from a database, click on the **Cite icon** (it looks like a yellow sheet of paper). Scroll to the **APA** formatted citation. **Copy** the APA style citation and **paste** it into your document. To remove any leftover formatting, highlight the citation on your document, right-click, and select **Clear Formatting**.



**Use NOODLETOOLS for citations of sources not found in Cobb Digital Library**

1. Go to [www.noodletools.com](http://www.noodletools.com)
2. Click **Login** at the top right of the page.
3. Choose to login through our school **Microsoft Office** account.
4. Use your cobb email address **firstname.lastname@students.cobbk12.org**to log in. Create a new account.
5. Select **Harrison High School** and your **graduation year**.
6. Click on **Sources** at the top of the page. Choose **New Source**, and follow the links to create the citation.

**Sample Citations - Websites Follow this Format:**

Include as much of the following information as available when citing Websites:

Name of author(s) Date of publication Name of Web page URL of Web page

Tips to remember:

* Italicize the name of the Web page. The name of the overall Web site is not needed.
* Capitalize only the first word of the page's title, subtitle, and proper nouns.
* Do not place a period after the page's URL to end the citation. This will corrupt the URL address.
* Try to keep the URL on one line. If it must continue onto another line, be sure to break the URL before a forward slash (/).
* Use this order: Author Last Name, Initials, & Author Last Name, Initials. *OR Name of Group.* (Date). Title of Work. Website Name. URL

***Note all punctuation and capitalization in this EXAMPLE:***

Martin Lillie, C.M. (2016, December 29). Be kind to yourself: How self-compassion can improve your resiliency. Mayo Clinic.<https://www.mayoclinic.org/health-lifestyle/adult-health-in-depth/self-compassion-can-improve-your-resiliency/>art-20267193

**SUMMER ACADEMY**

**ATTENDANCE ASSIGNMENT**

Complete the literature review matrix for one new article related to your science fair or internship interests.