Rodrigues, Kathleen J. “It Does Matter How We Teach Math.” *Journal of Adult Education*, vol. 41, no. 1, 2012, pp. 29-33. *It Does Matter How We Teach Math*, https://eric.ed.gov/?id=EJ991442 Accessed 10 2 2026.

This source contains a journal article highlighting the effective and non-effective ways to teach math both to adults and to children. I think this is a very useful source to consider before starting to teach my mini course because it will allow me to help make math more accessible to the underclassmen, which is one of the main messages of my capstone, to make math more accessible for the kids rather than in classrooms. This journal entry allows me to consider the feedback given by this study and possibly incorporate some of it into the lesson plan that I had created for my mini course in hopes of making it more accessible.

Roscioli, Kate. “8 Engaging strategies for teaching math in any classroom.” *8 Engaging strategies for teaching math in any classroom*, 9 September 2025, https://nearpod.com/blog/7-tips-for-teaching-math-in-any-classroom-with-nearpod/. Accessed 10 February 2026.

I initially did not plan on using this as a source because I did not deem it as credible due to it being a blog. However, I think this blog raises some very good perspectives on conveying math to younger students. This also is useful because it is written from a teachers perspective so it gives her personal experience with teaching it so it is helpful to learn from others mistakes and build off of them. This is a good source to have because even though it’s a blog it still has a lot of useful information about teaching.

Roman, Harry T. “Why Math Is So Important.” *ProQuest*, vol. 63, no. 10, 2004, pp. 16-18. *ProQuest*, https://www.proquest.com/openview/a4bd96e39637e3882a723b568a5e45bb/1.pdf?pq-origsite=gscholar&cbl=182.

I am using this source kind of as the backbone to my curriculum. I used this journal to identify what is important to the real world in terms of math, so I can know what types of math to use in my classroom. I think this is essential to the planning because I don’t want to be teaching pointless math because the whole goal of my mini course is to teach valuable math, the type that I will actually learn in school rather than just things we won’t use again so I think this source is good for deciding the core values of math that I want to incorporate not just a little bit of everything

Martin, Jeremy. “Communicating Advanced Mathematics to Kids.” *American Mathematical Society*, vol. 1, no. 1, 2017, p. 1. *Communicating Advanced Mathematics to Kids*, https://blogs.ams.org/matheducation/2017/12/11/communicating-advanced-mathematics-to-kids/.

This is one of the topics that I said I was going to cover in my Capstone Proposal. This is important because even though some of the things I will be teaching is advanced I still want to make it fun and applicable to the students lives. The professor says in the article, “I’ve often thought that we could do a lot better job of explaining “advanced” mathematics concepts in simple language for the benefit of a wider audience.” This really made me think about the way math is taught and how for so many students it is a very distant topic rather than something that you can relate to, or even just simply visualize which for me can be the difference between understanding something and not understanding.

N/A, N/A. “Bridging the future: Defining and empowering the STEM workforce of tomorrow.” *Bridging the future: Defining and empowering the STEM workforce of tomorrow*, 7 October 2024, https://www.nsf.gov/funding/initiatives/ige/updates/bridging-future-defining-empowering-stem-workforce-tomorrow. Accessed 11 February 2026.

I think this is a really essential source that ties everything together. The reason for this is because the article talks about the careers of the world having increasing demand for STEM, which means that by association more careers will need math, whether it is more or less advanced. This article also grapples with the same questions as my capstone of how do you make these accessible and engaging so that the children are more prepared for a STEM career in their future, and how to prepare the children adequately for it. This article is very useful to help gain knowledge of what math is becoming applicable to almost every career.

Imm, Jacob. “Pure Mathematics vs. Applied Mathematics.” *North Central College*, 11 January 2023, https://www.northcentralcollege.edu/news/2023/01/11/pure-mathematics-vs-applied-mathematics. Accessed 12 February 2026.

This source may not be as trustworthy as the other sources, because it is not a peer reviewed journal like many of my other sources. However, I think that this is a good source to have due to the fact that is helps to recognize the diffreeneces between applied and pure mathematics. Since my mini course focuses on applied mathematics, I think it is useful to hear professionals in the field talk about what math specifically is used in everyday life and it helps to support making my lesson plans to make sure I am focusing on the right thing in my mini course.

“The Staten Island Children's Museum Is a Blue Star Museum!” *Staten Island Children's Museum*, 7 November 2025, https://sichildrensmuseum.org/the-power-of-hands-on-learning-engaging-young-minds/. Accessed 12 February 2026.

This source will be useful for my final presentation because it describes why this certain type of teaching is effective. This website describes the effectiveness because “It engages multiple senses and parts of the brain, helping students retain information longer and understand concepts more deeply. This describes the why of why I chose to do a mini course with so many hands on activities. I had previously thought about doing no hands-on activities to reduce costs, but I think these activities could be the difference between learning and not. I also want to pursue this so that the freshmen are more engaged and hopefully they can take away something that they want to do.

Flick, Lawrence B. “The meanings of hands-on science.” *Journal of Science Teacher Education*, vol. 4, no. 1, 1993, pp. 1-8. *The meanings of hands-on science*, https://www.tandfonline.com/doi/pdf/10.1007/BF02628851#.

This was part of a journal made for full-time teachers however I thought that it was very useful to learn about why project based learning is so impactful. It helps to encompass the knowledge into peoples heads more, by engaging more parts of your brain. Also, there is more motivation to learn when there is a promised activity ahead, because not only does it give a chance to show what they learned, but it is also fun, and especially in my case if I am teaching outside of school hours I will need to focus a lot on keeping the students attention. Fun and engaging activities will allow the students to have fun while learning which is what I want to accomplish.

Uden, Lorna, et al. “Integrated science, technology, engineering, and mathematics project-based learning for physics learning from neuroscience perspectives.” *Frontiers in psychology*, vol. 14, no. 1, 2023, p. 1. *Integrated science, technology, engineering, and mathematics project-based learning for physics learning from neuroscience perspectives*, https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2023.1136246/full.

This describes a neuroscience study that shows a module of physics being tested with half experimental learners and half control. Not only did the study demonstrate that the students had a deeper understanding but also demonstrated improvements in their GPAs in the experimental group in contrary to the control group that not only had a lower understanding but also lower grades. This is specifically applicable to me because it emphasizes the importance of the learning on the brain, and how it helps the students retrieve information better, leading to better learning.

Hanif, Sofi. “Enhancing Students' Creativity through STEM Project-Based Learning.” *ERIC*, vol. 2, no. 2, 2019, pp. 50-57. *Enhancing Students' Creativity through STEM Project-Based Learning*, https://eric.ed.gov/?id=EJ1226168.

This is a useful source because it can help assess my outcomes that are possible with this mini course. This study shows that when students were assessed before and after the study done with hands on stem activities, they showed a 76% increase in creativity after the STEM project based learning course. This is also what I want to achieve through this mini course, hopefully I will be able to gage interest by showing how STEM careers can be fun rather than frightening as some may have previously thought. It also provides helpful information on how to teach to make it effective and gage the students interests in the topic at hand, which in this case is stem.