1. *Innovation Spotlights: Nine Dimensions for Supporting Powerful STEM Learning with Technology.* Office of Educational Technology. Web. Accessed 29 Jan. 2020 <https://tech.ed.gov/files/2019/10/stem-innovation-spotlights-research-synthesis.pdf>

One way STEM is integrated into youth's lives is through technology. Technology has allowed them to explore topics and theories that would have been hard to obtain just by a click of a button. However, this article shows how technology is used to help youth learn STEM. One of those ways is through simulations. Another way they mention is by looking and playing with models and coming up with their own conclusions. This is one of the sources I choose to pick because it helps me to teach youth of different ages STEM by using technology. My concern is that this doesn't have any authors. However, it reference credible websites, so I thought this was a reliable source.

2. Carnagey, Dale & Esenwein, J. Berg. *The Art of Public Speaking*. Ed. J. Berg Esenwein. Springfield: The Home Correspondence School, 17 July 2005. Print.

Every presentation is always task for public speaking. Presenting STEM is no difference. However, it can be hard to speak in public. This book by Dale Carnagey and J. Berg Esenwein gives practical ways one can go about when they are publicly speaking. It talks about what tone to use, ways people can be influenced, and how to present yourself. I find this source very useful because with my capstone, at some point, I'm presenting this to different people. I'm also not the best at public speaking. Mostly when it comes to confidence and body language. This book has given me good tips on how to be proficient in public speaking. My main concern for this source is that it is a bit old, however, it mentions tips that are very similar to other websites that have newer dates.

3. Carnevale, Anthony P., Melton, Michelle, & Smith, Nicole. *STEM: Science, Technology, Engineering, Mathematics*. Center on Education and the Workforce, 20 Oct. 2011. Web. <https://www.purdue.edu/hhs/hdfs/fii/wp-content/uploads/2015/07/s_iafis04c03.pdf>

As technology continues to grow, so does the need for people to go into STEM careers. This is because they are not really well informed of what STEM really is and what it entails. Some believe that STEM is too complicated and has enough workers. This report shows quite the opposite. It gives details on what STEM is about, what careers can be found in STEM, and what it means for our future. It gives statistics and data on different wages on careers, how many have joined STEM, and the diversity in STEM. This source is very useful for me because its information I can present to people to have them understand why STEM is important and

beneficial. My concern with this report is that it's a bit old, but it has been published on a trustworthy organization's (Center on Education and the Workforce) website.

4. Ehrmann, Dan. *Building Strong Clubs*. ClubExpress, 23 Dec. 2018. Web. <https://s3.amazonaws.com/ClubExpressClubFiles/0/documents/ClubExpress_Building_Strong_Clubs.pdf>

Many clubs can be found in many schools, including STEM clubs. However, it can be said that it's sometimes hard to maintain a club or even start one. How can someone build a strong club? Though this article doesn't focus on STEM clubs, it does give good tips on how to build strong clubs in the community. Whether it's promoting a club, or creating events for your clubs. This source can help my process (step-by-step) on making a STEM club happen in a school, particularly those that aren't exposed to it as much. This source is only a couple years old and the writer is a reliable person, so this source seems to be reliable to use.

5. Essien, Anthony A. & Venkat, Hamsa, *eds*. *Proceedings of the Seventeenth National Congress of the Association for Mathematics Education of South Africa (AMESA)*. 11-15 July 2011, University of the Witwatersrand. Johannesburg: AMESA, July 2011. Print

It's no lie that many kids don't like math because it's hard to understand. However, there are many ways math can be understood. Take math clubs for example. With this source, I read an article entitled "Creating New Mathematical Stories: Exploring Potential Opportunities Within Maths Clubs" by Mellony Graven (161-169). It tells about how many South Aftrican learners avoid learning about math because they struggle with it and are "mentally abused" to learn its skills. Graven talks of her personal experience with math clubs and how it could help others in South Africa. Though this source is focused on South Africa, it helps me develop ideas of making a math club at schools so that kids have more access to math help. My concern for this source is it's old. However, the writer of this article is credible it this has been peer reviewed.

6. French, Micheal. *Practical Ways to Promote STEM Learning*. GlobeNewswire. 14 Nov. 2017. Web. Accessed 29 Jan. 2020 <https://www.globenewswire.com/news-release/2017/11/14/1185980/0/en/Practical-Ways-to-Promote-STEM-Learning.html>

STEM are subjects that can be difficult to teach to people. Especially when it comes to youth. With this source, Michael French gives ways that STEM could be taught to youth from toddlers to high school students. He gives simple ways such as learning science in the kitchen to advance ways such as learning basic coding using the RoverCar. This source is very useful to me because it gives me ideas on how to present STEM to kids at different ages. The concerns for

this source is the article isn't as lengthy. However, GlobeNewswire is a trustworthy place where many content and release financial disclosure are published.

7. Howarth, Sue & Scott, Linda. *Success with STEM*. London: Routledge, 2014. Print.

Though clubs and programs is fun to be a part of, it must be maintained. This is mostly done by funding. This book talks about ways to be successful with STEM in school through activities and clubs, however, in chapters 8 & 9, it tells of ways on how to work with funds and how to use them and other resources to maintain STEM in schools. This is very useful because I can use this to see how I can make funds and how to use them in order to make STEM appealing to kids in school. My only concern with this source is that it's a bit old, however, it has been peer reviewed, so it makes it a good source.

8. Huelskamp, Diane, Siebert, Cathy J. & Wyss, Vanessa L. "Increasing middle school student interest in STEM careers with videos of scientists." *International Journal of Environmental & Science Education* 3.4 (2012): 501-522. Web. Accessed 28 Jan. 2020 <https://eric.ed.gov/?id=EJ997137>

This reports gives shows a study on how videos of scientists help increase students' interest in STEM careers. It goes into how their experiment was performed, their hypothesis and the results and conclusion. This source is useful for me because it helps show how visual presentation can increase students' interest in STEM. I plan to use a similar method used in the study to increase students' interest in STEM (which is through interviews of people in STEM). One concern about this source is that it is a bit old. However, it credits and reference other reliable sources and the authors of this report are known people. So this source seems to be reliable to use.

9. Stephenson, Rob. "STEM Education: Developing 21st century problem solvers." *YouTube*. TEDx Talks. 10 Mar. 2014. Web. Accessed 28 Jan. 2020 <https://www.youtube.com/watch?v=Xi2Qm87kC7o>

Education has changed as the world changed over time. Today, in a world of advanced technology, it becomes clear that the need for STEM to be introduced to education has become urgent as technology is becoming more advanced each day. But how can it be introduced? In Rob Stephenson's Ted Talk, he presents strategies ways on how to introduce STEM in classrooms and how he done so in his classroom. This source is useful because it helps me get ideas to introduce STEM by the use of projects or challenges. It also gives me ideas on how I could allow youth to learn from the projects (ex. No models for them to look at). The only

concern for this source is that it's old. However, Rob Stephenson seems to be trustworthy in this topic since he was recognized in his excellence in teaching math and science in 2006.

10. Sterling, Debbie. "Inspiring the next generation of female engineers | Debbie Sterling | TEDxPSU" *YouTube*. TEDx Talks. 19 Apr. 2013. Web. Accessed 28 Jan. 2020 <https://www.youtube.com/watch?v=FEeTLopLkEo>

More and more people are starting to choose STEM careers as the technology in the world continues to become more advanced. However, many careers in STEM, such as engineering, are dominated by male. Many women continue to choose careers that's more into nurturing and teaching. However, it's not their fault. They're never given the chance to develop that interest at a young age. So how to get girls interested in STEM? In Debbie Sterling's Ted Talks, she talks about her experience about becoming a female engineer. She also presents how she found a way to introduce STEM to girls. This source is very helpful for me because it allows me to give an example of a woman who's in STEM. I really want to inspire youth, but mostly girls because you don't see them a lot. I can use this video to show them that they are women that works in STEM. My only concern is that this source is old. However, based on the speaker, she's doing well in the STEM field so I find this source ok.