

Works Cited

Carlson, Shawn. "A Canteen Cloud Chamber: Scientific American." *A Canteen Cloud Chamber: Scientific American*. Scientific American, 18 Jan. 2001. Web. 21 Mar. 2013.
<<http://www.scientificamerican.com/article.cfm?id=a-canteen-cloud-chamber>>.

This was a very different design from the others I viewed. It uses a generator/piston method in order to perform the experiment. The generator is the canteen which is filled with a mixture of vinegar, alcohol and ink. There is baking soda added in order to pressurize the generator. The fluid will then act like a piston and will squeeze the glass to the top. A valve can be opened which will allow the fluid piston to drop, making it supersaturated by lowering the temperature and pressure. One of the problems creating it though is that it requires "asking the folks at a local glass shop to cut off some of the rim," for the cap. It requires drilling some other pieces of glass as well. It's certainly possible to do, however, the article mentioned the glass breaking and etc. This might be slightly more complicated than necessary. Overall, the experiment seemed overly complicated and the author admitted that replacing the baking soda is tedious and the optical quality of a drinking glass is typically not great. Lastly, the author recommended another design (which I was unable to find) because the author admitted the cloud chamber has many limitations.

Caver. "Starbucks Cloud Chamber." *Science Forums*. Science Forums, 28 Jan. 2006. Web. 21 Mar. 2013. <<http://www.scienceforums.net/topic/16394-starbucks-cloud-chamber/>>.

Clearly of all the references I have this is the least reputable. It is a post by someone in a physics forum. Additionally, this method would likely not be the best cloud chamber. However, I figured that it would be fairly easy to test because the only materials needed are dry ice, alcohol, a Starbucks cup, and aluminum foil. If this is a complete dud there is very little time and resources wasted on testing it. But because it is incredible simple to make, it would be perfect for the classroom – teachers could even assign it as an experiment to do at home because all of the materials are accessible in a household. I'm a bit doubtful that this will be sufficient though, because of the fact that it is not from a credible source and it might not meet the visibility needs in a classroom experiment.

Foland, Andrew. "How to Build a Cloud Chamber." *Andy Foland's Cloud Chamber Page*. Cornell University, n.d. Web. 21 Mar. 2013.
<<http://www.lns.cornell.edu/~adf4/cloud.html>>.

In this webpage the author compiled a list of instructions for how to build a cloud chamber. The author appears to have been a doctorate student at the time this webpage was created, however it is a bit difficult to tell. Also, it appears that the cloud chamber

was a project for REU students likely being guided through the process by Foland. The reason it is difficult to tell is because half of the pages associated with this page have been taken down, however there was a link titled "REU Reports," which leads me to believe that this was a project taken on by undergraduate students. The cost would be fairly inexpensive for this system, assuming the school has a slide projector. The materials used should be ones that the school would already have. The site contains a variety of images, a description of what should be seen, a section on troubleshooting experiments that go wrong, and also a few additional suggestions for further experiments. There were no suggestions as for what type of clear container to use. There were dimensions given but not specifications on glasses versus plastic.

It appears that the only downside to this site was that for a variety of reasons it appears that the webpage was set up a while ago, so there are perhaps better methods that have been developed since that would have been unaccounted for at the time this was set up. Also, the fact that some of the links did not work was rather disappointing.

"How to Build a Cloud Chamber!" *Jefferson Lab*. Office of Science Education, 25 Oct. 2010. Web. 21 Mar. 2012. <<http://www.youtube.com/watch?v=pewTySxfTQk>>.

This was an extremely interesting youtube clip. It started out slow because there were a lot of safety precautions listed. Two people used a petri dish in order to create a cloud chamber. It was a simple design using felt and construction paper. It was very nice to be able to see the results happening in the video. The source is reputable and the experiment would be one that could be done by multiple students at the same time so it could be done in a small group. The major downfall of this experiment was that a radiation source would be needed for each petri dish and it is not visible without a light shining on it, therefore it might be difficult to view.