P10023
Lung Development

From day one, the customer needs expressed a desire for the thoracic cavity to be as realistic as possible. Obviously, nailing down the right dimensions was the number one priority, but there was also a desire for there to be a representation of lungs. They were to be the correct size and orientation, flexible to a certain degree, and detachable and cleanable. After completion of the project, all of the requirements for the lungs were completed, besides the fact that I had originally envisioned them as being a little bit more flexible.

Christalyn Snyder was a huge help in this department. Using the SolidWorks model, and a scaling factor I gave her to help her relate the lungs to the proper size, she produced an incredibly good looking set of foam lungs. They were identical to the computer model, and she even spent time sanding and fine tuning them to make them look even better. Afterwards, I spent a few weeks covering them with several coats of silicone rubber. The silicone proved a bit tricky to deal with, as the first coat on each lung didn't come out as I expected (the rubber takes 24 full hours to cure, and with its viscous nature, runs very slowly creating drip patterns in certain areas), but adjustments were made with each additional coat to make the silicone more evenly distributed. Granted, the silicone creates a very effective barrier against all liquids, fulfilling the cleanability need, but they can only flex so much. I'm hoping that with each additional coat, they become a little bit more flexible each time. I still have a bit of silicone rubber left over, so I plan to continue coating them until it's gone. The lungs are detachable, as we used velcro (3M Dual Lock) to attach them to the organ tray. This makes them each to take off and clean when needed.