January 28, 2021:

I wrote the science fair proposal today.

February 10, 2021:

After my proposal was approved, I started doing research. Today I researched what heart failure is and the two different types of it. My research-Heart failure is typically referred to as Congestive Heart Failure (CHF). There are two sides to this.

Right-Sided CHF: causes low venous blood to return to the heart: heart contracts or pumps. Instead of the right ventricle pushing the blood through the lungs for oxygenation, some blood leaks through the tricuspid valve back into the right atrium. The fluid will fill the abdomen, interfering with the functions of the organs in this area.

Left-sided CHF: when the heart contracts or pumps, instead of the left ventricle pushing the blood into the systemic circulation, some blood leaks through the mitral valve back into the left atrium, and then it backs up into the lungs. The fluid then seeps into the lung tissue resulting in pulmonary edema.

I learned that heart failure has no one definition. It has different meanings for the different types. I also learned about left and right-sided CHF

<https://vcahospitals.com/know-your-pet/congestive-heart-failure-in-dogs>

February 12, 2021:

I learned about the symptoms of heart failure today. I learned that there are different symptoms when the disease grows and when it is just starting to appear. These are the symptoms:

Symptoms when the disease is first evident:

* Coughing more than usual: mostly before sleep
* Having a hard time breathing or exercising
* Tiring easily
* Pacing before bedtime and having trouble settling down to sleep
* Increasing respiratory rate.

More symptoms as the disease grows:

* A swollen stomach from fluid buildup
* Fainting because of blocked blood flow to the brain
* Change in tongue or gum colour (bluish-gray) because of insufficient oxygen flow.
* Weight loss as your dog loses their ability to store healthy fat.

February 20, 2021:

I looked at causes for heart failure in dogs today. I learned that heart failure could come from a bad diet, too much exercise, or too little exercise. It can also come from depression which will also limit the amount of activity that a dog does. A defect in the heart can even start heart failure, probably passed on by **genes.**These are the most common causes of heart failure. It can also begin coincidentally.

March 1, 2021:

Today I researched whether or not heart failure can be related to genes. I found out that heart failure in dogs is related to genes. There are about seven genes in the heart muscle and peripheral blood nuclear cells, which could be considered prognostic or diagnostic markers of heart disease in dogs.

March 2, 2021:

I researched treatments for heart failure today. I found that there are many supplements and vitamins in place to help treat heart failure. I also found that there are many other medications to treat heart failure. A dog might do physical therapy to make the heart stronger.

I also researched how often heart failure occurs in dogs. I found out that heart failure is a common problem in dogs and can be caused by various underlining reasons.

March 3, 2021:

Today I found an article on heart failure in golden retrievers and how grain-free diets started it. Students from the University of California experimented with 24 grain-fed dogs. 23 of the 24 dogs had heart failure, and the students traced the heart failure to the diet. The dog food was claimed to be “healthy” by the company that made it, but the food only gave the dogs a low taurine amount. Taurine is a supplement needed for survival. Therefore, many food brands claim to be healthy but will only result in making your dog sick. If I were to expand on my project, I would test different dog food brands to see which one is best to prevent heart failure and which one is a potential cause for heart failure.

March 4, 2021:

Today I started entering my project into the website. I completed three of the ten sections.

March 8, 2021:

I did three more sections on the website.