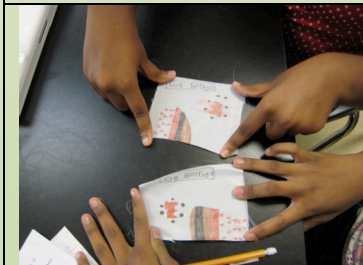


# Renfroe Middle School

## Antarctica Flag Design Challenge

September 2008



Dear Jeff,

Thanks to your flag design challenge, we have turned our 6<sup>th</sup> grade classroom into a miniature Antarctica and have learned a lot about Antarctica during the process!

The students did a great job designing flags that showed our school spirit. Once the designing stage was complete, the students needed to transfer the design to the flag material. The students didn't want to use just any marker. They wanted to find out what type of marker would work the best in Antarctica's harsh weather conditions.

Each group got some extra flag material and decided if they wanted to use permanent paint markers, permanent fabric markers, or permanent sharpie markers for their experiment.

After making hypotheses, the students designed their controlled experiments. Some chose to test how well their flag design lasted in the cold (our freezer). Some chose to explore how well their flag design lasted in the wind (a fan). Others chose to see how the flag design would last in the bright Antarctic sun (UV light). Some chose to test how well the flag design lasted if it got wet and then froze (water and freezer). During the next four days, the students compared their experimental flag to a control flag that did not get placed in an Antarctic-like condition.

Each group presented their findings to the class and everyone voted on which marker would work best. Each marker had their advantages and disadvantages. Interestingly, the 6<sup>th</sup> grade gold team concluded that the design should be drawn with fabric markers. The 6<sup>th</sup> grade blue team disagreed and concluded that the design should be drawn with a sharpie marker.

We decided to do a third flag using paint markers just to see if this design would fare better than the paint marker flags we tested in our miniature Antarctica.

We hope you enjoy the photos of our process. We can't wait to see how the flag designs last in the harsh weather conditions of Antarctica. We will mail you the flags tomorrow. We are looking forward to your expedition.

The 6<sup>th</sup> Graders at Renfroe Middle School  
Decatur, Georgia  
(Kevin McMahon and Beth Allyn Parker)