



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Sarah P. Edwards	Project Number J0995
Project Title The Point of a Parabola	
Abstract Objectives/Goals My project determined if parabolic reflectors made from household materials and mounted on a dipole wireless router can positively affect signal strength in a given direction, and, if so, which household material can accomplish this the most effectively. I hypothesized that, out of all the materials tested, the reflectors made from the Pringles cans would be the most effective. Methods/Materials There were six parabolic reflectors constructed in total. Two were made from cardboard covered in tin-foil, two from the reflective material inside Pringles cans, and two from printer paper. They were held in shape by pieces of styrofoam cut into parabolic curves. Each pair of similar reflectors was mounted on a dipole wireless router in turn, and they were simultaneously rotated in fifteen-degree increments all the way in a three hundred and sixty degree circle. At each position, the signal strength was measured five times and recorded on data tables. These data were then graphed on polar plots. Results The parabolic reflector made from the Pringles can material showed the greatest directional improvement in signal strength. The reflector made from the tin-foil worked well, but was not as effective as the one made from the Pringles cans. The paper made almost no difference. However, all parabolic reflectors made some improvement in signal strength in the desired direction. Conclusions/Discussion My hypothesis was supported and I have now concluded that using parabolic reflectors made from tin-foil or a Pringles can is a cheap, easy, and effective way to increase one's signal strength to one computer in their household.	
Summary Statement I aim to find out if parabolic reflectors made from household materials can positively affect signal strength in a given direction.	
Help Received Mother helped cut styrofoam	