

Science Team
Project 1



**Outstanding
Award**
SEFMD 2010-11

Title: Help!!! The Trees are Killing
My Signal Strength!

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Grade Level: 11th Grade

Design Team Membership: Science Design Team

IT/STEM Tools Used: Garmin GPS, Digital Imager, ESRI ArcGIS, Google Earth,
Microsoft Excel, Microsoft Powerpoint

Project Overview: In this project, the offset of GPS signal strength caused by overhead tree canopy density was measured. Over a period of 3 months, 5 sets of GPS waypoints and corresponding imagery were collected under 3 trees and 1 open space in the natural area behind Henry Ford Estate. From this data, tree canopy density was assessed and the offset at each site was measured using Google Earth. It was expected that the denser the overlying canopy, the larger the offset in the GPS position data would be. We found that when the GPS antenna was obstructed under a denser tree canopy, the position data was less accurate. This study could be repeated using a professional-grade GPS unit, which would influence more accurate conclusions on GPS signal obstruction.