

Interim report

School Name: Melrose High School

Area of Science: Astronomy and Engineering

Project Title: Sun and Shadow

Team Members: James Hutson, Cooper Roberts, Nathaniel Flores, Jaden England

Problem Definition:

Our team is trying to figure out how the sun effects building construction and the planting of gardens. This project will help tell us how to build cattle shelters and where to plant gardens and vegetation. This will be very helpful because the angle of the sun affects light entering a shed. And how buildings can cast shadows on possible planting areas for farmers, ranchers and gardeners.

The Reason we choose this project was because we are involved in many agriculture activities that require us to adjust for cattle in the winter for less shade to put more sunlight in the barn for them as much sun to stay warm. With these buildings you want just enough opening for the air circulation and for the sun so the cattle don't freeze. The same with gardens you want the garden in the sun not the dark or your plants will never grow. Our Project will help show farmers, ranchers and gardeners to help keep their cattle alive, keep their crops growing and gardens growing better.

Problem Solution:

Our project has 2 main components. The 2 main components are calculating the position of the sun at any time on any date and then determining the amount of shade blocking the sun.

The position of the sun effects many aspects in our project. The sun effects how much sunlight given in a area and how much shade is given in the area. The reason behind this is because when somebody picks where they want to plant a garden or build a cattle shelter they will need to know where the sunlight is hitting ground the best so when you put your garden or cattle building it grows the best and the cattle stay warmer.

In the summer the suns position will be higher and in the winter the sun will be lower quadrant than the summer sun.

Progress to Date:

Our team has discussed the project. One team member is doing the math and astronomy. Another team member will be finding average dimensions of livestock buildings. Our last two team members will be working on the NetLogo programing.

We are currently beginning our project and will put in any variable we need. Our main focuses is on the amount of shade and sun needed for gardening, the right amount of sun needed in houses and barns, the ground temperature around buildings, driving conditions and any outside applications that depend on natural light conditions.

Expected Results:

We expect to be able to use this project for many life skills. There are many jobs that require the use of natural light and we would like to learn more about this subject for our future use. This is useful

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to many people such as gardeners, ranchers, and drivers and so on. These people are very important to our society.

Citations of Research:

Practice Astronomy with your Calculator peter duffet

The Ana lemma for Latitudnally-Challenged People Teo Shin Yeow

<http://www.astronomy.com/>

<http://www.summitlivestock.com/>