

New Angle on Forest Ecology Worksheet #1

Worksheet on Angle of the Sun

USING THE DIRECT ANGLE

Place the straw straight up so that it casts a shadow.
Move the straw so that the shadow becomes as small as possible.
Hold the straw at the angle when the bright spot of light from the sun comes through it.
Have your partner measure the angle with a protractor.
ANGLE MEASURED DIRECTLY _____ CLASS AVERAGE _____

TIME (Standard, not daylight savings) _____

USING THE COMPLIMENTARY ANGLE

Tie a string around the middle of a straw.
Tie a weight at the end of the string.
Aim the straw at the sun as before.
Record the angle of the string to the straw.
Because this is the complimentary angle, subtract this from 90 degrees to obtain the angle of the sun.
ANGLE OF THE SUN _____ CLASS AVERAGE _____

TIME (standard, not daylight savings) _____

COMPARISON WITH CALCULATED ANGLE

Your Latitude _____

Angle at each equinox and solstice at your latitude at noon standard time.

Fall _____ Spring _____

Winter _____ Summer _____

Today's Date _____, so angle should be between
_____ and _____.

What is the difference between these two? _____.

Today's date represents what fraction of the 90 days between each season above? (For an even greater accuracy us 91.25 instead of 90) _____ expressed as a decimal? _____

Now multiply the decimal by the difference above _____ and add or subtract to obtain the degrees between seasons estimated above _____.

Realize that these calculations are for noon. If your observations was either before of after noon, the angle should be less. Could you determine a way to figure out how much less?

How do these angles compare with your measurements?