

# Solar Heating



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## Abstract:

For this project we went outside every day and measured the surface temperature of short grass, white concrete, asphalt, and water. We used our infrared thermometer and measured the temperature each time. We expected to see little to no change in the temperature of the water over the course of the weeks and we expected to see the biggest change in the asphalt since black absorbs the heat from the sun. We found that our hypothesis was right.

## Research Question :

Does Global remote sensing agree with local ground observation?

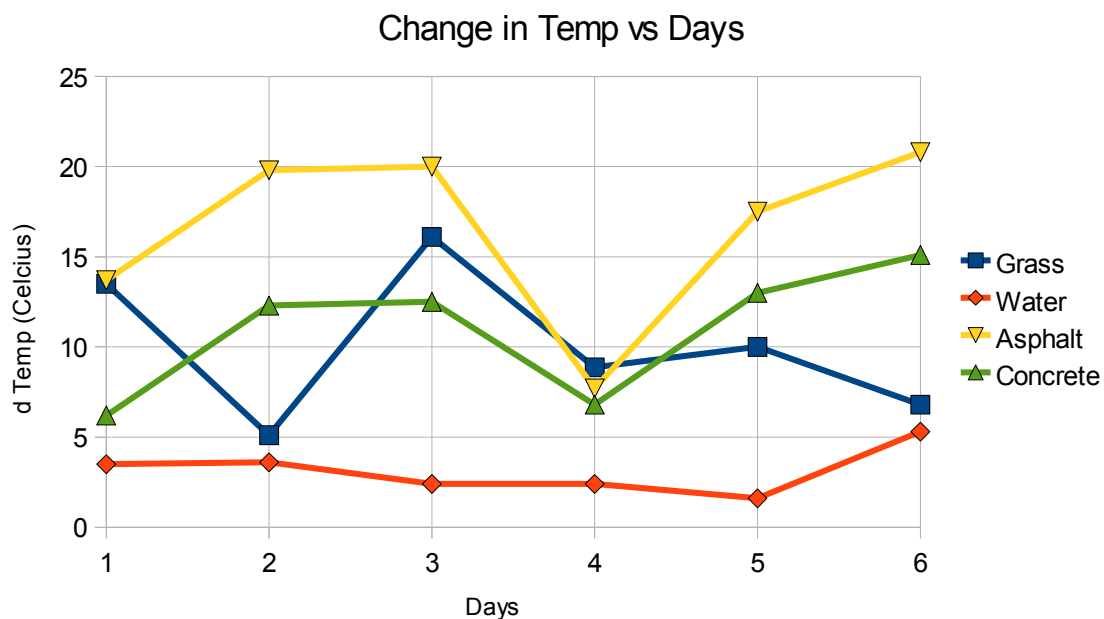
## Hypothesis :

Local pond water should show little change in temperature like the ocean. Grass, pavement, and concrete should show a lot of change.

## Materials and Method :

The materials we had used in this lab was a infrared thermometer, a binder to record our observations, flags to mark each area so we made sure to measure in the same exact place each time. The method to our madness, was to go outside each day and record the temperatures of the white concrete, then following along to the asphalt and so on to the short grass and water.

## Data Summary:



Throughout the course of the 6 days that we recorded the temperature for each of the surfaces, we found that the water had the least amount of changes in temperature. This is because water reflects the sun instead of absorbing it. The asphalt had that highest temperatures and one of the biggest changes in the course of the 6 days. This is because the

black asphalt absorbs the heat from the sun. The concrete did not have as much of a change as the asphalt because it is white and doesn't absorb as much heat as the black.

## Analysis and Results :

We came to find that the short grass, asphalt and concrete had various changes with the temperature. The pond water on the other hand, was the complete opposite with the temperature changing very little.

## Conclusion :

Global remote sensing sea surface temperatures indicate little change in temperature throughout the year. This agrees with local observations of the school pond. Global remote sensing land surface temperatures indicate a lot of change, just like the black asphalt, concrete, shorts grass.



## Discussion :

Some improvements we can may may occur by taking the temperature and different times of the day. Going beyond the class room we could calculate the heat contents of the pond, or the sea, as well as investigate the energy of hurricanes and the affects coming from the sea.

## Acknowledgments :

Credit is given to Dr. Frank Ranelli for allowing us to set up our experiment and go outside everyday; Mr. Peter Dorofy for helping us with our measurements and observations; the students of first and second block for taking the surface temperatures each day.

## References/Bibliography:

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NASA Earth Observations, <http://www.neo.sci.gsfc.nasa.gov/>