

How Does the Soil Temperature Compare Between the School Prairie and the School Bioswale?

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Our Team

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Why are Native Prairies Important?

Native prairie's are important because they provide native plants and native animals that help the prairie thrive and grow. Plant roots hold soil still underground to avoid erosion and runoff.



Research Question & Hypothesis

RQ: How does the soil temperature compare between the school prairie and the school bioswale?

Hypothesis: If we test the soil temperature between the school prairie and school bioswale, then the bioswale will be cooler because the bioswale is wetter than the prairie.

Map of our Research Locations



Description of Locations:

A. Location 1 - Prairie

B. Location 2 - Bioswale

Variables

- Our dependent variable is **Soil temperature**
- Our independent variable is **the Bioswale**

Constants:

- **Locations in the prairie and the Bioswale**
- **Same time of day**
- **Same tools**
- **Follow the same steps**

Materials

- Soil can
- Digital Probe Thermometer
- Auger
- Data Recording sheet



Step by Step Procedures:

1. Go to the school prairie
2. Take air temperature in celsius and fahrenheit
3. Record weather conditions
4. Stick auger into the ground
5. Put digital probe thermometer in the hole the auger left for 10 centimeter measurement
6. Record 10 centimeter measurement data
7. Place a can next to the hole
8. Put digital probe thermometer into the hole and stop when it reaches the can. This will give you a 5 centimeter measurement
9. Record 5 centimeter measurement data
10. Repeat steps 2-9 in school bioswale

Weather Conditions on the Day of Data Collection

Bioswale

Day 1: Cloudy, Chilly, Breezy 5.8°C 42°F

Day 2: Clear Sky, Windy, Chilly 10°C 51.6°F

Day 3: Sunny, Cool, Brisk 11.6°C 50.5°F

Prairie

Day 1: Cloudy, Chilly, Breezy 5.8°C 42°F

Day 2: Clear Sky, Chilly, Windy, Sunny 10°C 51.6°F

Day 3: Sunny, Cool, Brisk 11.6°C 50.5°F

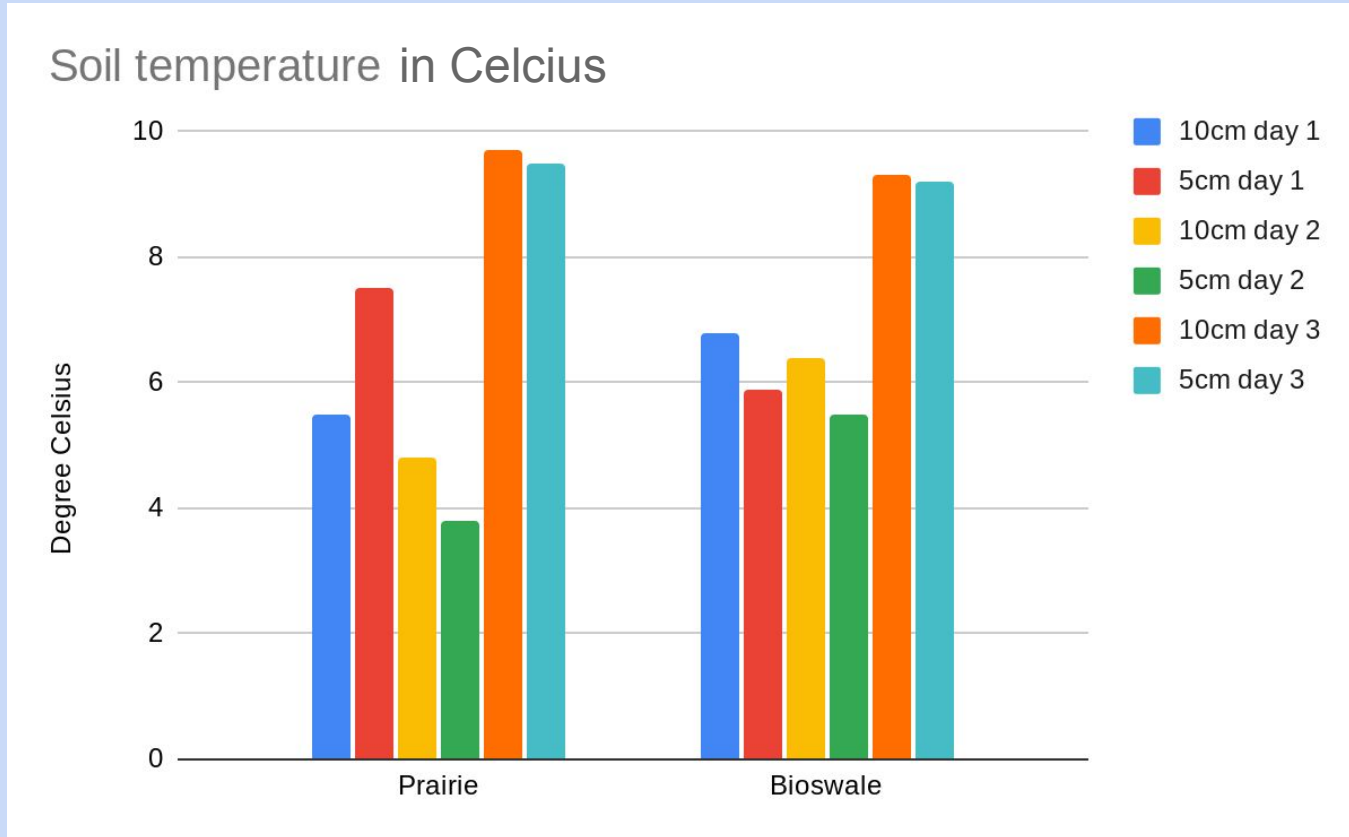


Data - How does the soil temperature compare between the school prairie and school bioswale? Everything is in celsius.

Soil Temperature Throughout Three Days in Celsius

	Day 1		Day 2		Day 3	
	10cm	5cm	10cm	5cm	10cm	5cm
Prairie	5.5	7.5	4.8	3.8	9.7	9.5
Bioswale	6.8	5.9	6.4	5.5	9.3	9.2

Results: How does the soil temperature compare between the school prairie and school bioswale?



Conclusions:

- **The bioswale was warmer than the prairie.**
- **The average soil temperature in the prairie was 6.6°C and 6.9°C while the average soil temperature in the school bioswale was 7.5°C and 6.8°C.**
- **Our hypothesis was not supported.**

Discussion: What does this mean?

- **Microbes mean warmer soil, so the more or stronger the microbes are, the warmer it'll be**
- **The Bioswale is warmer because it is muddy and mud has very strong microbes**
- **The Prairie is colder because the native plants shade the ground**

Discussion: Possible solutions!

People should install native prairies because...

- **They provide a habitat for native animals**
- **It helps people learn about native plants and animals in their area**
- **It can prevent harmful animals from coming into the area**
- **Installing native prairies can also help shade the Earth because a warm Earth is not good!**

Questions? Collaboration? Thank You.

- **Big thanks to Mrs. Boros for letting our science class do this project. We are very lucky to have a prairie at our very own school. We loved this project! Our teachers contact information is down below if you would like to reach out to her.**
- **Any questions?**

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Pictures

