How does the soil and surface temperature compared between the school prairie and the school playground?

Gabi and Avnitha

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Our Team

Photographer

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Experimenter

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Data Recorder

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Why are Native Prairies Important?

Native prairies are important because they make homes for animals and other specious. Another reason that prairies are important is the plants, the plants make oxygen which helps us breathe!

Research Question & Hypothesis

RQ: How does the soil & surface temperature compare between the school prairie and the playground?

Hypothesis: If we test the surface & soil temperature between the prairie and the playground then, the prairie will be cooler because of all the plants

Map of our Research Locations

Description of Locations:

A. Location 1 - prairie

B. Location 2 - playground

Variables

Prairie

- Dependent Variable is surface and soil temperature
- Independent Variable is playground

Constant Variable

-Locations in the prairie and the playground.
-Same time of day.
-Same tools.
-Follow the same steps.

Materials

- Infrared thermometer
- Soil can
- Soil and air thermometer
- Auger

Add photos of materials and/or students using materials

Step by Step Procedures:

Surface temperature

- Go to the prairie with an infrared thermometer.
- Then go to the spot that you are collecting your data.
- When you reach , hold the thermometer straight in the air face down
- Collect the data then walk 1 step , then again collect the data.
- Repeat this step 9 times.
- After recording the data add the 9 numbers then divide it by 9 for the averages.
- Repeat the steps in the playground

Soil temperature

- Go to the prairie with an auger, air temperature tool and a can.
- Use the auger to make a hole in the soil.
- Then put the can next to the hole and insert the air and soil temperature tool into the soil until it touches the can.
- Record this data for 5 cm.
- After recording the data take the can away then insert the thermometer deeper into the soil. Then record the data for 10 cm.
- After doing this for three days add the numbers and divide it by 3 for averages .
- Then repeat this in the playground

Weather Conditions on the Day of Data Collection

Playground

-Day #1 windy and cold 13.2℃ 56.2 F

-Day#2 sunny,windy and cold 13.1℃ 55.2 F

-Day #3 sunny and cold 14.3℃ 59.74F

Prairie

Day#1 windy and cold 13.4℃ 58.9 F

Day#2 sunny,windy and cold 14.3℃ 57.7 F

Day#3 sunny and cold 12.5℃ 57.7 F

Data - How does the does the soil and surface temperature compare Between the school prairie and school playground? Insert Data Table here

Average Surface temperature

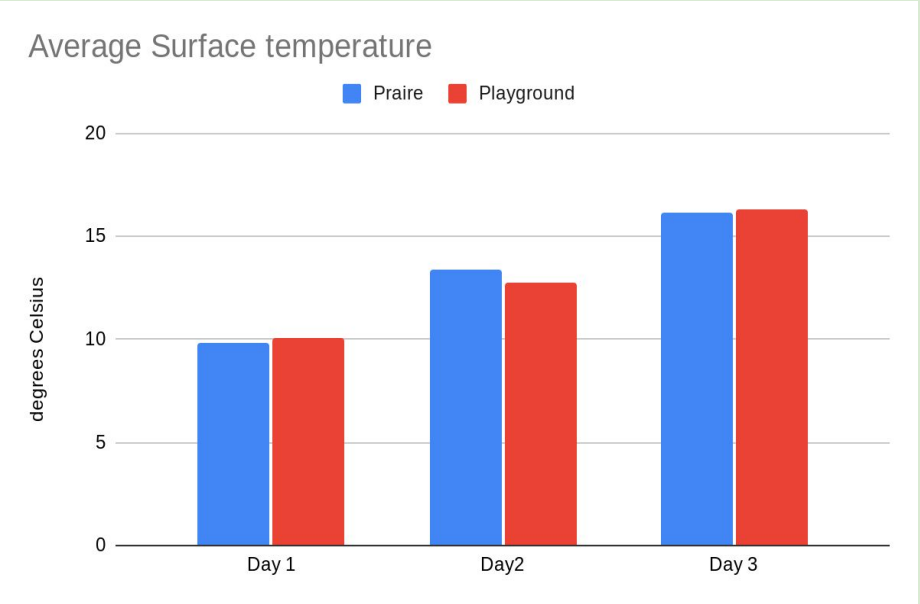
	Day 1	Day2	Day 3
Prairie	9.84℃	13.36℃	16.12℃
Playground	10.03℃	12.78℃	16.3℃

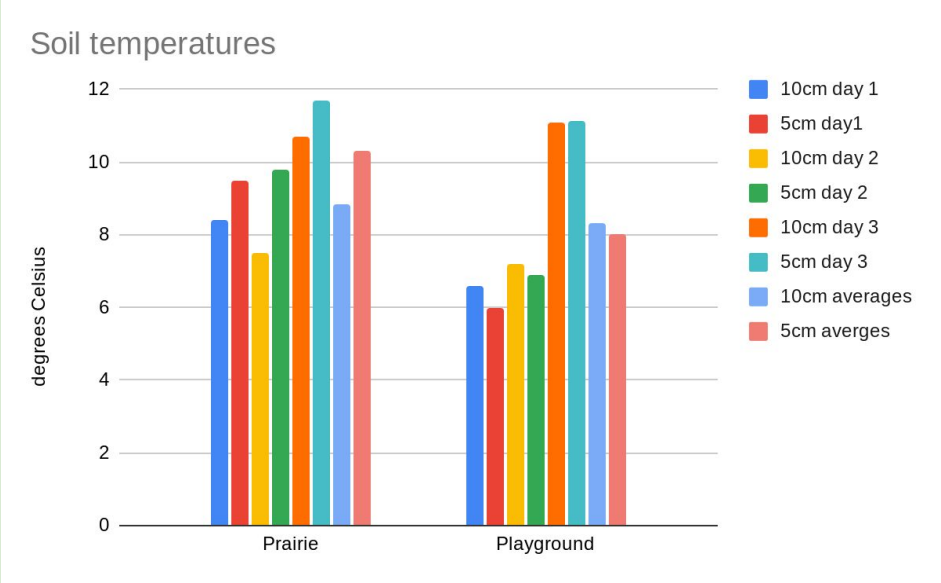
Soil temperatures

	Day 1		Day 2		Day 3		Average	
	10cm	5cm	10cm	5cm	10cm	5cm	10cm	5cm
Prairie	8.4℃	9.5℃	7.5℃	9.8℃	10.7℃	11.7℃	8.86℃	10.33℃
Playground	6.6℃	6℃	7.2℃	6.9℃	11.1℃	11.13℃	8.3℃	8.01℃

Results: Write Research Question here again

How does the soil & surface compare between the school prairie and the playground





Conclusions:

Our results show that the soil and surface temperature is

- Very similar in the the prairie and the playground.

- Looking at the averages for soil temperature of prairie which is 8.86℃ & 10.33℃ and play ground which is 8.3℃ & 8.01℃ . Also the surface temperature of the prairie which is 9.84℃ , 13.36℃ & 16.12℃ and the playground which is 10.03 ℃ , 12.78℃ & 16.3℃ . We can conclude that the prairie and playground have similar data

Discussion: What does this mean?

- **In surface temperature,if it is cooler it is better. A warmer surface will lead to a warmer Earth which is not good.**

- **In soil temperature, if the soil is warmer it is better. If the soil temperature is cooler their will be less plants and it is bad for our planet.**

Discussion: Possible solutions!

- **We can prevent the surface from being warmer with the help of plants because plants can shade the surface and make the ground cooler.**

- **In soil temperature the warmer the soil is the healthier it is . It also leads to better plant growth.**

- **We can also plant more native plants and prairies which will help result in a better soil and surface temperature.**

Questions? Collaboration? Thank You.

We would like to thank our teacher Mrs. Amy Boros for all the help and knowledge she gave us during this project.

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