

Name: _____ Block: _____ Date: _____

Virtual Scientific Method Lab: What Makes a Cricket Chirp?

Question: Some say that if you listen to the sound of a cricket chirping, you can determine the temperature. Is this true or is it just an urban legend? Do any other factors affect how fast a cricket will chirp, such as humidity, wind, atmospheric pressure, or nearby crickets?



Procedure: You will use a virtual lab to test a cricket subject.

Log on to:

http://webapp.gccaz.edu/academic/biology/scientific_method/

Materials:

- Virtual Lab Handout
- Computer with Internet Access

Procedure:

1. Do the tutorial on scientific method first.
2. Follow the instructions for investigating the role of environmental variables on cricket chirps. For your investigation, choose values that are high and low to get a wide range of data.
3. Enter your results in the data charts provided. **You need to record on your paper as you go because this website does not work well if you use the back button!**
4. Graph your results by hand using the blank graphs.
5. Discuss the results of your experiment including whether or not your data supported your hypothesis, any sources of error, and suggestions for improvements to the experimental design.

Write a hypothesis for your experiment (which factor increases cricket chirping) in the “If...then” format. This is the hypothesis you will use to compare your results in the discussion section.

Identify the independent variables in the six different experiments:

Identify the dependent variable in all of your experiments: _____

Since you are not necessary a cricket expert, you will have to do some exploration by running different tests on different factors that could affect cricket chirping. Record your data in the tables on the following page.

Why is it important to test only one variable at a time? _____

Data Tables:

Effect of Wind Speed on Cricket Chirp Rate		
Wind Speed (m/sec)	Chirp Rate (chirps/min)	Controlled Conditions

Effect of Nearby Crickets on Cricket Chirp Rate		
Number of Crickets	Chirp Rate (chirps/min)	Controlled Conditions

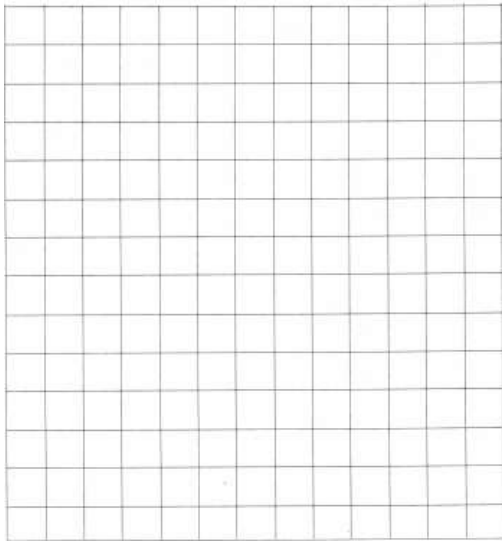
Effect of Temperature on Cricket Chirp Rate		
Temperature (Celsius)	Chirp Rate (chirps/min)	Controlled Conditions

Effect of Atmospheric Pressure on Cricket Chirp Rate		
Pressure (mm Hg)	Chirp Rate (chirps/min)	Controlled Conditions

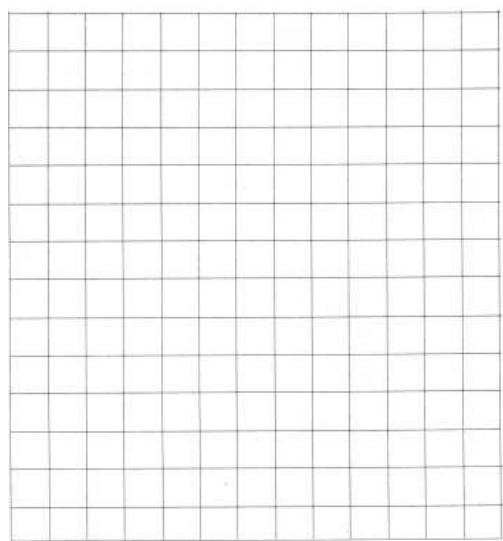
Effect of Humidity on Cricket Chirp Rate		
Humidity (%)	Chirp Rate (chirps/min)	Controlled Conditions

Graph the results of your experiments on the following page. Make sure each graph has a **title**, **labeled axes**, and **correct units and uniformly scaled**.

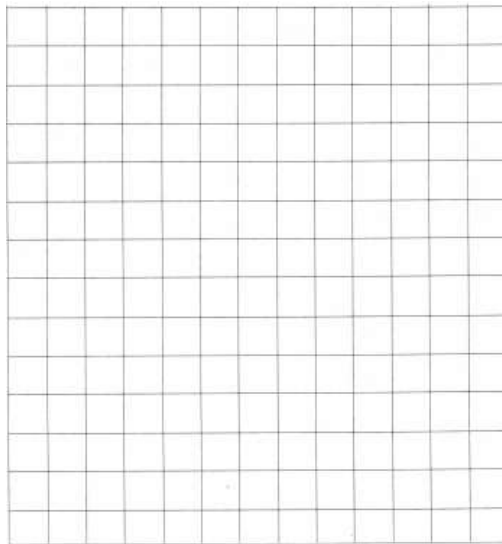
Cricket Chirp Rate vs Wind Speed



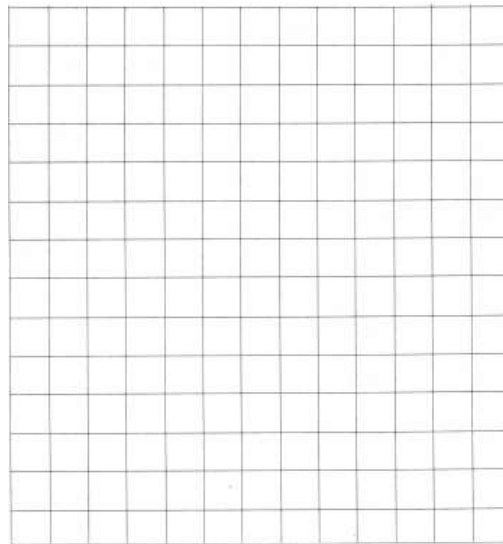
Cricket Chirp Rate vs. Nearby Crickets



Cricket Chirp Rate vs Temperature



Cricket Chirp Rate vs Atmospheric Pressure



Cricket Chirp Rate vs Humidity

