

Name _____

Date _____

Science Skills:
Graphing, Applying the Scientific Method, and Scientific Writing
Example #2 - Answers

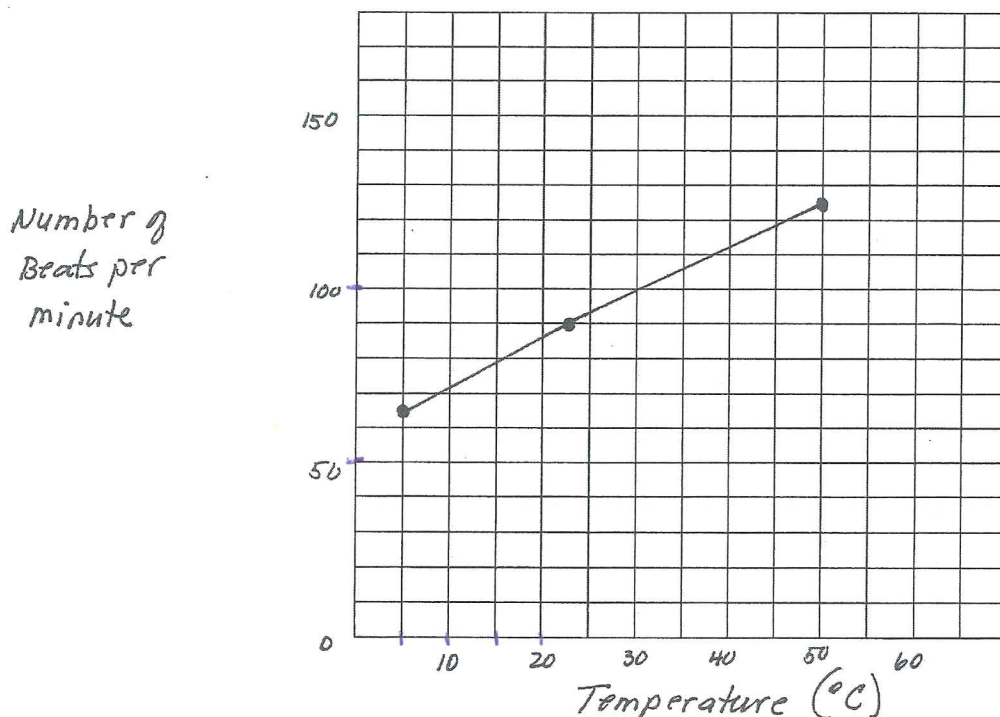
Daphnia are small crustaceans that are often called water fleas. They are an important part of the food chain, as they serve as food for many other organisms found in aquatic ecosystems. They are small, but are visible with the naked eye. They are often placed under a microscope for study. One feature that makes the Daphnia a good organism for lab experiments is the fact that its beating heart is easily visible when observed under a microscope.

An experiment was conducted to test the effect that different temperatures have upon the heart rate of Daphnia. The scientist placed the Daphnia in the chamber of a depression slide filled with water. The chamber was then sealed. The temperature of the water inside the depression slide chamber was manipulated by placing the slide, one after the other, in small dishes containing: (1) crushed ice, (2) room temperature water, and (3) water that had been warmed. As the Daphnia was being subjected to these three different temperatures, it was being observed under a microscope and the number of heart beats per minute was recorded.

Temperature	5 °C	23 °C	50 °C
Heart Rate (Number of beats per minute)	65 beats / min	90 beats / min	125 beats / min

Graph these results on the grid provided below:

Title: The Effect of Temperature on the Heart Rate of Daphnia



The Scientific Method

Question or Problem

How does temperature affect the heart rate of Daphnia?

Graphic Organizer for Science Experiments

Hypothesis

I predict... that as temp. increases the heart rate of the Daphnia increases if... then...

Experiment

Daphnia placed in the chamber of a depression slide + sealed.
Slits placed in small dishes, one after another: ice; rm +; warm

Results

HR: bpm counted

T	5°C	23°C	50°C
HR bpm			

(Your Prediction)

(What did you do?)

(What Happened?)

Water Temperature

(IV, What did you change?)

Heart rate beats/min

(DV, What data did you collect?)

(Constant, What is kept the same?)

Conclusion

As the temperature increases, the heart rate of the daphnia increases.

(Hypothesis supported or not? What did you learn? What about next time?)

The Scientific Method

Question or Problem

How will coffee or tea (nicotine, alcohol) affect the heart rate of daphnia?

Graphic Organizer
for Science
Experiments

Hypothesis

I predict...
If... then...

(Your Prediction)

Experiment

(What did you do?)

(IV, What did you change?)

(DV, What data did you collect?)

(Constant, What is kept the same?)

Results

(What Happened?)

Conclusion

(Hypothesis supported or not? What did you learn? What about next time?)