

Name:

Class:

Date:

Lab Activity: *Predator-Prey Relationship Observing Hydra and Daphnia*

Purpose: Using digital microscopes, and laptops, you will observe and record the interaction between Hydra and Daphnia under "normal" conditions. You will then make predictions about the effect a given over-the-counter drug will have on Hydra and Daphnia predator-prey relationship. Finally, you will test your prediction by subjecting your Hydra and Daphnia to the over-the-counter drug, and analyze your results.

Materials:

Digital Compound Microscope
Laptop Computer
Depression Slide
Cover Slip
Hydra
Daphnia
Protoslo
10% Solution of caffeine, cough syrup, and nicotine
Dropper

Procedure:

Part I

1. Obtain a depression slide with a Hydra and a drop of Protoslo. *Your teacher may provide this for you.*
2. Observe the Hydra under low power on your microscope. Record observations in Table 1.
3. Add one Daphnia to your depression slide.
4. Immediately record the time in Table 1.
5. Observe and record the interactions between the Hydra and Daphnia.
6. Record time when Daphnia becomes entangled in Hydra.
7. Record time when Daphnia becomes completely engulfed by the Hydra.
8. Rinse Daphnia and Hydra into the designated container.

Based on your observations, and prior knowledge about over-the-counter drugs, predict what will happen to the predator-prey relationship when you add two drops of a 10^o/° solution of _____ to your Hydra and Daphnia, Record your prediction in Table 3.

Part II

1. Complete procedure 1 through 7, this time adding two drops of _____ (designated by your teacher) during procedure 1.
2. Record data in Table 2.

Table 1: Control Group

Hydra Observations	
Time Daphnia is Added	
Hydra and Daphnia Observations	
Time Daphnia becomes entangled by Hydra	
Time Daphnia is completely engulfed by Hydra	

Table 2: Prediction

What do you think will happen to the predator-prey relationship when you add two drops of _____ to your Hydra-Daphnia culture?

Table 3: Experimental Group

Over-the-counter drug: _____

Hydra Observations	
Time Daphnia is Added	
Hydra and Daphnia Observations	
Time Daphnia becomes entangled by Hydra	
Time Daphnia is completely engulfed by Hydra	

Data Analysis:

1. Share data collected by other groups in the class in table 4 and 5.
2. Is the amount of time in table 1 the same for all groups? What does this tell you?
3. Did your observations support your prediction about the effect of your over-the-counter drug? Explain what you think happened.
4. Did other groups get similar results? Why?
5. What could you do to improve your investigation?

Science in Motion Materials List**Lab: Affect of Chemicals on Daphnia and Hydra**

Number of Lab Groups Prepared:

Equipment per lab group	Delivered	Returned
Digital compound or dissecting microscope		
Depression slides and cover slips		
Printer		
Printer cords		
Computer interface		
Cords		
Consumables	Delivered	
Live Daphnia culture		
Live Hydra culture		
Diluted solutions of Coffee (regular and decaffeinated)		
Diluted solutions of Tea (regular, green, and herbal)		
Diluted solutions of Soda Pop (Pepsi, Caffeine Free Pepsi, Diet Pepsi, and Caffeine Free Diet Pepsi)		
Diluted solutions of Cough Syrup Dayquil and Nyquil		
Diluted solutions of Alcohol (100 proof, 50% alcohol)		
Nicotine		
Photo and regular paper		
Protoslo		
Floppy disks		