Name_____ Period _____ Date _____

Water Flea

STEM Sims

Lesson 5: Which Drug Caused the Largest Heart Rate Change?

You and/or your classmates investigated the effects of various drugs in the previous four lessons. Now it's up to you to determine which drug caused the largest change in the organism's physiology. See if you can use your previous experimental results to come up with a strong conclusion about the four drugs you investigated.

Doing the Science

1. You must have access to your data from Lessons 1 – 4 to complete this activity.
2. Record your data from the previous lessons in Table 1 below for Normal and a Double Dose of the drug. Note: All data will be for Female or Male, Unfed, Double Dose water fleas. Do *not* enter any Fed or Single Dose flea data in the table.
3. Calculate and record in Table 1 the change in heart rate of the flea after taking the drug by subtracting the heart rate after taking the drug from the normal heart rate. Please note that some of these values will be negative numbers.
4. Calculate and record in Table 1 the Percent Change of the heart rate. Do this by dividing the change in heart rate by the normal heart rate, and then multiplying this value by 100 to convert the value to a percentage.

Table 1.

Substance	Normal Heart Rate (beats/min)	Heart Rate After Double Dose Drug (beats/min)	Change in Heart Rate (beats/min)	Percent Change
Female - Alcohol				
Female - Sleeping Pills				
Female - Caffeine				
Female - Nicotine				
Male - Alcohol				
Male - Sleeping Pills				
Male - Caffeine				
Male - Nicotine				

Do You Understand?

1. Which drug had the largest effect on a female water flea's heart rate? On the male's heart rate?

2. Which drug had the smallest effect on a female water flea's heart rate? On the male's heart rate?