Name _____

DATA LOG

Biological Clocks: Fly Circadian Activity

Experiment One — Wild Type *Drosophila* in LD Conditions

Record fly activity on the actogram

Questions

1. In the natural world, during what part of the twenty-four day would the fruit fly be active?

2. Is the fly active in response to the light going on or off OR is there evidence the fly "anticipates" the change in lighting?

Experiment Two — Wild Type *Drosophila* in DD Conditions (free-running)

Record fly activity on the actogram

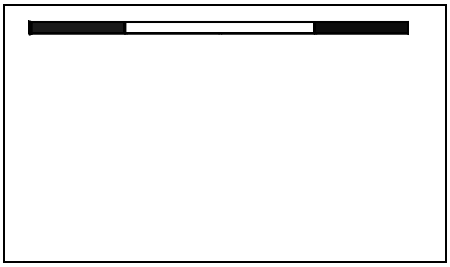
Questions

3. In what ways is this actogram for a DD experiment different from the previous LD experiment? And how is the data similar?

4. How would we explain the influence of light and dark on the timing of the fly's behavior?

Experiment Three — *perS* mutant in DD Conditions (free-running)

Record fly activity on the actogram



Questions

5. The actogram shows a shift in the fly's activity times. Would this shift be classified as an advance (shift to the left) or a delay (a shift to the right)?

6. What would you estimate is the time interval between the activity times for this fly [the normal fly was active on approximately 12 hour intervals]?

Experiment Four — *perS* mutant in LD *Conditions*

Record fly activity on the actogram

Questions

7. What is the evidence that this *perS* mutant has an activity cycle that is shorter than the normal time period?

8. Which is the evidence that the light is an external clue that serves as a zeitgeber?