

## **Grasshopper Phenology and Climate Change Pre-lab Questions:**

### *Life zones*

1. What factors determine differences between life zones? Explain why plant and animal species in similar life zones throughout the world might have similar characteristics.

### *Climate Change and its effects on organisms*

2. Briefly discuss two ways that a warming climate might affect organism.

### *Growing degree days*

3. What are growing degree days (GDD)? How can one use the GDD concept to study as well as predict the effect of climate change on phenology?

4. A butterfly has a minimum threshold of  $11^{\circ}\text{C}$  that is required to begin development and an upper threshold of  $40^{\circ}\text{C}$ , a point at which development ceases. How many growing degree days does the butterfly experience on a day with a low of  $8^{\circ}\text{C}$  and a high of  $39^{\circ}\text{C}$ ? Show your work.