Name _____ Course/Section _____

Date _____ Professor/TA _____

Activity 39.1 How do gravity and light affect plant growth responses?

Review Chapter 39 of *Biology,* 7th edition, and your answers to Activity 37.1. Then answer the questions.

1. One of the problems associated with growing plants in space is lack of gravity.		
a. How does gravity affect the normal growth of a plant's roots, stems, and other parts? Explain the mechanisms involved.	b. How would a lack of gravity affect normal plant growth?	c. Propose mechanisms to overcome the problems associated with a lack of gravity.

2. Another problem with growing plants in space relates to a plant's light requirements and phototropic responses versus the photoperiods required for the plant to flower and produce fruit.	
a. How do phototropism and photoperiodism differ?	
b. What light characteristics would you use to maximize plant growth per unit time?	
c. What kind of physical environment would you need to maintain appropriate phototropic responses among plants?	
d. What design modifications would you need to make to support plants with different photoperiods—for example, long-day versus short-day plants?	