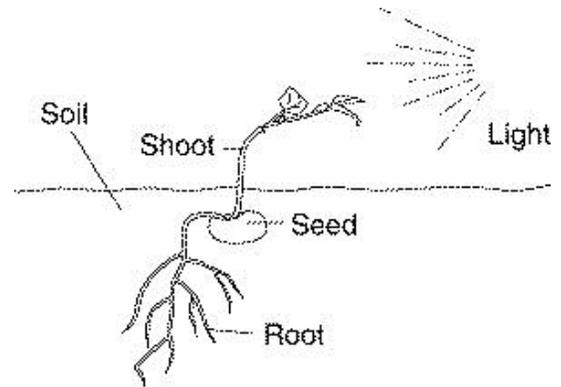


## Botany 322

**Tropism: Plant Responses Lab**

**Background:** Plants can respond to their external environment. A tropism is a plant's growth in response to an environmental condition. When plants grow toward something it is called a positive tropism. Stems and leaves are positively phototropic, they grow toward light. This is called phototropism. Phototropism is plant growth toward a light source. When a plant grows away from something, it is called negative tropism. Roots are negatively phototropic, they grow away from the light and into the soil, but they have positive gravitropism – meaning the roots grow into the soil with the force of gravity. Leaves and stems have negative gravitropism because they grow against the force of gravity. Another form of tropism is thigmotropism, which is the response plants have to touch.

**Purpose/Problem:**

In this lab, you will observe how plants respond to the following stimuli: light, gravity, and touch.

**Directions to Virtual Lab**

1. Go to [http://www.classzone.com/cz/books/bio\\_07/book\\_home.htm?state=NJ](http://www.classzone.com/cz/books/bio_07/book_home.htm?state=NJ)
2. Under Labs, select Virtual Labs
3. Select Exploring Plant Responses from the list of labs.

**Materials:** Get from the Checklist on the Explore part of the virtual lab

1. Select each item in the lab.
2. Read the description that appears for each item.
3. Once you have selected all the items (12 total), click procedure to start the lab.

Procedure:

Follow the steps to the lab given on the screen until you complete all twelve (12) steps.

Data/Results:

### **Table 1. Plant Response Predictions**

Describe how you think plants may respond to each of the stimuli listed.

<b>Stimulus</b>	<b>Response</b>
Light	
Gravity	
Touch	

### **Table 2. Effects of Light on Radish Seeds**

Complete Table 2 by entering the direction of growth for each radish shoot.

<b>Seedling</b>	<b>Grown in Light or Dark</b>	<b>Direction of Shot</b>
1	Dark	
2	Dark	
3	Light	
4	Light	

### **Table 3. Effects of Gravity on Corn Seedlings**

Complete Table 3 by describing the growth of the roots and shoots for each of the four corn seeds. Include a description of the direction of growth.

<b>Seedling</b>	<b>Direction of Pointed Tip</b>	<b>Growth of Roots</b>	<b>Growth of Shoots</b>
1	Down		
2	Left		
3	Up		
4	Right		

Table 4. Effect of Touch on the Mimosa Leaf

Describe what happened when the mimosa leaf was touched.

#### Analyze and Conclude

1. Conclude: Describe the three kinds of reactions to stimuli that you observed in this investigation.
2. Infer: Based on your observations, which part of the radish plant controls the plant's phototropism? Support your answer.
3. Analyze: How did gravity affect the growth of the germinating corn seeds?
4. Analyze: How can you tell that the corn plants were responding to gravity rather than light, water, or the direction the seed was pointing?
5. Infer: What may be an advantage of the mimosa plant's response to touch?