**Biology Exploration Guide**: Cell Communication #4

 Plant Responses to Internal and External Signals

**Key Concepts**:

* Plant hormones help coordinate growth, development, and responses to stimuli
* Responses to light are critical for plant success
* Plants respond to a wide variety of stimuli other than light
* Plants respond to attacks by herbivores and pathogens

**Read:**

* Chapter 39

**Campbell Biology Online Tasks**:

* MB 43,39

**Key Terms**: Here is a list of key terms and concepts you will hear about and see during the chapter readings. Get to know them!

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| --- | --- | --- | --- |
| *Etiolation* | *Cytokinins* | *Leaf abscission* | *Long-day plant* |
| *De-etiolation* | *Gibberellins* | *Phytochromes* | *Day-neutral plant* |
| *Tropism* | *Ascisic acid (ABA)* | *Photoreceptors* | *Gravitropism* |
| *Phototropism* | *Ethylene*  | *Photoperiodism* | *Thigmotropism* |
| *Auxins*  | *Senescence* | *Short-day plant* | *Hypersensitive response* |
|  |  |  | *Systemic acquired resistance* |

**Questions for Your BILL:**

1. Use a graphic organizer to describe the roles each of the following hormones plays in plants: *auxins, gibberellins, cytokinins, ethylene,* and *abscisic acid (ABA).*
2. Create a diagram that explains how *photoperiodism* determines when flowering occurs.
3. What is a *tropism*. Discuss the survival benefits of *phototropism*, *gravitropism*, and *thigmotropism*.
4. Make a series of drawings to discuss several defense mechanisms developed by plants to protect themselves from herbivores and pathogens.

**Supplementary Resources**: Click the links below for more information to help you learn more about this lesson.

* WH Freeman Animation: [Tropisms](http://bcs.whfreeman.com/thelifewire/content/chp38/3802001.html)
* WH Freeman Animation: [Photoperiodism](http://bcs.whfreeman.com/thelifewire/content/chp39/3902002.html)
* McGraw Hill Animation: [Phytochrome Signaling](http://glencoe.mcgraw-hill.com/sites/9834092339/student_view0/chapter41/animation_-_phytochrome_signaling.html)