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# TEACHER GUIDE

## PLANT GROWTH CONDITIONS GRADES K-2

### COMMON MISCONCEPTIONS

- **Students may think sunlight helps plants grow, but is not essential.**  
The plant's leaves collect energy from sunlight to turn carbon dioxide from the air and water into sugar. Plants need light energy to perform photosynthesis. Without sunlight, a plant cannot survive.
- **Students may think that plants need things provided by people.**  
While it is true that people do care for plants, especially those living indoors, plants as a whole do not rely on people for their needs. Most plants meet their needs of water, air, sunlight, nutrients and space from the environment.
- **Students may think that soil is food for plants.**  
The soil itself is not food. The main purpose of soil is to hold water and nutrients that the plants take up. Soil provides an anchor for plants to take root, but there are many plants that grow without soil.

### PLANTS NEED SUNLIGHT:

Plants need sunlight for the process called photosynthesis. Plants are autotrophs, meaning they convert inorganic substances, such as carbon dioxide and water into nutrition. The energy from sunlight is captured in chlorophyll, a substance in the leaves.

### PLANTS NEED WATER:

All living things need water to stay alive. Plants use water in several ways. They use water combined with carbon dioxide to make sugar. Water is also used by a plant to maintain its structure. If a plant does not have enough water, it will wilt.

### PLANTS NEED NUTRIENT RICH SOIL:

Soil provides an anchor for plants to take root. Rich soil, such as loam, is effective at holding the water and nutrients plants need to grow. Rich soil includes nitrogen, phosphorus, potassium, calcium, magnesium and sulfur; all nutrients plants need to grow best.

## TIPS FOR TEACHERS

Children can have a tendency to give plants human or animal characteristics, such as eating and breathing. In the lesson you can compare and contrast the needs of animals vs. plants to make sure there are no misconceptions.

