

## Photosynthesis Pre-Trip Activities

To prepare your students for the investigations they will do on site, we recommend doing these activities prior to your visit.

### Photosynthesis Brainstorm

**Purpose:**

To discover and/or introduce photosynthesis to students

**Materials:**

- Board

**Steps:**

1. Ask the students what they know about photosynthesis. As a brainstorm activity, students can pair up and make a list of everything they know about the process.
2. Then as a whole class, discuss what each pair knows and create some class statements about photosynthesis.
3. Keep the class statements until the end of the unit to review and add any additional knowledge learned.

### Photosynthesis Equation & Graphing

**Purpose:**

To determine what the students know about graphing changes to the products of photosynthesis

**Materials:**

- Paper
- Pencil
- Rulers (optional)

**Steps:**

1. Discuss the formula for photosynthesis using both common and scientific terms (i.e. oxygen and O<sub>2</sub>).
2. In pairs, have the students discuss what they predict would happen in the air immediately surrounding the plant if it was photosynthesizing.
3. Have one student graph what the CO<sub>2</sub> level might look like in the air around a plant if it was photosynthesizing. Have one student graph what the O<sub>2</sub> level might look like in the air.
4. If time permits, the students could also graph what they predict the air to look like if the plant is respiring.

Note: The students will be conducting an experiment using Vernier data loggers to observe the CO<sub>2</sub> and O<sub>2</sub> levels for leaves in the Garden collection.

### Literature Connections

*Photosynthesis* by A. Silverstein; *Living Sunlight: How Plants Bring The Earth To Life* by M. Bang



## Photosynthesis Post-Trip Activities

These activities will build upon the learning experiences from the field trip, we recommend doing these activities after your visit.

### Photosynthesis Misconceptions Video

**Purpose:**

To review with the students the misconceptions of photosynthesis

**Materials:**

- Computer w/ internet connection
- Projector

**Steps:**

1. As a class watch the minutes 4:40—10:50 of the video *A Private Universe: Minds of Our Own Workshop 2: Biology-Why are some ideas so difficult?* (Harvard-Smithsonian Center for Astrophysics 1995.) The video is at: <http://www.learner.org/resources/series29.html?pop=yes&pid=84>
2. Discuss why the Harvard graduates and fourth grade students had misconceptions about answering the question. What are some reasons this misconception persist? In what ways can students prevent this misconception from continuing?

### Equation Misconceptions & Brainstorm Review

**Purpose:**

To review with the students the misconceptions involving the photosynthesis equation

**Materials:**

- Access to internet and/or copies of the webpage

**Steps:**

1. Have the students view, either online or via paper copies, the misconceptions about plants website. <http://actionbioscience.org/education/hershey.html>
2. After focusing on the photosynthesis oversimplification section, what do the students now know about photosynthesis? How might these ideas be different from what the textbook says?
3. (Optional) Have the students create a poster, skit, power point, or write a story describing photosynthesis misconceptions. They could present them to younger students, or their peers.
4. If you saved them, use the statements the students created during the pre-trip activity and have the students update and/or add new information.

### Literature Connections

*Photosynthesis* by A. Silverstein; *Living Sunlight: How Plants Bring The Earth To Life* by M. Bang