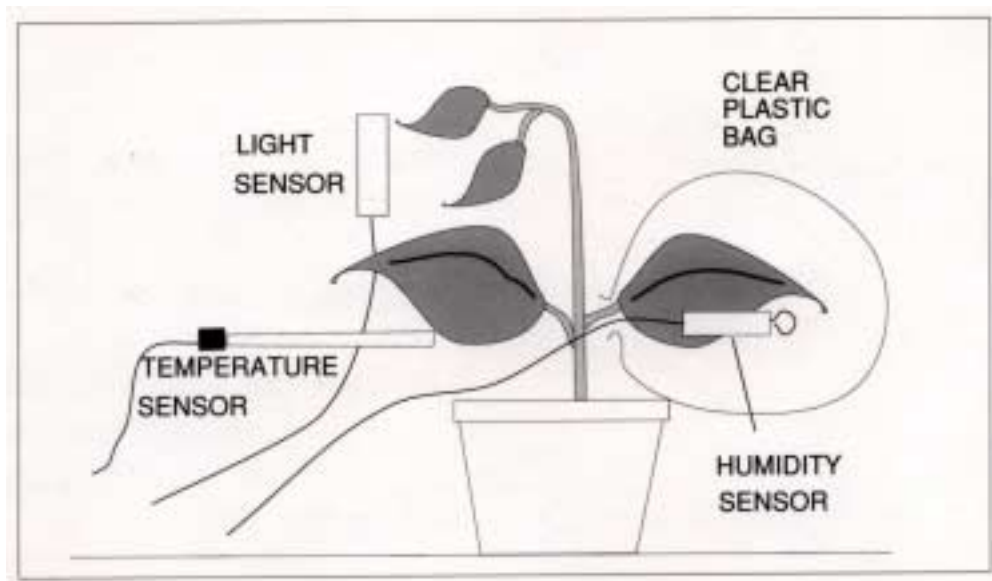


## ENVIRONMENT

### 2. WHEN DOES A PLANT LOSE MOST WATER?

A gardener knows that pot plants in the greenhouse are most likely to wilt during the day. She would like to know if this is caused by changes of temperature, or of light, or both.



**PLAN** To do a controlled experiment, you will need to control light and temperature around the plant. As a first test, set up the plant and sensors as shown and put the plant near a window or in a well lit part of the room. Give it a good watering before you start.

Think about why it is helpful to test one leaf by surrounding it with a plastic bag.

What can these sensors tell you about the environment around the plant:

- a) light sensor
- b) temperature sensor
- c) humidity sensor

What happens to a plant to cause it to wilt?

How will the humidity sensor help you to understand why a plant is more likely to wilt at certain times of the day?

**APPARATUS**

Temperature probe  
Potted plant  
Balance  
Light probe  
Clear plastic bag – to enclose leaf  
Clamp-stand **and a Humidity sensor**

**COMPUTER**

Inputs:                   1. Humidity  
                              2. Light intensity  
                              3. Temperature

Timespan:               up to 24 hours

**DISCUSS AND FIND OUT**

Why should you water the plant before starting the experiment?

What have you found out from the humidity sensor?

How does the humidity change compare with the

- a)** Light conditions?
- b)** Temperature conditions around the plant?

What causes the humidity in the bag to change?

What could cause errors in the humidity measurement?

**REPORT**

Produce a report that will help the gardener to understand why her plants wilt.

**GOING FURTHER**

If you have a growth light and a thermostatically controlled incubator, devise a series of experiments to find out how light and temperature affect water loss from the plant.