

Questions to accompany GigaPan timelapse of Fast Plants

1. Pick out an individual plant and watch it grow. New leaves, stems, and flowers come from meristems- places on the plant where cell division happens. Where are the meristems located on the plant?

Primary growth in plants occurs at the apical meristem, located at the top of the main stem, and the lateral meristems, which are at the base of leaves. In the video, you can see growth of new flowering stems from leaf bases on some plants. Roots also have apical meristems at the tips.

2. Leaves have determinate growth; they reach a certain size and then stop growing. Watch the growth of a leaf to observe this happening. Does the stem have determinate growth? Is the number of flowers a plant makes determinate or indeterminate?

The stem has indeterminate growth (it is able to keep growing until the plant dies, or until a caterpillar eats the meristem) and the number of flowers a plant makes is indeterminate. However, flower production often slows or stops after fruits begin to develop.

3. Observe plant movement in several different plants. Do all plants move in the same ways? How are they different?

Some plants show much more circumnutation than others, but all plants generally grow up or correct their growth to continue growing up.

4. How might a plant's surroundings affect its movement? Plants do not have a nervous system, or eyes or ears. How can they respond to what goes on around them?

Plants are able to sense physical contact and changes in light levels (which can be due to the shade caused by another plant). The plants may be responding to light quantity or quality, or to contact with another plant. Chemical changes that occur after contact can move throughout the plant, changing its movement or growth.

5. Write a testable hypothesis and design an experiment to investigate the causes of plant movement.

Answers may vary; students should include control treatments and be able to explain whether a particular outcome would support or not support their hypothesis.