Bending Plant Roots with Gravity

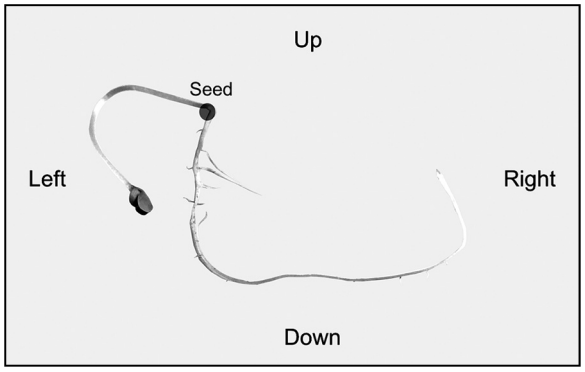
Student quiz — Answer key

Directions: Circle the best answer for each question below.

1. Geotropism (or gravitropism) means that…
   a. …plant roots get thicker the longer they grow
   b. …plant shoots grow in the direction of light
   c. …plants respond to the direction of gravity when they grow
   d. …plants in the tropics grow faster than anywhere else

2. How can a plant roots sense which way is up or down?
   a. They have special cells in the tip of their roots which can sense the direction of gravity
   b. They have special cells which sense the light that is coming from above
   c. Their root tips can sense soil moisture, which increases the deeper you go into the ground
   d. Plants cannot sense which way is up and down

3. The image at right shows a radish seedling after growing it in a bag for 7 days. The labels show the direction each side was facing on day 1, and the bag was rotated on days 3 and 5. Considering which way the roots grow in the image, what side of the bag was facing down on day 4 (assuming that the roots started growing on day 1)?



   a. Up
   b. Down
   c. Left
   d. Right

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Directions: Circle the best answer for each question below.

4. What other environmental factors can affect plant growth?
    a. Soil moisture
    b. Temperature
    c. Light
    d. All of the above

5. If you would grow plants in a place without light where there is no gravity, such as in space, which way would you expect the plant roots to grow?
    a. Downwards, as plant roots always grow in that direction
    b. Upwards, as without gravity the roots will react by growing in the opposite direction as usual
    c. In all directions, as without gravity plants get disoriented as they cannot sense which way is up or down
    d. Plants cannot grow in space without gravity