

HW  
10/07/21

## CONTROL AND COORDINATION HOME ASSIGNMENT

1. How do the shoot and roots of a plant respond to the pull of Earth's gravity?

Ans- The growth movement in plants in response to force of gravity is known as geotropism.

- Shoot of a plant always grows away from the pull of gravity or shows negative geotropism.

- Root of the plant always grows towards the pull of gravity or shows positive geotropism.
2. Describe an activity to illustrate the phenomenon of phototropism and explain why does this occurs.

Ans- Phototropism - Phototropism is a phenomenon in which the stem along with the leaves grow towards the sun in the direction of light but the root bends away in the opposite direction of sunlight.

The stem and leaves growing towards sunlight is called positively phototropic but root bending away from sunlight is called negatively phototropic.

Activity :- A potted plant growing in a transparent glass jar is kept in open space, where the sunlight falls from above. It will be seen that the stem of plant grows straight up towards the sun. But on the other hand the root grows

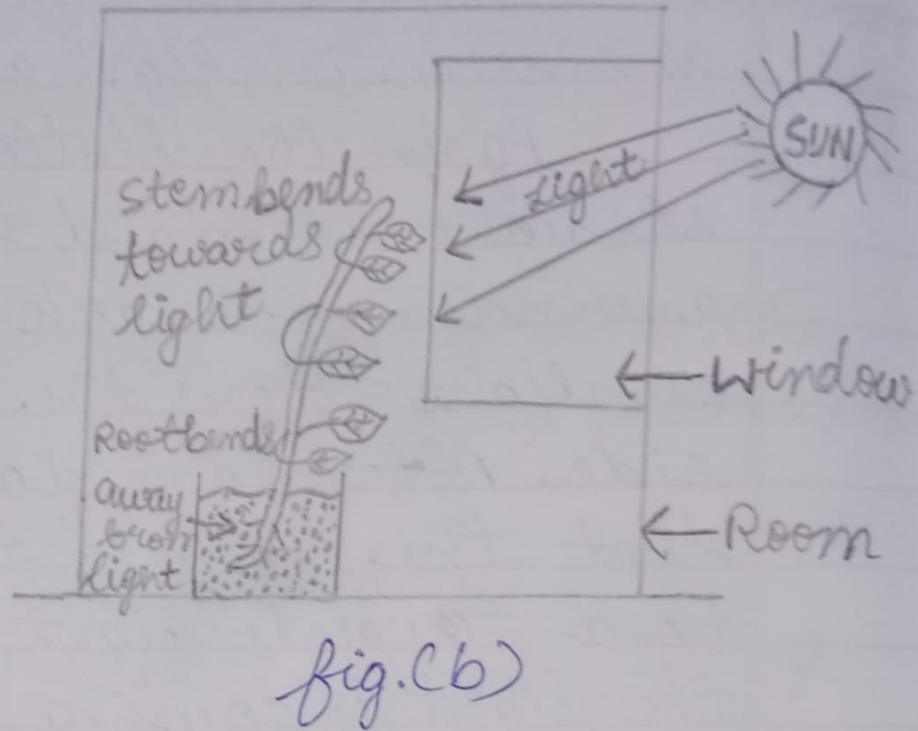
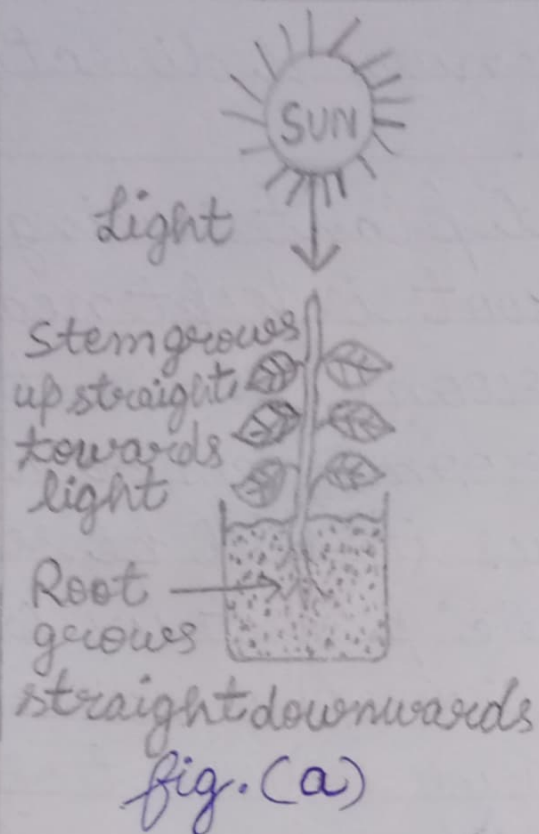


straight in the downward direction as shown in fig. (a).

Again the plotted plant having straight stem and root is kept near a window of a dark room where the sunlight enters the room from right side. After some days it will be seen that the stem of the plant will bend towards right side from where the light is coming. But the root of the plant bends to left side away from light as shown in fig. (b).

Phototropism occurs due to the presence of auxin hormone present at the growing part.

- (i) When the sunlight falls from above, the auxin hormone present at the tip of the stem spreads uniformly down the stem, so both the sides of the stem grow equally upwards.
- (ii) When light falls only on right side of the stem, the auxin hormone collects at the left side of the stem away from light, because auxin hormone prefers to stay in shade.



So, the left side of the stem grows rapidly but the right side of the stem grows slowly. So the stem bends in right direction.

But the effect of auxin hormone on growth of root is opposite to that of stem and also growth is slower as compared to stem in downward direction.

