

Curled leaves / hairs on leaf surface / spines / stomata sunken in pits – makes stomata lower than surface of leaf

Reduce air flow close to leaf – trap water vapour to reduce concentration gradient

thick waxy cuticle & fewer stomata: reduce water loss by evaporation

Thick stem: stores water

15. plant hormones – control growth

auxin: plant growth hormone

Control growth at tips of root/shoot

Travel by diffusion

Respond to **tropisms:** survival responses

Positive: movement towards stimulant source

Negative: movement away from stimulant source

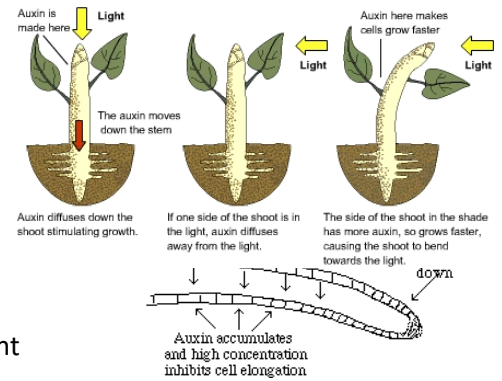
Shoot: Auxin **promote growth** where they are

Phototropism: positive

Auxin accumulate on shaded side – cells in shade elongate: shoot bends towards light

Gravitropism: negative

Shoot growing sideways: auxin accumulate on lower side – lower side cells elongate: shoot bends upwards



Root: Auxins **inhibit growth** where they are

Phototropism: negative

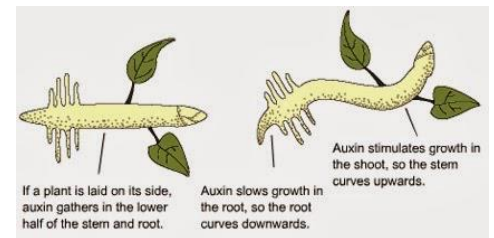
Auxin accumulate on shaded side

Auxin inhibits cell elongation on shaded side – root bends downwards

Gravitropism: positive

Root growing sideways: auxin accumulates on lower side

Extra auxin inhibits growth – cells on top elongate faster – bends downwards



16. commercial uses

auxins

Selective weedkillers: Developed from auxins that only affect broad-leaved plants

Disrupts their normal growth pattern: kills them, leaving grass/crops untouched

Rooting powder (contains auxins) added to soil with cutting – produces roots rapidly and grows as new plant

gibberellins

germination: makes plants germinate at time of year they wouldn't usually

used to make plants flower earlier than they would / under different conditions than they would

Produce seedless fruit from flowering plants that haven't been pollinated by insects (needed for fruit & seed)

ethene: **fruit ripening** while fruit on its way to supermarket to be perfect on shelves