

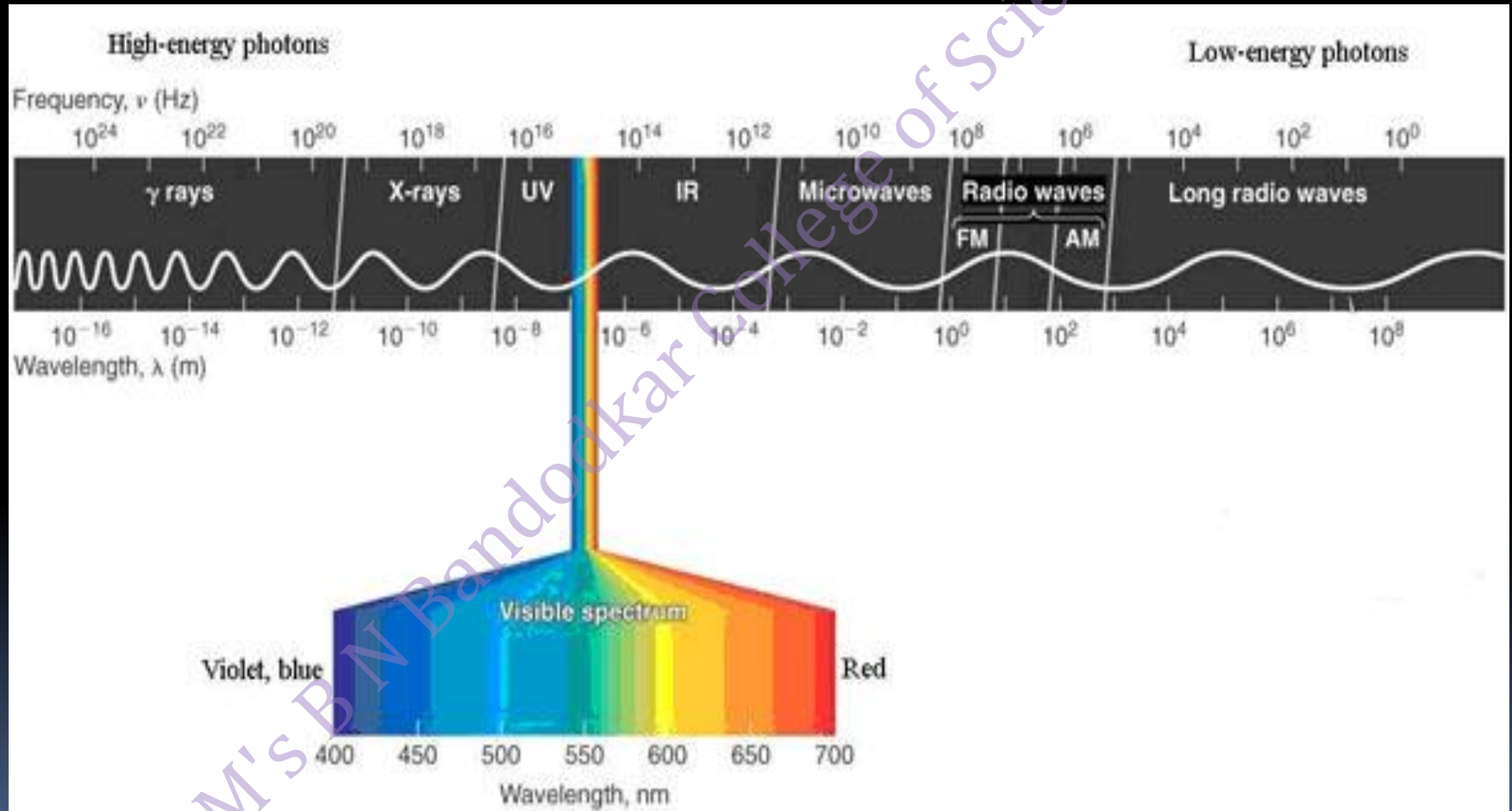
Climatic Factors

LIGHT

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Electromagnetic spectrum

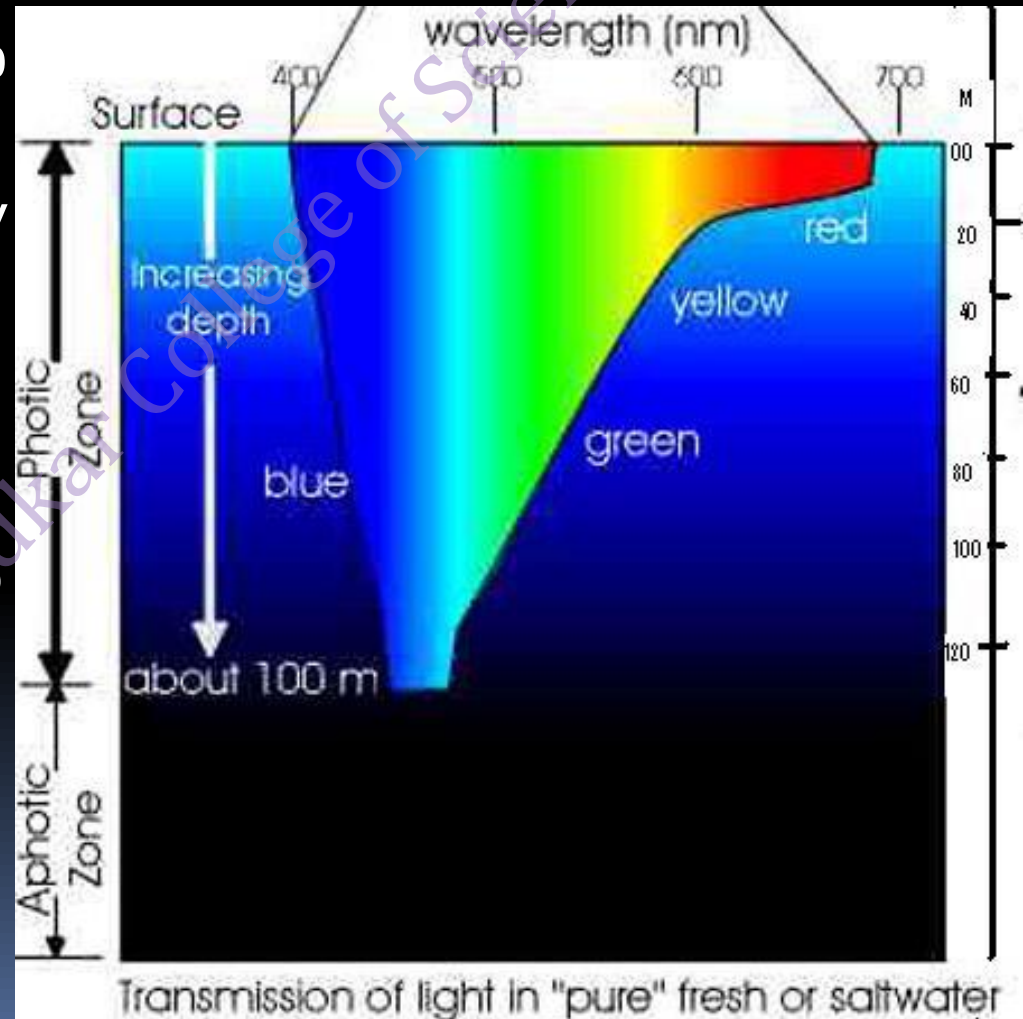


Earth is solar powered

- Visible light – Photosynthesis
- Infra red light – Warmth of earth at high altitudes
- Ultraviolet light – Ionosphere (Ozone layer)
- Light reaching earth depends on angle of incidence, altitude, latitude, season, clouds, fog, suspended particles, dust, water drops, smog (pollution) and time of day.

Aquatic ecosystem

- 45% of red and 2% of blue light is absorbed for every meter of depth.
- **Euphotic zone** (00 to 80 m)
- **Disphotic zone** (80 to 200 m)
- **Aphotic zone** (200 to 5500 m)



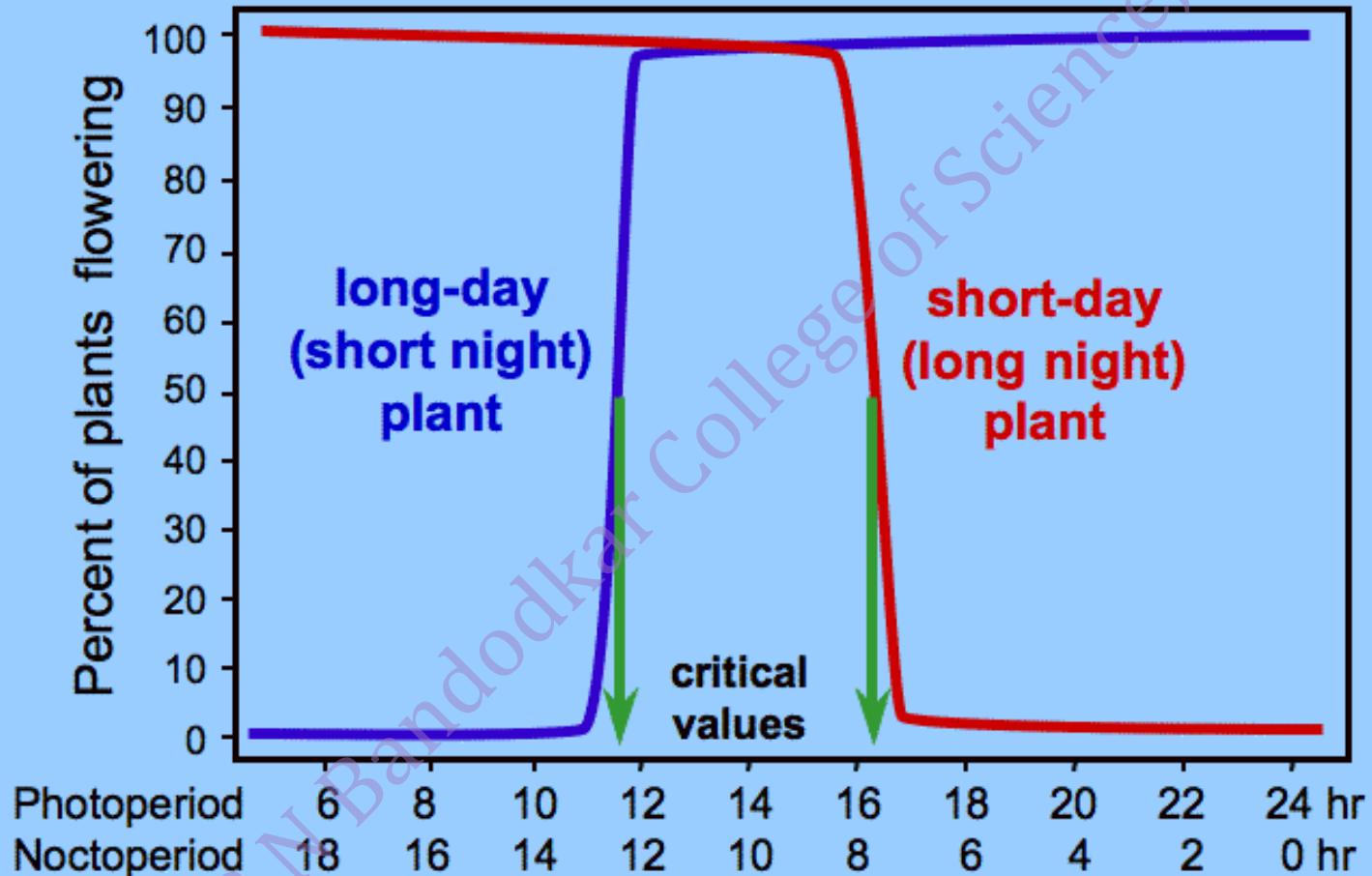
Effect of light on plants

- Photosynthesis –
- Chlorophyll (green pigments) - absorb longer wavelength Red to yellow.
- Carotenoids (red to brown pigments) – absorb blue green wavelengths at depths.

Photoperiodism

- Short day plants – shorter than critical length
e.g. tobacco, hemp
- Long day plants – longer than critical length
e.g. carrot, beat root
- Day neutral plants – unaffected by day light
length. E.g. cotton potato.

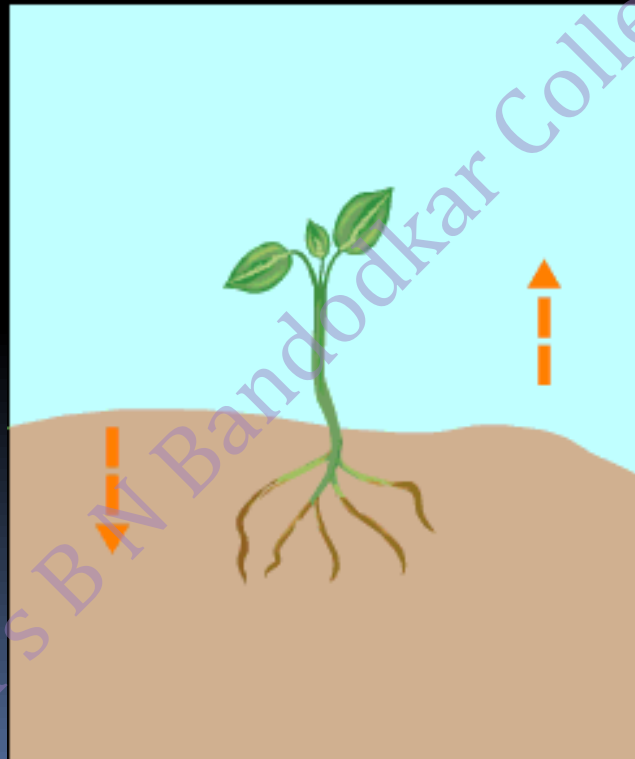
Plants flower in response to day or night length



The shape of the curve...not the critical value...
determines the kind of plant

Phototropism

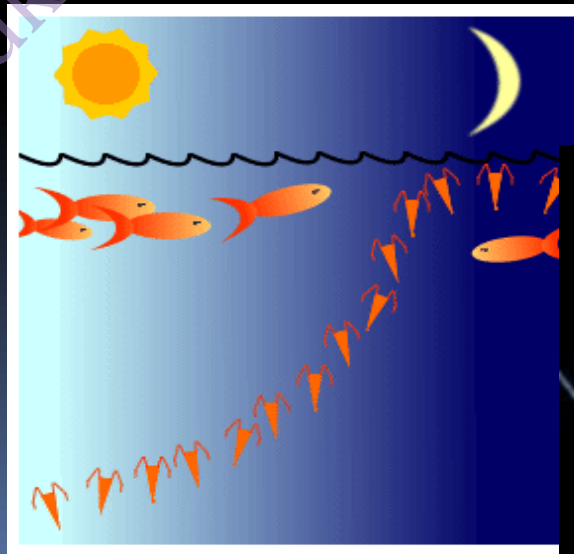
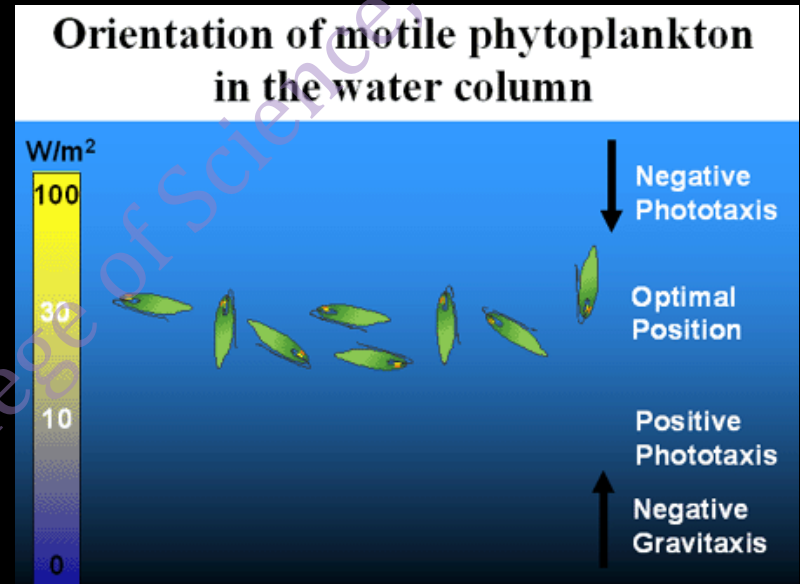
- Positive phototropism
- Negative phototropism



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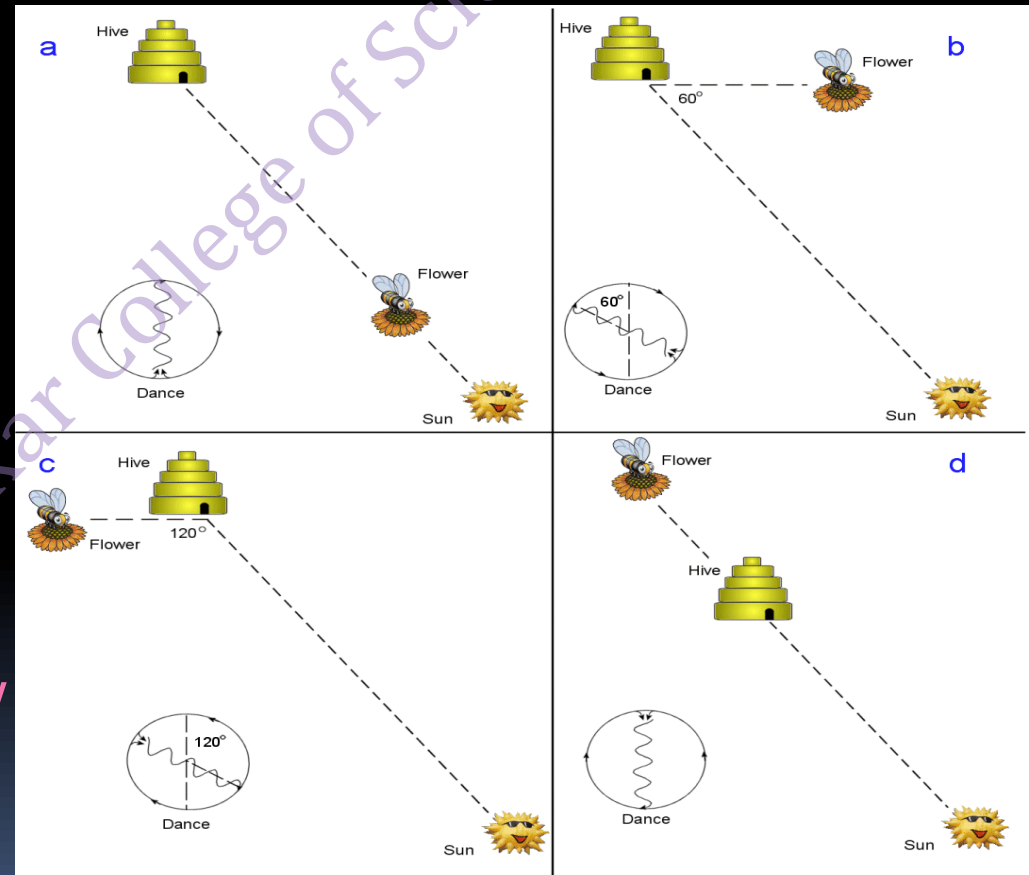
Light also affect animals

- Light affect animal for movement, orientation, coloration, reproduction, development etc.
- Animal movement
 - Phototaxis – vertical plankton migration

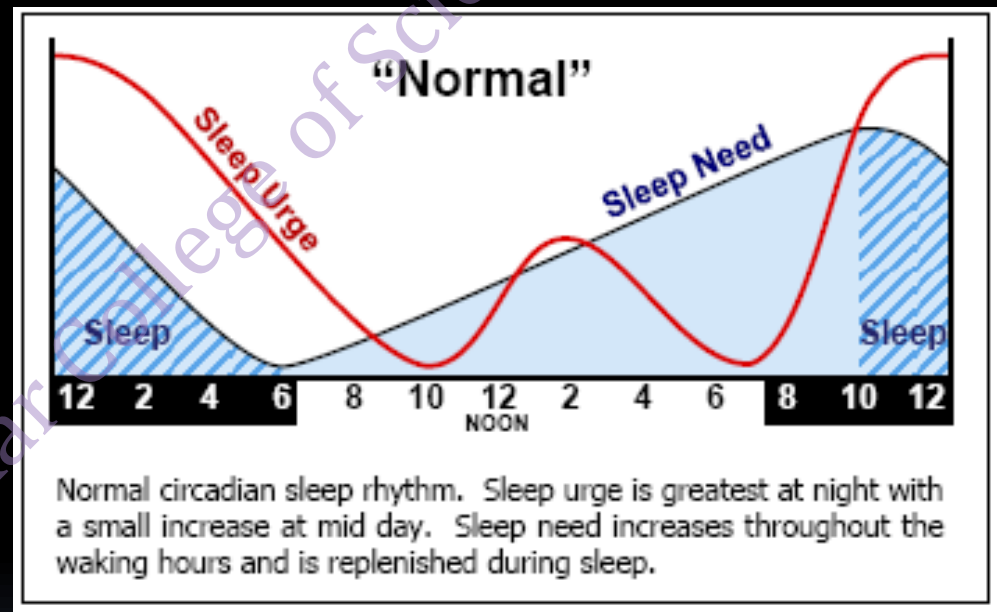




Orientation – migration of birds, fishes and insects

- Like many insects, pigeons and other daytime birds use the position of the sun as their standard cue. Of course, the sun's position depends on the time of day, and birds appear to have an internal time sense enabling them to allow for the westward movement of the sun from morning to night.

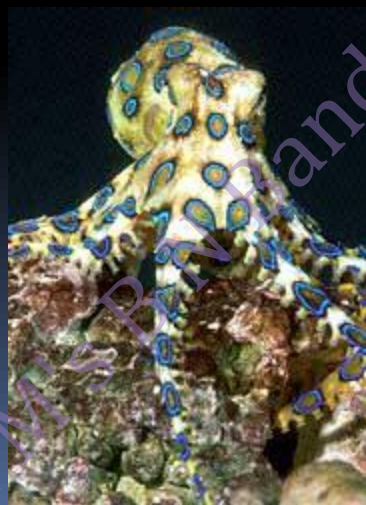


- **Biorhythms** – biological clocks – circadian cycles are controlled by light called as **photoperiodism**.



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- Daylength plays an important role in the seasonal biology of most birds. The timing of their migrations and their annual breeding cycles is closely linked to seasonal changes in daylength.

Coloration of animals depend on the light





Thank you

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