

IELTS READING – The effects of light on plant and animal species S32AT3



IELTS Reading Flawed The effects of light on plant and animal species reading practice test has 10 questions..

Light is important to organisms for two different reasons. Firstly it Is used as a cue for the timing of daily and seasonal rhythms in both plants and animals, and secondly it is used to assist growth in plants.

Questions 27-33

Do the following statements agree with the information given in Passage?

In boxes 27-33 choose your answer from the options below.

TRUEif the statement agrees with the information

FALSEif the statement contradicts the information

NOT GIVENif there is no information on this

27

There is plenty of scientific evidence to support photoperiodism.

28

Some types of bird can be encouraged to breed out of season.

29

Photoperiodism is restricted to certain geographic areas.

30

Desert annuals are examples of long-day plants.

31

Bamboos flower several rimes during their life cycle.

32

Scientists have yet to determine the cue for Chusquea abietifolia's seasonal rhythm.

33

Eastern hemlock is a fast-growing plant.

Breeding in most organisms occurs during a part of the year only, and so a reliable cue is needed to trigger breeding behaviour. Day length is an excellent cue, because it provides a perfectly predictable pattern of change within the year. In the temperate zone in spring, **q34 temperatures** fluctuate greatly from day to day, but day length increases steadily by a predictable amount. **q27 The seasonal impact of day length on physiological responses is called photoperiodism, and the amount of experimental evidence for this phenomenon is considerable.** **q28 For example, some species of birds' breeding can be induced even in midwinter simply by increasing day length artificially (Wolfson 1964).** Other examples of photoperiodism occur in plants. A short-day plant flowers when the day is less than a certain critical length. A long-day plant flowers after a certain critical day length is exceeded. In both cases the critical day length differs from species to species. Plants which flower after a period of vegetative growth, regardless of photoperiod, are known as **q35 day-neutral plants**.

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Breeding seasons in animals such as birds have evolved to occupy the part of the year in which offspring have the greatest chances of survival. Before the breeding season begins, food reserves must be built up to support the energy cost of reproduction, and to provide for young birds both when they are in the nest and after fledging. Thus many temperate-zone birds use the increasing day lengths in spring as a cue to begin the nesting cycle, because this is a point when **q36 adequate food resources** will be assured.

Questions 34-40

Complete the sentences.

Choose **NO MORE THAN THREE WORDS** from the passage for each answer.

Type your answers in boxes 34-40 below.

34

Day length is a useful cue for breeding in areas where

Type correct answers here

are unpredictable.

35

Plants which do not respond to light levels are referred to as

Type correct answers here

36

Birds in temperate climates associate longer days with nesting and the availability of

Type correct answers here

37

Plants that flower when days are long often depend on

Type correct answers here

to help them reproduce.

38

Desert annuals respond to

Type correct answers here

as a signal for reproduction.

39

There is no limit to the photosynthetic rate in plants such as

Type correct answers here

40

Tolerance to shade is one criterion for the

Type correct answers here

of plants in forestry and horticulture.

The adaptive significance of photoperiodism in plants is also clear. Short-day plants that flower in spring in the temperate zone are adapted to maximising seedling growth during the growing season. Long-day plants are adapted for situations that require **q37 fertilization by insects**, or a long period of seed ripening. Short-day plants that flower in the autumn in the temperate zone are able to build up food reserves over the growing season and over winter as seeds. Day-neutral plants have an evolutionary advantage when the connection between the favourable period for reproduction and day length is much less certain. **q30 For example, desert annuals germinate, flower and seed whenever** **q38 suitable rainfall occurs, regardless of the day length.**

The breeding season of some plants can be delayed to extraordinary lengths. **q31 Bamboos are perennial grasses that remain in a vegetative state for many years and then suddenly flower, fruit and die (Evans 1976).** **q32 Every bamboo of the species Chusquea abietifolio on the island of Jamaica flowered, set seed and died during 1884. The next generation of bamboo flowered and died between 1916 and 1918, which suggests a vegetative cycle of about 31 years. The climatic trigger for this flowering cycle is not yet known, but the adaptive significance is clear.** The simultaneous production of masses of bamboo seeds (in some cases lying 12 to 15 centimetres deep on the ground) is more than all the seed-eating animals can cope with at the time so that some seeds escape being eaten and grow up to form the next generation (Evans 1976).

The second reason light is important to organisms is that it is essential for photosynthesis. This is the process by which plants use energy from the sun to convert carbon from soil or water into organic material for growth. The rate of photosynthesis in a plant can be measured by calculating the rate of its uptake of carbon. There is a wide range of photosynthetic responses of plants to variations in light intensity. Some plants reach maximal photosynthesis at one-quarter full sunlight, and others, like **q39 sugarcane**, never reach a maximum, but continue to increase photosynthesis rate as light intensity rises.

Plants in general can be divided into two groups: shade-tolerant species and shade-intolerant species. This **q40 classification** is commonly used in forestry and horticulture. **q33 Shade-tolerant plants have lower photosynthetic rates and hence have lower growth rates than those of shade-intolerant species.** Plant species become adapted to living in a certain kind of habitat, and in the process evolve a series of characteristics that prevent them from occupying other habitats. Grime (1966) suggests that light may be one of the major components directing these adaptations. **q33 For example, eastern hemlock seedlings are shade-tolerant.** They can survive in the forest understorey under very low light levels because they have a low photosynthetic rate.

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