

The Science of Springtime

Learning objective: To understand the seasonal changes in the UK and their impact on plant and animal life cycles.

Read the passage carefully, then answer the questions below. Ensure your answers are written in full sentences, using evidence from the text to support your points.

As the Earth tilts on its axis, the UK experiences the vernal equinox, marking the official start of spring. For Bea the honeybee, this transition is a signal that the dormant period is over. As daylight hours increase, the intensity of solar energy rises, triggering a vital process in deciduous plants known as photosynthesis. Chlorophyll production accelerates, turning branches from barren brown to vibrant green. Beneath the soil, rising temperatures encourage the germination of seeds that have rested throughout the winter months. Many animals, such as hedgehogs, emerge from hibernation, their internal clocks synchronised with the changing environment. Meanwhile, the increase in nectar-rich blossoms provides the essential fuel for pollinators like Bea. This is a delicate biological symphony; if spring arrives earlier due to fluctuating temperatures, the timing between emerging insects and blooming flowers can become misaligned. This shift challenges the survival of many species, as the ecosystem relies on perfect synchronicity to maintain its balance. Observing these patterns allows us to appreciate how light and temperature dictate the rhythm of life in our natural world.

Word bank: germination · photosynthesis · equinox · hibernation · pollination · deciduous

1. Identify two environmental changes mentioned in the text that signal the arrival of spring. (2 marks)

2. According to the passage, what specific event occurs in deciduous plants as solar energy increases? (2 marks)

3. Explain why the timing of spring is described as a 'delicate biological symphony'. (3 marks)

4. What might happen to the local ecosystem if the arrival of pollinators and the blooming of flowers fall out of synchronisation? Justify your reasoning. (3 marks)

5. Do you agree that climate change poses a significant threat to the 'rhythm of life' described by Bea? Justify your answer using evidence from the text. (4 marks)

Draw: Draw a labelled scientific diagram showing the life cycle of a spring plant, including the sun providing energy for photosynthesis and a pollinator visiting a flower.



Extension challenge: Research the term 'phenology'. Write a paragraph explaining how scientists use phenology to track the effects of climate change on spring arrival dates in the UK.