

How Does a Beehive Stay So Cool?

Learning objective: To understand the structural and linguistic features of an explanation text.

Read the text carefully and answer the questions below. Ensure you use evidence from the text to support your answers.

Have you ever wondered how a busy beehive stays cool during a sweltering summer day? Inside the hive, thousands of honeybees work together to maintain a constant temperature of 35°C, which is essential for the survival of their larvae. When the outside temperature rises, the colony initiates a clever process called evaporative cooling. First, scout bees fly to a nearby water source and collect droplets, carrying them back to the hive in their honey stomachs. Once inside, they deposit the water onto the honeycomb cells.

Simultaneously, other bees position themselves near the entrance and begin to fan their wings rapidly. This rhythmic motion creates powerful air currents, circulating the air through the hive. As the air passes over the water droplets, the liquid evaporates, absorbing heat and lowering the temperature inside the hive. This complex system of ventilation and evaporation allows the colony to thrive even in extreme heat. By working as a team, the bees ensure their home remains the perfect environment for their developing family, proving that nature is the ultimate engineer.

Word bank: thermoregulation · evaporation · colony · ventilation · metabolism

1. At what specific temperature does the colony try to keep the inside of the beehive? (1 mark)

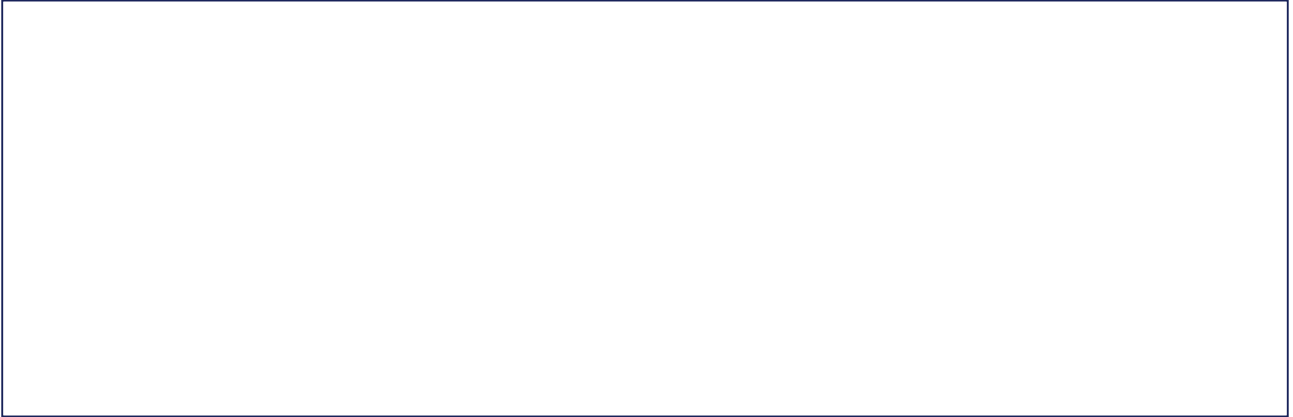
2. What are the two main steps the bees take to lower the temperature of the hive? (2 marks)

3. Why do the bees need to keep the hive at a constant temperature? (2 marks)

4. Explain why the author describes the bees as 'the ultimate engineer'. (2 marks)

5. Do you think the bees' ability to work together is more important than their ability to fly? Justify your answer. (3 marks)

Draw: Draw a diagram of a beehive showing the bees fanning their wings at the entrance and water droplets on the honeycomb, using arrows to show the flow of cool air.



Extension challenge: Research another animal that uses a unique method to regulate its body temperature. Write a short paragraph explaining the process using technical vocabulary.