Hive Cooling Crew

Trace a cause-and-effect process in a science text.

4.RI.1.B "Summarize events, procedures, ideas, or concepts in historical, scientific, or technical texts, including what happened and why."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the actions bees take, circle words that tell why they take them, and number the main steps 1 to 4 so you can summarize the cooling process.

How Bees Cool a Hive

1. On a hot day, a honey bee colony must keep its nest from overheating. Developing young bees need a steady temperature, and soft wax comb can sag when it gets too warm. Worker bees notice the rising heat. Some leave the hive to find water, while others gather near the entrance and begin beating their wings.

2. Water collectors carry water back to the hive and place droplets on the wax cells. Other workers spread the water into tiny drops across the comb. At the same time, fanning bees push air through the hive. The moving air passes over the drops, so some water changes from liquid to vapor. This change pulls heat away from the nest.

3. The colony keeps fanning and adding water until the nest cools. If the day becomes less hot, fewer bees need to do these jobs, and they can return to collecting food or caring for young. This teamwork helps the colony protect its brood and comb. It also shows that cooling works because evaporation and moving air carry heat away.

2 ANSWER WITH EVIDENCE

Use the passage

1. In one sentence, summarize what the bees do when the heat first rises and why.

2. Summarize the change that happens to the water and explain why it matters to cooling.

3. How does the colony's work change after the nest cools? Summarize this event and why it happens.

4. Write a two-sentence summary of the whole hive-cooling process. Include the main steps and why the process helps the colony.

3 YOUR TURN

Your own words

Create a four-step flowchart that summarizes how bees cool a hive. Use arrows between the steps, and make your last step explain why the process helps the colony.

ANSWER KEY

Hive Cooling Crew

GRADE 4 · 4.RI.1.B

PART 1 · READ AND MARK

Underline the actions bees take, circle words that tell why they take them, and number the main steps 1 to 4 so you can summarize the cooling process. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	In one sentence, summarize what the bees do when the heat first rises and why.	**Some workers collect water while others fan their wings because the colony must protect its young bees and wax comb from heat.**
2	Summarize the change that happens to the water and explain why it matters to cooling.	**Air passes over water droplets and changes some water to vapor. This evaporation pulls heat away from the nest.**
3	How does the colony's work change after the nest cools? Summarize this event and why it happens.	**Fewer bees cool the hive, and more can collect food or care for young because the day is less hot and the nest no longer needs as much cooling.**
4	Write a two-sentence summary of the whole hive-cooling process. Include the main steps and why the process helps the colony.	**When a hive gets hot, some bees bring water while others fan air through the nest. Water droplets evaporate in the moving air, taking heat away and protecting the brood and wax comb.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Heat rises in the hive → Workers fetch water and fan their wings → Water spreads into droplets as air moves over it → Water evaporates, taking heat away and protecting brood and wax comb.

Accept summaries that include the main cooling actions, evaporation, and the reason cooling protects the colony. Students may use different step labels or wording if their sequence and cause-and-effect explanation are accurate.