

Some people keep homing pigeons for sport. Birds are taken hundreds of miles away from their home in a lorry, and then they are all released together. The owner of the first bird to fly back to its own loft wins the pigeon race.

How do all these birds find their way home? Some scientists think that the birds use the angle of the Sun to tell them which way to go. Other scientists think that the birds use the Earth's magnetic field.

German scientists tried an experiment to find out if pigeons used magnetism or the Sun. They hatched three sets of pigeons. Group A grew up normally, and could see the Sun all day. Groups B and C only saw the Sun in the afternoons. The birds were taken a long way from home, and released on a sunny morning.



- The birds in Group A flew straight home.
 - Group B birds, which had never seen the angle of the Sun in the morning, also flew home normally.
 - Group C birds had small magnets glued to their backs. These magnets were strong enough to stop the pigeons detecting the Earth's magnetism. The birds in this group could not find their way back home.
- 1 Draw a sketch to show the shape of the Earth's magnetic field.
 - 2 There are two things scientists think that pigeons might use to find their way home. What are they?
 - 3 After the experiment, the scientists concluded that the pigeons in Group B were not using the Sun to find their way home.
 - a Why did they decide this?
 - b Suggest why the scientists used the Group A pigeons.
 - 4 How did the Group C pigeons show that pigeons normally use the Earth's magnetism to find their way?
 - 5 Many animals are thought to navigate using the position of the Sun. Explain why these animals need to have an internal 'clock' so that they also know what time of day it is.
 - 6 Animals often use more than one type of clue to help them to navigate. These clues include a sense of smell ('olfaction') and remembering landmarks as well as using the Sun or the Earth's magnetic field.

Suggest why an animal might use more than one type of clue to find its way.
 - 7 Optional extra: Find out about two different animals that navigate over long distances. Write a couple of sentences for each one to describe how they find their way. Organisms you could investigate include: salmon, honey bees, monarch butterflies, arctic terns, humpback whales.

I can...

- interpret results from experiments
- describe some methods of animal navigation.