

11–14 years

Tricky tracks: observation and inference in science



Learning objectives

1. Distinguish between observation and inference.
2. Recognise that scientific theories develop over time when new evidence becomes available.

Observation and inference in science

When drawing a conclusion, you need to take care that it is consistent with the evidence.

As part of this you need to know the difference between an observation and an inference.

- An **observation** is what is actually seen.
- An **inference** is interpreting what is seen.

How science works

Scientists are always putting forward ideas or theories to try to explain the things they see happening in the world.

Scientists often test their ideas and theories by carrying out some experiments.

Sometimes new ideas or evidence come along which do not fit the old ideas. So more experiments have to be carried out to see if the new idea is correct.

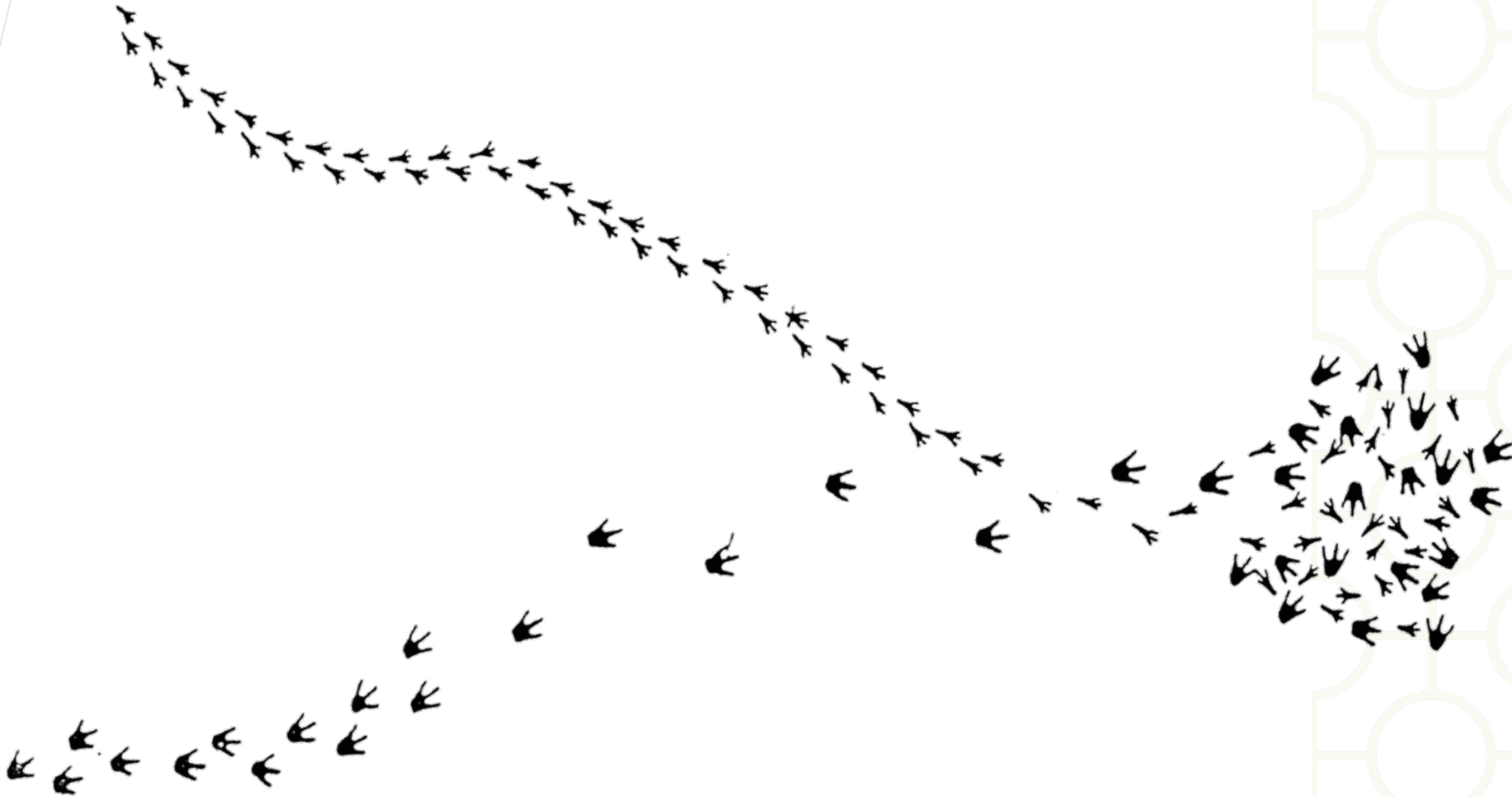
The problem

A team of scientists have found some fossilised footprints.

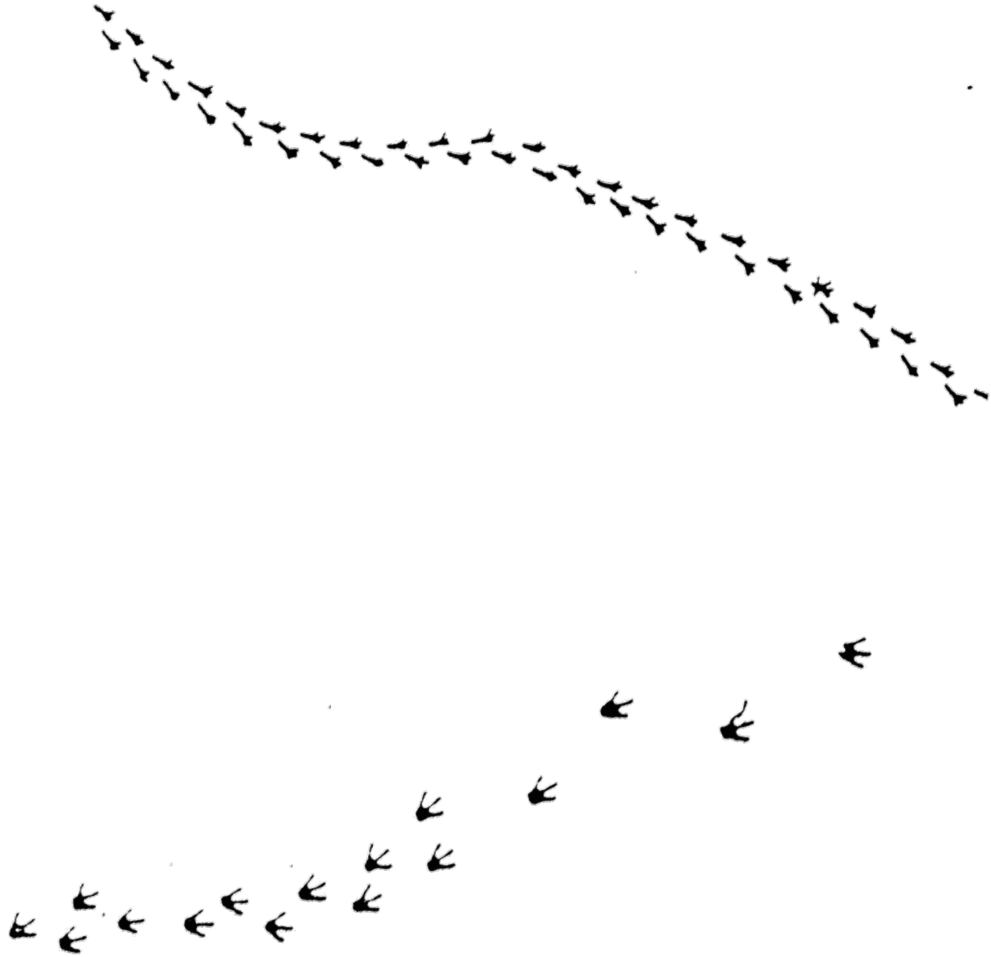
By observing the shape, size and arrangement of the footprints it is possible to infer what happened.

Your challenge is to work out what happened on that day 10,000 years ago when the footprints were made

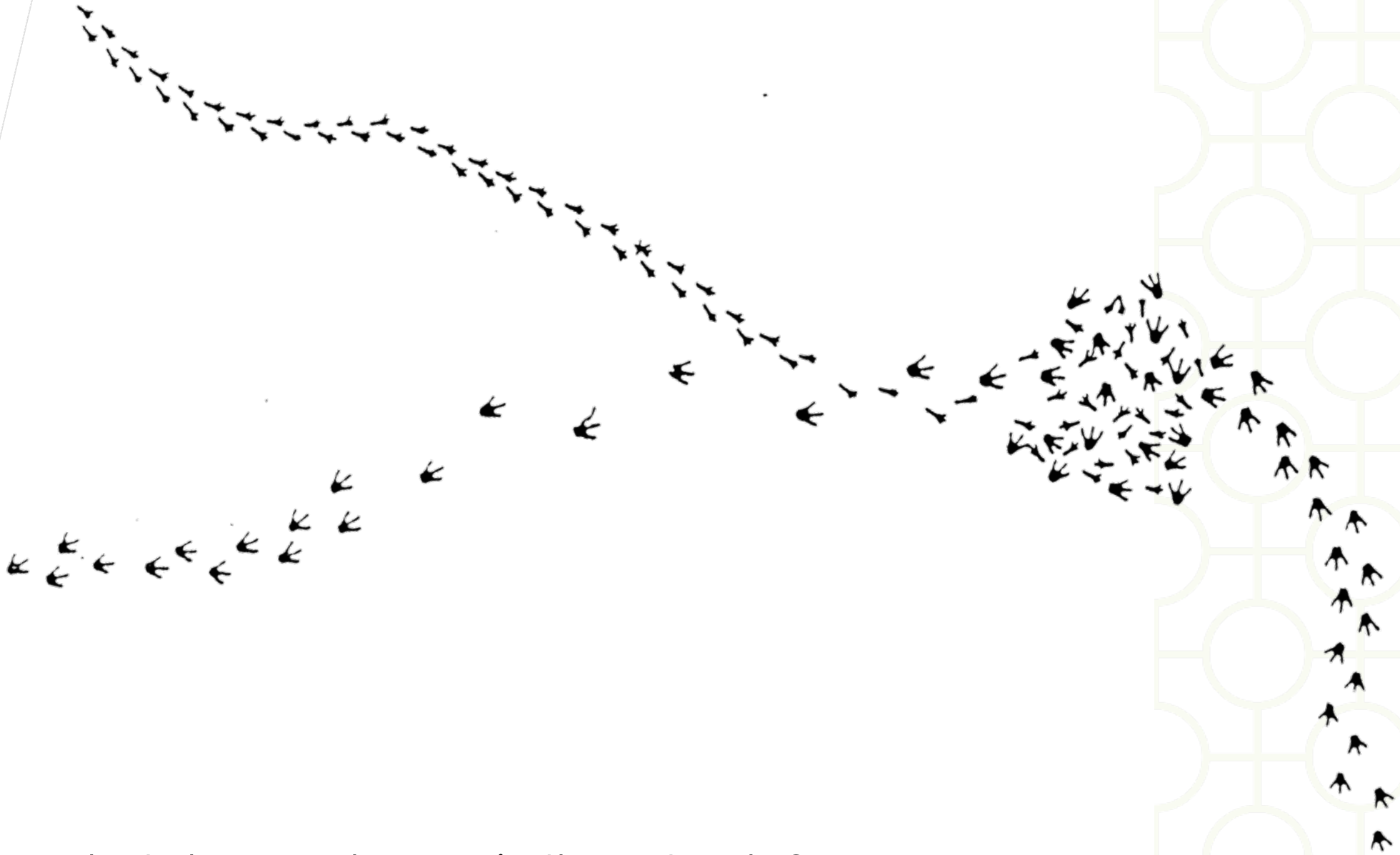




1. Carefully study the tracks and write a short account of what you think has happened.



2. What do you observe in these tracks?
3. Why are the two animals heading towards the same point?



4. What do you observe in these tracks?



Discussion

What is the answer to question 1?

All answers to question 1 are acceptable.

This is because the question asks what you *think*.

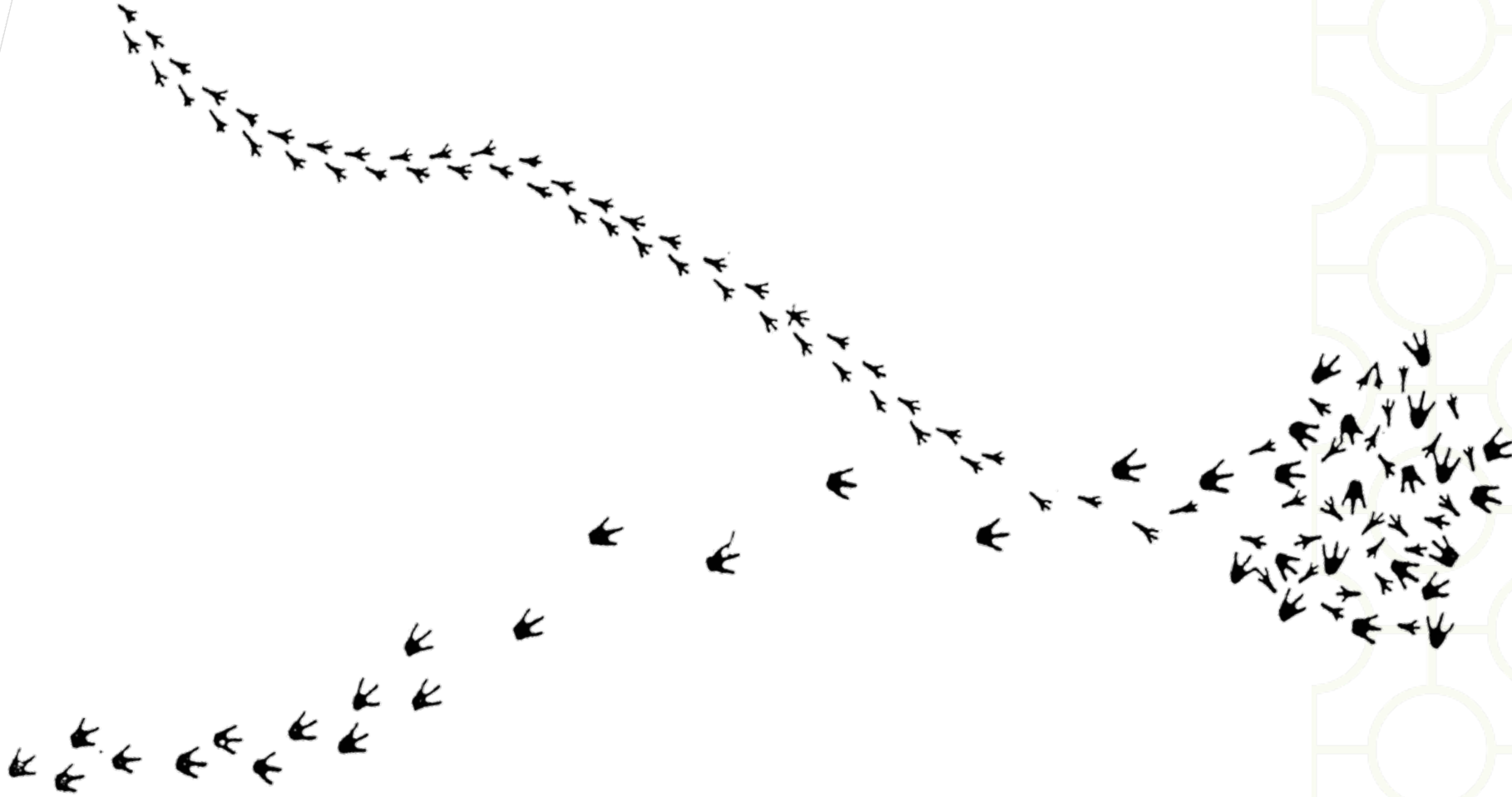
Now look at your answers to questions 2 and 4.

What is different about these questions?

Question

1. Carefully study Tricky tracks 1. Write a short account of what you think has happened.

One day a large male dinosaur was out looking for food. As he was searching a small area he noticed a beautiful female dinosaur coming towards him. It was love at first sight. Being a little shy, he hid behind a rock and when she got closer he jumped out and introduced himself. At first she was afraid, she thought that he was going to attack her and she tried to escape. But when he spoke and told her not to be afraid, they sat down on the rock and had a good chat.



5. Look at these tracks again. What do you **observe**?

What next?

6. Based on what you have found out so far, do you think we can ever know what has really happened?
7. What can you do to find out more about the situation?