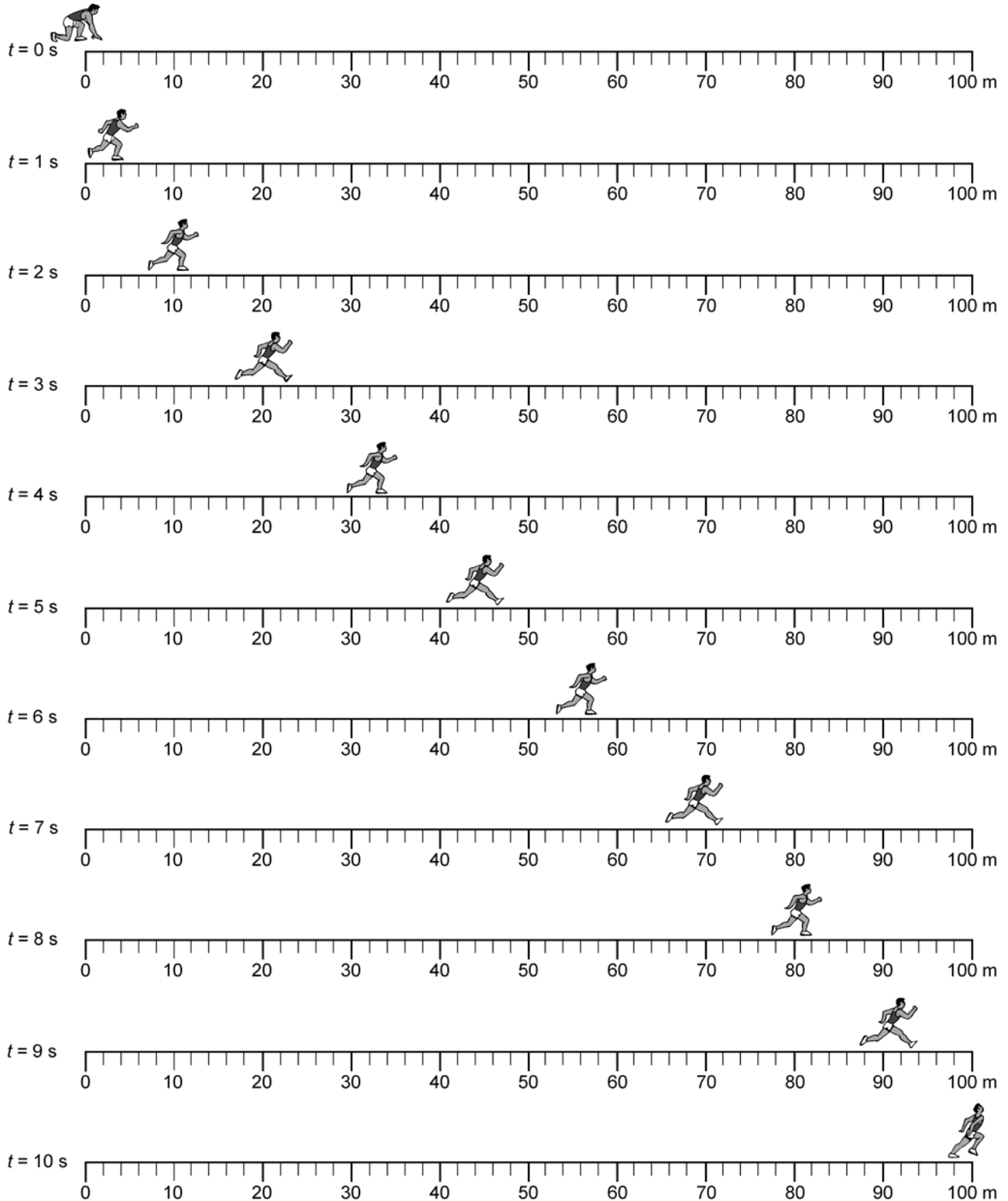


Activity AP4.11 A 100 m race

These drawings show a sprinter running a 100 m race. They are from photographs taken at intervals of 1.0 seconds.

There is a scale so that you can see exactly where the sprinter is at each moment.

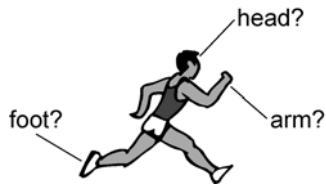


Activity AP4.11 A 100 m race

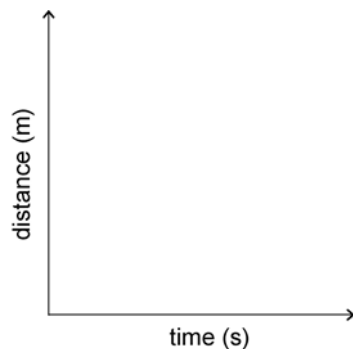
You are going to draw a distance–time graph.

To do

- 1 Examine each picture carefully.
- 2 Which point on the sprinter's body would be best to use as a reference point? (This is the point you will use to decide the distance the sprinter has run.)



- 3 Make a table of the distance run and the time taken.
- 4 Use the pictures to fill in the table.
- 5 Plot a distance–time graph of the sprinter's motion.



To answer

(using your graph)

- 6 Did the sprinter's speed change during the race?
- 7 Describe how the motion changed.
- 8 At what time (roughly) did he cross the finish line?
- 9 Calculate his average speed for the whole race:

$$\text{average speed} = \frac{\text{total distance}}{\text{total time}}$$