

Student Name:

Catch me if you can!

Introduction

Usain Bolt has recorded a time of 9.58 seconds in the 100 metre sprint. This makes him the fastest man ever over 100 metres.

Leading up to the Olympic Games in 2021 many athletes are training extremely hard to break Usain Bolt's time.

Now it's your chance!

Today you will be using a combination of your Maths, Science and Physical Education skills to see how close to Usain Bolt you can get.

Good luck!



Equipment required

		✓ / ✗
1 x measuring tape (or ruler)		
4 x cones	If you don't have any cones get creative (drink bottles, cans etc.)	
Stop watch	Free app "stop watch" available at the app store	

Set up

Set up your running track	Using a measuring tape , measure out a running track that is exactly 10 metres. <ul style="list-style-type: none">- For the experiment to work properly the course must be exactly 10 metres.- Use a cone to indicate the start and end point of the 10 metre sprint.
Set the time	You could use: <ul style="list-style-type: none">- A stop watch.- The timer on your iPad or mobile phone.- Download the free "Stop Watch" app to your smart phone device.
Find a helper	Ask either a sibling, parent, grandparent or guardian to take on the role as your " official timer ". <ul style="list-style-type: none">- Their role will be to use the timer to record how long it takes you to sprint 10 metres.- They will have to take 10 separate recordings.

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Experiment method

Step 1	Start by warming up your body. <ul style="list-style-type: none">- Spend 5 minutes stretching your muscles and doing a few warm up activities.
Step 2	Get ready! <ul style="list-style-type: none">- Stand at the start line and get ready for your first 10 metre sprint.
Step 3	When you and your official timer are ready, it is time to complete the first sprint. <ul style="list-style-type: none">- The official timer measures how long it takes you to sprint 10 metres.
Step 4	Record your first sprint trial in the results table. <ul style="list-style-type: none">- Record your results to the nearest hundredth.- Example: 2.34 seconds
Step 5	Rest <ul style="list-style-type: none">- Take exactly 1 minute to rest after your sprint.- This will give you time to get ready for your next sprint.
Step 6	Repeat steps 2-5 <ul style="list-style-type: none">- Complete all 10 x 10 metre sprints.- Record all results.
Step 7	Finish up by cooling down your muscles. <ul style="list-style-type: none">- Spend 5 minutes stretching your muscles and doing a few cool down activities.

Data entry

Enter your time (seconds) to the nearest hundredth for each of the 10 x 10 metre trials.

	Time (seconds)
Sprint 1	
Sprint 2	
Sprint 3	
Sprint 4	
Sprint 5	
Sprint 6	
Sprint 7	
Sprint 8	
Sprint 9	
Sprint 10	
Total Time	

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Data analysis

1. Enter your results for each category below:

Total time – seconds (s)	
Fastest 10 metre sprint (s)	
Slowest 10 metre sprint (s)	

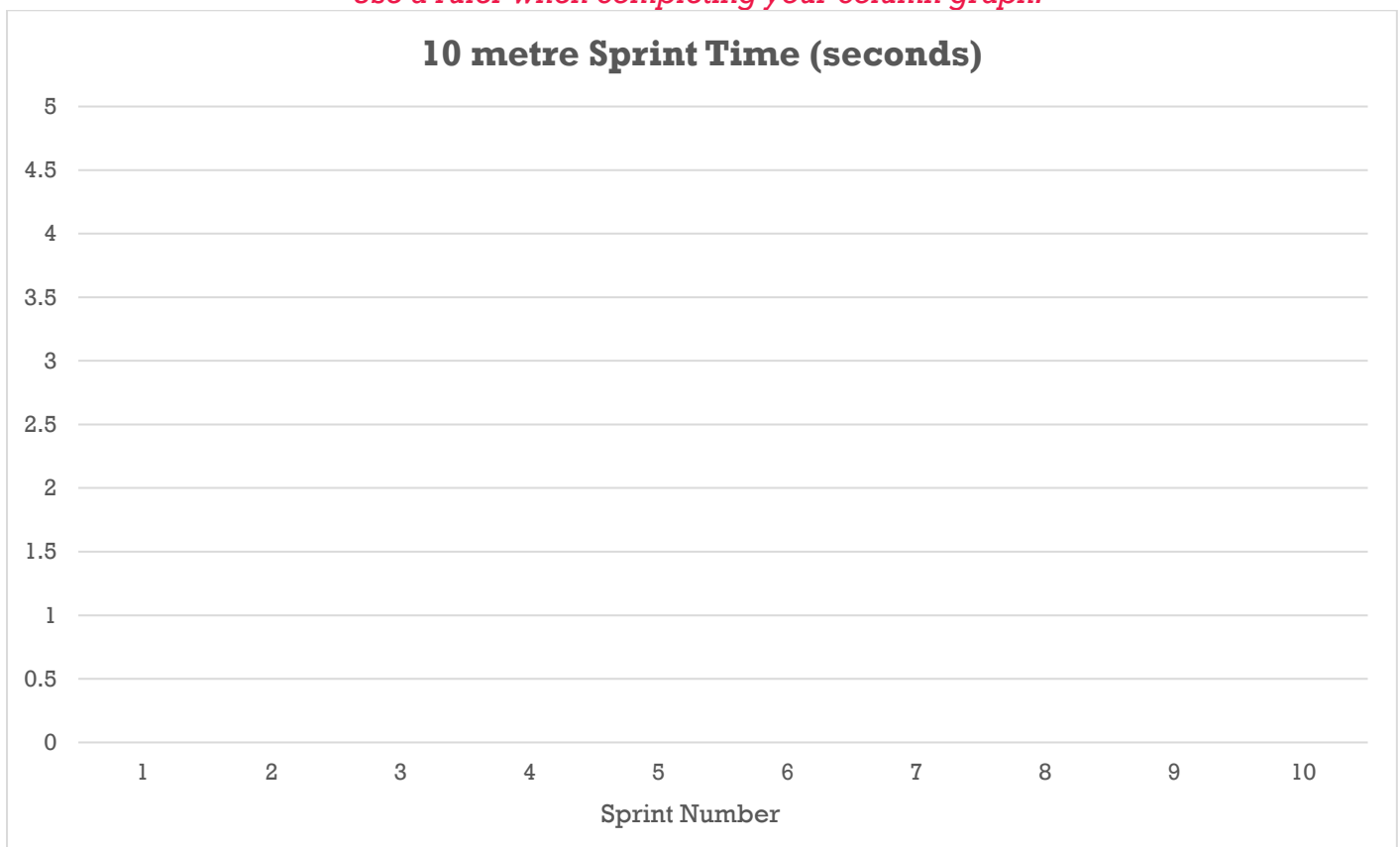
2. Record the range of your data.

$$\text{Range} = \text{Fastest time} - \text{Slowest time}$$

Range of results	
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3. Create a column graph comparing all of your 10 metre sprint times.

Use a ruler when completing your column graph.



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4. Explain what the column graph tells you about your 10 metre sprint times.

Data comparison

1. Enter your results for each category below:

Usain Bolts 100 metre time	9.58 seconds
My 100 metre total time	seconds

2. Record the difference between your time and Usain Bolts time.

$$\text{Difference} = \text{Fastest 100 metre time} - \text{Slowest 100 metre time}$$

Difference of results	
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The Table below shows Usain Bolts 10 metre splits in his record breaking 100 metre sprint.

	10 metre splits
0-10 metres	1.89 seconds
10-20 metres	0.99 seconds
20-30 metres	0.90 seconds
30-40 metres	0.86 seconds
40-50 metres	0.83 seconds
50-60 metres	0.82 seconds
60-70 metres	0.81 seconds
70-80 metres	0.82 seconds
80-90 metres	0.83 seconds
90-100 metres	0.83 seconds
Total time	9.58 seconds

3. Why is Usain Bolt's first 10 metre split much slower than the other nine?

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4. Identify three reasons your 100 metre total time is slower than Usain Bolts.

1	
2	
3	