

Document 1: How to compare to an Olympian? (PDST)



Usain Bolt
Winner Men's 100m
9.81seconds



Tianna Bartoletta
Winner Women's Long Jump
7.17metres



Michelle Carter
Winner Women's Shot Put
20.63 metres



Ryan Crouser
Winner Men's Shot Put
22.52 metres



Usain Bolt
Men's 100m
9.81sec

- How long is 9.81 seconds? Time it and see.
- What can you do in 9.81secs?
- How far is 100m?
- How long does it take you to run it?
- How about your mum, dad or sibling?
- Can you increase your speed? If so, how?



Tianna Bartoletta
Women's Long Jump
7.17m

- How far is a jump of 7.17m? Measure it.
- If you jump from the starting point, where do you land within 7.17m?
- Can you work out the fraction or percentage of an Olympian jump you can reach?



Michelle Carter
Women's Shot Put
20.63m

- How far is a throw of 20.63m? Measure it.
- Can you throw a ball that far?
- How far from the starting point will your ball land within the measured distance?
- Does it matter which ball you use?



Ryan Crouser
Men's Shot Put
22.52m

- How far is a throw of 22.52m? Measure it.
- How far can you throw a tennis ball?
- What fraction or percentage of an Olympian throw can you reach?
- Can you improve your throw? If so, how?

Document 2: Videos

ACTIVITIES:

1) **Homework:** Choose an Olympian from the document 1 and compare your abilities and his or her abilities by trying to perform and answering the questions. If you prefer you can choose another athlete, find online his or her performances and test yourself to compare your result to her or his.

For the feedback: You have to measure your result, time or length... and you must be able to present the athlete and to compare your and his performances (1 minute)

Choose: “easy-peasy” or “challenging”

2) **Group work: (easy-peasy: by group of four) if it’s possible, choose similar sports to form the groups**

Imagine you want to participate to the Olympics; you will need to improve your performances. Put forward a training for you and your classmates. **You can use your knowledge about the sport, internet, you can even ask to your P.E. teacher.**

6) **Group work: (challenging: by group of four) carry out a video analysis on sports**

- You need to evaluate your progress during your training, so what parameters will you record to monitor improvements?
- Plan an experiment to improve your technique, you can film or/and use the sensors of your smartphone (apps: your camera, phyphox, physics toolbox suite ...)

choose a simple physical movement (jump vertically to reach the ceiling, throwing a ball, pointe dancing, one-foot standing, one-foot jumping ...)

record videos of members of the group practising the chosen movement

Analyse the recorded videos in order to:

- understand the physics phenomena which take place in the movement in terms of speed, celerity, acceleration, forces, energies, works
- compare the movement of the different members of the group
- prepare a presentation of the group analysis for the rest of the class

3) Feedback: Students present the training or their experiment to the class.

4) **Group work: (by group of four) study videos or articles about training with videos and sensors**

- Choose between:
 - A) a video about sensors for hokey
 - B) a video about scientific training
 - C) two articles about AI and sports
- Divide the work between students.
- Watch the video and answer the questions.



5) **Homework:** Prepare a one-minute speech about this key point.

**Key point: Why sensors and video analysis are important for sport coaching?
Are sensors useful for your personal training?**

PERSONAL WORDS: