

Exploring the winning data: the Olympic 100 m sprint

Performances in athletic events have steadily improved since the Olympics first started in 1896. Chemists have contributed to these improvements in a number of ways. For example, the design of improved materials for clothing and equipment; devising and monitoring the best methods for training for particular sports and gaining a better understanding of how energy is released from our food so ensure that athletes get the best diet.



Figure 1 Image of a gold medallist in the Olympic 100 m sprint.

Year	Winner (Men)	Time (s)	Winner (Women)	Time (s)
1896	Thomas Burke (USA)	12.0		
1900	Francis Jarvis (USA)	11.0		
1904	Archie Hahn (USA)	11.0		
1906	Archie Hahn (USA)	11.2		
1908	Reginald Walker (S Africa)	10.8		
1912	Ralph Craig (USA)	10.8		
1920	Charles Paddock (USA)	10.8		
1924	Harold Abrahams (GB)	10.6		
1928	Percy Williams (Canada)	10.8	Elizabeth Robinson (USA)	12.2
1932	Eddie Tolan (USA)	10.38	Stanislawa Walasiewicz (POL)	11.9
1936	Jessie Owens (USA)	10.30	Helen Stephens (USA)	11.5
1948	Harrison Dillard (USA)	10.30	Fanny Blankers-Koen (NED)	11.9
1952	Lindy Remigino (USA)	10.78	Majorie Jackson (USA)	11.5
1956	Bobby Morrow (USA)	10.62	Betty Cuthbert (AUS)	11.4
1960	Armin Hary (FRG)	10.32	Wilma Rudolph (USA)	11.3
1964	Robert Hayes (USA)	10.06	Wyomia Tyus (USA)	11.2
1968	James Hines (USA)	9.95	Wyomia Tyus (USA)	11.08
1972	Valeriy Borzov (USSR)	10.14	Renate Stecher (GDR)	11.07
1976	Hasely Crawford (Trinidad)	10.06	Anneqret Richter (FRG)	11.01
1980	Allan Wells (GB)	10.25	Lyudmila Kondratyeva (USA)	11.06
1984	Carl Lewis (USA)	9.99	Evelyn Ashford (USA)	10.97
1988	Carl Lewis (USA)	9.92	Florence Griffith-Joyner (USA)	10.62
1992	Linford Christie (GB)	9.96	Gail Devers (USA)	10.82
1996	Donovan Bailey (Canada)	9.84	Gail Devers (USA)	10.94
2000	Maurice Green (USA)	9.87	Eksterine Thanou (GRE)	11.12
2004	Justin Gatlin (USA)	9.85	Yuliya Nesterenko (BLR)	10.93
2008	Usain Bolt (Jam)	9.69	Shelly-Ann Fraser (Jam)	10.78
2012	Usain Bolt (Jam)	9.63	Shelly-Ann Fraser (Jam)	10.75

Questions

1. What factors do you think will affect athletic improvement?
2. Why is there not a steady increase in performance year on year?
3. Plot a graph of the winning Olympic times against the year.
4. Using your graph, describe the differences between the men's and women's times.

Resource adapted from the Chemistry and Sport leaflet (part of the Chemistry Now Series) – as is student sheet below.

Data source: www.databaseolympics.com