

Marathon Maths;

Peak Age

What is the best age to run a fast marathon?

The tables below show the world record marathon times for each age category. You will use this data to solve the problems throughout this activity.

Table 1: Men's Marathon Age Category World Records

AGE	NAME	COUNTRY	RACE DATE	RACE LOCATION	DATE OF BIRTH	AGE GROUP	TIME
9	Wesley Paul	United States	12/16/1978	Huntsville AL, United States	1/25/1969	Men 10 and Under	02:56:57
18	Tsegaye Mekonnen	Ethiopia	1/25/2013	Dubai, UAE	6/15/1995	Men 11-19	02:04:32
29	Emanuel Mutai Kipchirchir	Kenya	9/28/2014	Berlin, Germany	10/12/1984	Men 20-29	02:03:13
33	Eliud Kipchoge	Kenya	9/16/2018	Berlin, Germany	11/5/1984	Men 30-39	02:01:39
42	Mark Kiptoo	Kenya	10/28/2018	Frankfurt, Germany	6/21/1976	Men 40-49	02:07:50
50	Titus Mamabolo	South Africa	7/20/1991	Durban, South Africa	1/11/1941	Men 50-59	02:19:29
60	Yoshihisa Hosaka	Japan	2/1/2009	Oita, Japan	1/5/1949	Men 60-69	02:36:30
73	Ed Whitlock	Canada	9/26/2004	Toronto ON, Canada	3/6/1931	Men 70-79	02:54:48
80	Ed Whitlock	Canada	10/16/2011	Toronto ON, Canada	3/6/1931	Men 80-89	03:15:53
92	Fauja Singh	England	9/26/2003	Toronto, Canada	4/1/1911	Men 90+	05:40:04

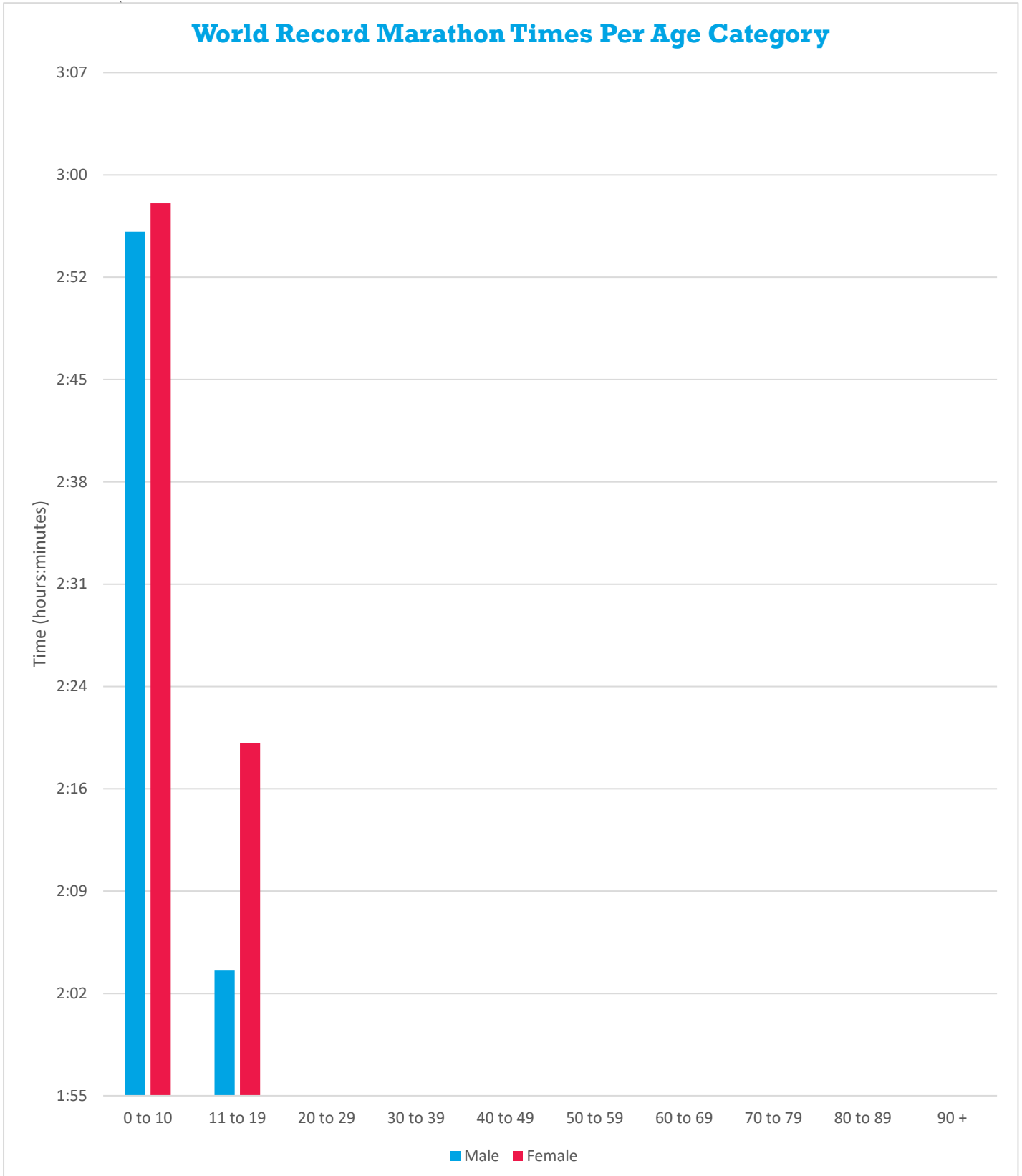
Table 2: Women's Marathon Age Category World Records

AGE	NAME	COUNTRY	RACE DATE	RACE LOCATION	DATE OF BIRTH	AGE GROUP	TIME
10	Julie Mullin	United States	2/16/1977	Seaside OR, United States	8/30/1966	Women 10 and under	02:58:01
19	Demise Shure Ware	Ethiopia	1/23/2015	Dubai, UAE	1/21/1996	Women 11-19	02:20:59
25	Brigid Kosgei	Kenya	10/13/2019	Chicago, United States	2/20/1994	Women 20-29	02:14:04
35	Mary Jepkosgei Keitany	Kenya	4/23/2017	London, England	1/18/1982	Women 30-39	02:17:01
40	Mariyia Konovalova	Russia	3/8/2015	Nagoya, Japan	8/14/1974	Women 40-49	02:22:27
55	Joan Benoit Samuelson	United States	4/15/2013	Boston, Mass, United States	5/16/1957	Women 50-59	02:50:33
61	Mariko Yugeta	Japan	12/8/2019	Saitama, Japan	5/13/1958	Women 60-69	02:56:54
70	Jeannie Rice	United States	10/7/2018	Chicago, Ill, United States	4/14/1948	Women 70-79	03:27:50
81	Yoko Nakano	Japan	2/26/2017	Tokyo, Japan	1/12/1936	Women 80-89	04:11:45
90	Betty Jean McHugh	United States	12/10/2017	Honolulu, Hi, United States	11/7/1927	Women 90+	07:03:59

Plotting Data

1. Plot the race times for male and female athletes in each category on the chart below

- a) The first three age categories have already been plotted to help you get started
- b) Your challenge is to plot the remaining data points from the results tables above



Looking For Patterns in Data

2. Use the graph to describe the relationship between age and world record marathon times (describe in writing what the graph is telling you).

3. Use the graph to make a conclusion about the peak age for marathon running.

- a) What is the peak age (the fastest age) for male marathon runners? Use the results table, and explain the pattern on graph, that led you to this conclusion.

- b) What is the peak age (the fastest age) for female marathon runners? Use the results table, and explain the pattern on graph, that led you to this conclusion.

4. Is the peak age different for males and females? _____

- a) Suggest at least two ideas why the peak age might be different for male and female athletes.

Extra Challenge!

5. The data plotted is for world record athletes:

- a) **Would you expect the same times for the majority of people competing in the Melbourne Marathon? Yes / No (circle your answer).**

Explain your answer

- b) **Would you expect the same trend/pattern (relationship between age and race time) for the majority of people competing in marathons? Explain your answer.**

6. **Conduct your own research online to find out what the peak marathon age is for the average male and female. You might find some different opinions on this.**

Describe three reasons, that you discovered online, that might help an athlete to run a faster marathon at their peak age?

- a)

- b)

- c)
