Right now, 488 Australian athletes are representing the nation at the Tokyo Olympics Games. Our amazing green and gold team mates will participate in events such as swimming, athletics, basketball, sailing and more. We're hoping they'll bring back some shiny new gold medals!

Today, we need your help to answer some maths and sport trivia questions. When athletes aren't competing or training, they're doing maths to figure out how to get the best result for their event at the Olympic games.

Maths and the Olympics? How do they go together?

The Olympic Games were started by the ancient Greeks, in 8th Century BC. If there's two things the ancient Greeks loved more than anything, it was maths and sport! Let's work through some True or False trivia questions to see just how well maths and sport work together. You can do this individually, or you could work in your very own Olympic athlete teams to figure out the answers! Remember – no peeking at the answer sheet.

A little bit about us

This trivia quiz has been created by Felstead Education, the producers of ***The Maths and Sport Show*** **– a live touring incursion available to Australian primary and secondary schools**, to find out more about us visit www.felstead.com.au or email us at info@felstead.com.au

Let's get started!

Question 1: An Olympic swimming pool holds 2.5 million litres of water. The weight of this water is equivalent to 416 African Bush Elephants. **True or False?**

Question 2: The longest distance covered by a single athlete during a single Olympic track and field event is 42km, the Olympic marathon. **True or False?**

Question 3: Female athletes make up a higher percentage of the Australian Tokyo Olympic Team than male athletes. **True or False?**

Question 4: The amount of summer sports that have been participated in by the Australian Olympic Team is twice the amount of winter sports. **True or False?**

Question 5: Tokyo 2020 has 33 Olympic Sports events. The Paralympics have only 1/3 the of the number of events compared to the Tokyo Olympics. **True or False?**

Question 6: The Olympic team that Australia is sending to Tokyo has the largest Indigenous athlete representation in Australian Olympic history. **True or False?**

Question 7: The ratio of the Australian Taekwondo Tokyo 2020 teams' female and male athletes ratio is 1 to 1. **True or False?**

Question 8: Female athletes account for a larger percentage than male athletes in the Australian Sailing Tokyo 2020 team. **True or False?**

Question 9: The length to width ratio of the water polo goal is approximately 3 to 1. **True or False?**

Question 10: In a triathlon individual event, the distance an athlete needs to run is four times longer than the distance he or she needs to cycle. **True or False?**

Question 11: In the 4 x 200m freestyle swimming event, the total distance covered by the 4 team members is 1km. **True or False?**

Question 12: To complete a 200m breaststroke swimming event, the athlete needs to swim 4 laps. **True or False?**

Question 13: If Australia has won a total of 515 medals and 154 of those medals were gold, then 29.9% of all medals won by Australians were gold. **True or False?**

Question 14: As a percentage of all medals won by Australian teams, Australia received a higher percentage of gold medals at the Melbourne Olympics in 1956 than they did during the Sydney Olympics in 2000. **True or False?**

Question 15: Dividing the total number of medals won during the 2016 Rio Olympics (973 medals) by the number of athletes who competed in Rio that year (11234 athletes), we are able to figure out that the percentage of athletes who won a medal was 5%. **True or False?**

Question 16: Half of the Australian Women's Football team who will compete in the Tokyo Olympics, also competed in the Rio Olympics in 2016. **True or False?**

Question 17: Tokyo 2020 will emit more tonnes of CO2 than London 2012. **True or False?**

Question 18: The amount of Tokyo 2020 overseas officials, journalists, and support staff in attendance will be three times the number of athletes. **True or False?**

Question 19: In the Australian Tokyo Olympic Team, the oldest team member is four times older than the youngest one. **True or False?**

Question 20: In diving, the height of the springboard is twice the height of a platform. **True or False?**

Question 21: In fencing, the foil (type of sword) is lighter than the épée (another sword). **True or False?**

Question 22: Cathy Freeman has won the highest number of gold medals by a single Australian athlete in Olympic history. **True or False?**

Question 23: The longest amount of time an athlete has held an Olympic world record is 10 years. **True or False?**

Question 24: The Olympic world record holder for weightlifting is Lasha Talakhadze. He weighs 176 kilograms and lifted a total of 485kg at the Rio Olympics. This mean he lifted 275.6% of his body weight. **True or False?**

Question 25: As a percentage of her body weight, the female weightlifting champion from the Rio Olympics (Meng Suping), lifted more than the male champion, Lasha Talakhadze. Meng Suping weighs 120kg and lifted a total of 307kg. She therefore lifted more than Talakhadze. **True or False?**

Question 26: The algebraic equation d(a + b + c) is used to determine the score for a competitor in Olympic diving. **True or False?**

Question 27: If a decathlon has ten events and a pentathlon has five events, then an octathlon would have 9 events. **True or False?**

Question 28: The Australian athlete who has competed in the most Olympic games is Andrew Hoy, who has competed in the Equestrian events at 7 different Olympic games. **True or False?**

Question 29: For the Sydney Olympic games in 2000, Australian engineers came up with a more environmentally friendly design for the Olympic Torch. The torch uses a fuel called propane gas (used to heat barbeques) mixed with butane fuel. There is a higher percentage of propane gas than butane fuel. **True or False?**

Question 30: Usain Bolt broke the world record for the 100m sprint in 2009. His time was 9.58 seconds. This meant he was travelling at an average footspeed of 37.6km/h. This is twice as fast as the average speed of a cheetah. **True or False?**

Bonus Question: At the Tokyo Olympics, a total of 33 different sports will be competed in. **True or False?**

Time to check the answers!

When you're finished, you could calculate who got the highest scores.

The top scorer has earned themselves a gold medal!

ANSWERS

Question 1: An Olympic swimming pool holds 2.5 million litres of water. The weight of this water is equivalent to 416 African Bush Elephants. **True or False?**

True – 2.5 million litres of water weighs 2,499,999 kilograms. The average African Bush Elephant weighs 6000 kilograms. This means the water weighs the same as 416 elephants!

Question 2: The longest distance covered by a single athlete during a single Olympic event is 42km, the Olympic marathon**. True or False?**

False: The longest distance is 50km, which is completed during the men's race walking event. This event is different to running, as the athlete must have one foot on the ground at all times.

Question 3: Female athletes make up a higher percentage of the Australian Tokyo Olympic Team than male athletes. **True or False?**

True: Female: 262 (54%); Male: 226 (46%)

Question 4: The amount of summer sports that have been participated in by the Australian Olympic Team is twice the amount of winter sports. **True or False?**

False: Summer sports: 29; winter sports: 23

Question 5: Tokyo 2020 has 33 Olympic Sports events. The Paralympics have only 1/3 the of the number of events compared to the Tokyo Olympics. **True or False?**

False: Olympic Sports events: 33; Paralympic Sports events: 22.

Question 6: The Olympic team that Australia is sending to Tokyo has the largest Indigenous athlete representation in Australian Olympic history. **True or False?**

True: Australia has boosted its Tokyo 2020 team to 488 athletes. It has the largest Indigenous athlete representation (16 athletes) in Australian Olympic history.

Question 7: The ratio of the Australian Taekwondo Tokyo 2020 teams' female and male athletes ratio is 1 to 1. **True or False?**

True: Female Olympians: 8; male Olympians: 8

Question 8: Female athletes account for a larger percentage than male athletes in the Australian Sailing Tokyo 2020 team. **True or False?**

False: Female Olympians: 24; Male Olympians: 117.

Question 9: The length to width ratio of the water polo goal is around 3 to 1. **True or False?**

True: The goal which floats on the water is 3 metres wide and 0.9m high.

Question 10: In a triathlon individual event, the distance an athlete needs to run is four times longer than the distance he or she needs to cycle. **True or False?**

False: The distances for each leg of the Olympic triathlon individual event are: 1500m open-water swim, 40km cycle and 10km run.

Question 11: In the 4 x 200m freestyle swimming event, the total distance covered by the 4 team members is 1km. **True or False?**

False: 4 x 200m=800m=0.8km.

Question 12: To complete a 200m breaststroke swimming event, the athlete needs to swim 4 laps. **True or False?**

True: Each lap is 50m

Question 13: If Australia has won a total of 515 medals and 154 of those medals were gold, then 29.9% of all medals won by Australians were gold. **True or False?**

True

Question 14: As a percentage of all gold medals won by Australian teams, Australia received a higher percentage of gold medals at the Melbourne Olympics in 1956 than they did during the

Sydney Olympics in 2000. **True or False?**

False: Australia won 16 gold medals in Sydney, and 13 in Melbourne.

Question 15: Dividing the total number of medals won during the 2016 Rio Olympics (973 medals) by the number of athletes who competed in Rio that year (11234 athletes), we are able to figure out that the percentage of athletes who won a medal was 5%. **True or False?**

False: 8.66% of athletes who competed that year won a medal.

Question 16: Half of the Australian Women's Football team who will compete in the Tokyo Olympics, also competed in the Rio Olympics in 2016. **True or False?**

False: Australia's 22 player squad has 14 returning members from the Rio 2016 Olympics.

Question 17: Tokyo 2020 will emit more tonnes of CO2 than London 2012.

False: Tokyo 2020 organisers are hoping to host the greenest ever Games by emitting 2.93 million tonnes of CO2, compared with the 3.3 million tonnes generated during London 2012.

Question 18: The amount of Tokyo 2020 overseas officials, journalists, and support staff in attendance will be three times the number of athletes. **True or False?**

False: There will be 11,500 athletes and 79,000 overseas officials, journalists, and support staff.

Question 19: In the Australian Tokyo Olympic Team, the oldest team member is four times older than the youngest one. **True or False?**

False: Oldest Team Member: Mary Hanna, 66, Equestrian. Youngest Team Member: Mollie O'Callaghan, 17, Swimming.

Question 20: In diving, the height of the springboard is twice the height of a platform. **True or False?**

False: Olympic diving is performed from a 3m flexible springboard or 10m fixed platform.

Question 21: In fencing, the foil is lighter than the épée (a type of sword used in fencing). **True or False?**

True: The foil is a light thrusting weapon with a maximum weight of 500 grams. The épée is a thrusting weapon like the foil, but heavier, with a maximum total weight of 775 grams.

Question 22: Cathy Freeman has won the highest number of gold medals by a single Australian athlete in Olympic history. **True or False?**

False: It's Ian Thorpe, who's won a total of 5 gold medals.

Question 23: The longest amount of time an athlete has held an Olympic world record is 10 years. **True or False?**

False: Jarmila Kratochvilova has held the world record on the 800m sprint race for 34 years.

Question 24: The Olympic world record holder for weightlifting is Lasha Talakhadze. He weighs 176 kilograms and lifted a total of 485kg at the Rio Olympics. This mean he lifted 275.6% of his body weight. **True or False?**

True: Talakhadze is able to lift 275.6% of his body weight.

Question 25: As a percentage of her body weight, the female weightlifting champion from the Rio Olympics (Meng Suping), lifted more than the male champion, Lasha Talakhadze. Meng Suping weighs 120kg and lifted a total of 307kg. She therefore lifted more than Talakhadze. **True or False?**

False. As we established in Question 24, Talakhadze was able to lift 175% more than his body weight. Suping lifted 255% of her body weight, therefore she lifted 155% more than her weight. This is only a little bit less than her male competitor!

Question 26: The algebraic equation $d(a + b + c)$ is used to determine the score for a competitor in Olympic diving. **True or False?**

True: In this sport the top two scores and the bottom two scores are discarded and the remaining scores are added together and multiplied by what is known as the degree of difficulty.

Question 27: If a decathlon has ten events and a pentathlon has five events, then an octathlon would have 9 events. **True or False?**

False: Although the Olympics doesn't have an octathlon, if they did it would have 8 events.

Question 28: The Australian athlete who has competed in the most Olympic games is Andrew Hoy, who has competed in the Equestrian events at 7 different Olympic games. **True or False?**

False: He was selected to compete in Tokyo, meaning this will actually be his eighth Olympic Games!

Question 29: For the Sydney Olympic games in 2000, Australian engineers came up with a more environmentally friendly design for the Olympic Torch. The torch uses a fuel called propane gas (used to heat barbeques) mixed with butane fuel. There is a higher percentage of butane fuel than propane gas. **True or False?**

True: There is 65% butane and 35% propane. They use more butane fuel as it produces less smoke, making it more environmentally friendly to burn.

Question 30: Usain Bolt broke the world record for the 100m sprint in 2009. His time was 9.58 seconds. This meant he was travelling at an average footspeed of 37.6km/h. This is twice as fast as the average speed of a cheetah. **True or False?**

False: Although Usain was incredibly fast, cheetahs can sprint at 100km/h.

Bonus Question: At the Tokyo Olympics, a total of 33 different sports will be competed in. **True or False?**

True: There will be five more sports competed in than there were at the Rio Olympics!