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MIND-BLOWING CREATIVITY OF LONDON EYE HAVING 32 CAPSULES REPRESENTS 32 BOROUGHS

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ABSTRACT
The London Eye, originally the Millennium Wheel, is a cantilevered observation wheel on the South Bank of the River Thames in London. It is the world's tallest cantilevered observation wheel, and the most popular paid tourist attraction in the United Kingdom with more than three million visitors annually. It has been featured numerous times in popular culture.

KEYWORDS: Millennium wheel, London eye, capsules, boroughs, spokes, river Thames.

INTRODUCTION

The London Eye is a massive revolving observation wheel on the South Bank of the River Thames in London.

Here are five key facts about the London Eye

1. It is a cantilevered observation wheel, not a traditional Ferris wheel: Unlike standard Ferris wheels that hang between two symmetrical frames, the London Eye is supported by an A-frame on only one side, making it the world's tallest cantilevered observation wheel.
2. It stands 135 meters tall: The structure is 135 meters (443 feet) high and has a diameter of 120 meters (394 feet), giving it an overall height equivalent to 64 red telephone boxes stacked on top of each other.
3. It has 32 capsules representing London's boroughs: The wheel features 32 oval-shaped passenger pods, which are numbered 1 through 33—**skipping capsule number 13 for superstitious reasons**.
4. A full rotation takes 30 minutes: It moves continuously at a slow walking pace of about 0.9 km/h (26 cm/s) without stopping to let passengers on or off, carrying up to 800 people per revolution.
5. It was originally built as a temporary attraction: Unveiled to celebrate the millennium in 2000, it initially had a five-year permit, but its massive popularity—attracting over 3.5 million visitors a

year—led to it becoming a permanent London landmark.

The structure is 135 metres (443 ft) tall and the wheel has a diameter of 120 metres (394 ft). When it opened to the public in 2000 it was the world's tallest Ferris wheel, until the 160-metre (525 ft) Star of Nanchang in China surpassed it in 2006. Unlike taller wheels, the Eye is cantilevered and supported solely by an A-frame on one side. The Eye was the highest public viewing point in London until 2013, when it was surpassed by the 245-metre (804 ft). View from The Shard observation deck.



Figure 1: UK Map.

The wheel's 32 sealed and air-conditioned ovoidal passenger capsules, designed and supplied by Poma, are attached to the external circumference of the wheel and rotated by electric motors. The capsules are numbered from 1 to 33, excluding number **13 for superstitious reasons**. Each of the 10-tonne (11-short-ton) capsules represents one of the London boroughs, and holds up to 25 people, who are free to walk around inside the capsule, though seating is provided. The wheel rotates at 26 cm (10 in) per second (about 0.9 km/h or 0.6 mph) so that one revolution takes about 30 minutes, giving a theoretical capacity of 1,600 passengers per hour. It does not usually stop to take on passengers; the rotation rate is slow enough to allow passengers to walk on and off the moving capsules at ground level. It is stopped to allow disabled or elderly passengers time to embark and disembark safely.

The London Eye: The Official Tickets Website is a 135-meter (443-foot) cantilevered observation wheel on the South Bank of the River Thames in London.



Figure 2: London Eye.

The London Eye is famous for being the United Kingdom's most popular paid tourist attraction and the tallest cantilevered observation wheel in the world.

Key Claims to Fame

Millennium Landmark: It was built to celebrate the year 2000 (originally named the Millennium Wheel) and opened on New Year's Eve in 1999.

Height and Design: It stands 135 meters (443 feet) high on the South Bank of the River Thames and uses an asymmetric cantilevered design supported on only one side.



Figure 3: Capsule of London Eye.

Key Details

- **Height & Design:** Stands 135 meters tall with 32 sealed, air-conditioned glass capsules representing London's 32 boroughs.
- **Panoramic Views:** Its 32 enclosed glass capsules offer 360-degree views stretching up to 40 kilometers (25 miles) on clear days, showing sights like Big Ben and the Houses of Parliament.
- **Capacity & Speed:** Each capsule holds up to 25–28 guests, and the wheel moves continuously at about 26 cm per second.
- **Ride Duration:** A full rotation takes approximately 30 minutes.
- **Views:** Offers panoramic vistas of Big Ben, the Houses of Parliament, Westminster Abbey, and St Paul's Cathedral, stretching up to 40 km on a clear.

History: Opened in March 2000 for the millennium celebrations and became a permanent fixture after initial temporary permits. The London Eye features 32 glass passenger capsules (originally numbered 1 to 33, omitting number 13 for superstition) that reach a height of 135 meters (443 feet) above the River Thames.

Key Details about the Capsules:

- **Design & Capacity:** Each oval-shaped capsule weighs 10 tonnes, is air-conditioned, and holds up to 25 to 28 guests.
- **Rotation:** A full rotation takes 30 minutes, moving at a slow speed (~0.9 km/h) that allows passengers to board and disembark without the wheel stopping.
- **Symbolism:** The 32 capsules represent the 32 boroughs of London.
- **25th Anniversary Renovation:** The London Eye is undergoing a modernisation and refurbishment program through early 2029, during which capsules are sequentially removed via barge for tech and safety upgrades while the attraction remains open.

The London Eye is primarily known for being the world's tallest cantilevered observation wheel and the most popular paid tourist attraction in the United Kingdom. It is celebrated for its unique engineering, architectural design, and its ability to offer unparalleled 360-degree panoramic views of London.



Figure 4: Tony Blair with Designer of London Eye architects Julia Barfield and David Marks.

Core Specialities & Unique Features

- **Cantilevered Design:** Unlike a traditional Ferris wheel which is supported on both sides, the London Eye is held up by a massive A-frame on only one side, allowing it to lean over the River Thames.
- **360-Degree Glass Capsules:** It features 32 high-tech, climate-controlled glass pods mounted externally to the outer rim. This external placement ensures your views are never blocked by the wheel's internal structure.
- **Superstitious Numbering:** Although there are exactly 32 capsules (representing the 32 boroughs of London), they are numbered 1 to 33, skipping the number 13 due to traditional superstition.
- **Continuous Motion:** The wheel moves at a slow, walking pace of about 26 cm per second (0.9 km/h). It moves so smoothly that it never stops for passengers to get on and off, except to accommodate guests with accessibility needs.

Unrivalled Panoramic Views: A full rotation takes exactly 30 minutes. At its peak height of 135 meters (443 feet), you can see up to 40 kilometers (25 miles) away on a clear day, catching sights as far as Windsor Castle.

Greater London is divided into 32 London boroughs plus the historic City of London (which has a unique local government dating back centuries).

The 32 London boroughs—created on 1 April 1965 by the London Government Act 1963—are split into Inner London and Outer London:

Inner London Boroughs (12).

Camden	Lambeth
Greenwich (Royal Borough)	Lewisham
Hackney	Southwark
Hammersmith and Fulham	Tower Hamlets
Islington	Wandsworth
Kensington and Chelsea (Royal Borough)	City of Westminster

Outer London Boroughs (20)

Barking and Dagenham	Havering
Barnet	Hillingdon
Bexley	Hounslow
Brent	Kingston upon Thames (Royal Borough)
Bromley	Merton
Croydon	Newham
Ealing	Redbridge
Enfield	Richmond upon Thames
Haringey	Sutton
Harrow	Waltham Forest

The London Eye was ceremonially inaugurated by British Prime Minister Tony Blair on December 31, 1999, as part of the UK's millennium celebrations.

Key Details

- **Inauguration Date:** December 31, 1999
- **Inaugurated By:** Prime Minister Tony Blair (who fired a laser beam across the River Thames)
- **Public Opening Date:** March 9, 2000 (delayed due to a capsule clutch issue)

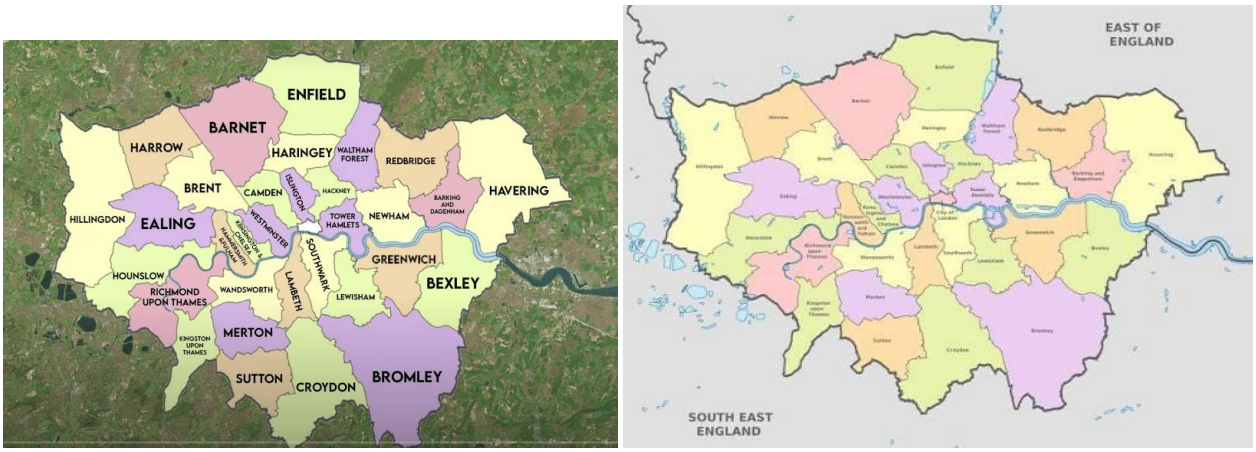


Figure 5: London boroughs.

• **Architects / Designers:** David Marks and Julia Barfield.

London Eye marked its 25th anniversary (silver jubilee) on March 9, 2025, having originally opened to the public on March 9, 2000.

Key Milestones & Facts for the Silver Jubilee

- **Opening & Origin:** Designed by architects **Julia Barfield** [Julia Barfield, MBE RIBA FSA, (born 1952)] and **David Marks** [David Joseph Marks, MBE (15 December 1952 – 6 October 2017)], it was built as a temporary millennium attraction but evolved into a permanent London skyline fixture.
- **Visitor Count:** Over 85 million people have ridden the wheel since it opened.
- **Anniversary Celebrations:** Celebrations included a commemorative short film titled Turning 25: London's Eye featuring architect Julia Barfield and various public figures, alongside a year-long campaign.
- **Structure:** It stands 135 meters tall with 32 glass capsules, taking roughly 30 minutes for a full rotation.
- **Jubilee Gardens Connection:** The London Eye is situated next to Jubilee Gardens on the South Bank, which was originally created in 1977 to mark Queen Elizabeth II's Silver Jubilee. Prime Minister Tony Blair formally inaugurated the London Eye on December 31, 1999, as part of the UK's New Year and millennium celebrations.

Key Details of the Event

- **The Opening Ceremony:** Blair fired a laser beam across the River Thames to set the observation wheel in motion, accompanied by a flypast by a British Airways Concorde and a fireworks display.
- **No Passengers On Board:** Although the wheel was inaugurated that night, no passengers rode it during the ceremony because a last-minute check found one of the 32 capsules had a safety issue.
- **Public Opening:** The London Eye did not open to the paying public until March 9, 2000, after the technical and capsule-clutch problems were fixed.
- **Temporary to Permanent:** Originally planned as a temporary 5-year attraction, its massive popularity led to its status becoming permanent.

The London Eye has 80 spokes.

Key Details about the Structure

- **Spokes:** 80 tensioned cable spokes connect the outer rim to the central hub.
- **Cable Length:** The 80 spokes combined stretch for approximately 6 kilometres (4 miles).
- **Design:** It is engineered like a giant bicycle wheel on a cantilevered single A-frame support.
- **Capsules:** It features 32 passenger pods representing the 32 boroughs of London.

The London Eye is the world's largest cantilevered observation wheel.

The London Eye (also known as the Millennium Wheel) was manufactured, blasted, and painted by Hollandia in Krimpen aan den IJssel, Netherlands, and shipped in sections by barge and sea to London for final assembly.

Key Construction and Manufacturing Details

• **Main Steel & Rim Fabrication:** Built by the Dutch steel construction company Hollandia, with components also sourced or manufactured across the UK, France, Italy, and the Netherlands.

• **Capsule Engineering:** The 32 ovoid glass capsules were designed and supplied by POMA (a French ropeway and transport technology company), utilizing optical-quality laminated glass and automated stabilization systems.

Transport Method: Large structural pieces of the rim and spindle were transported via the North Sea and the River Thames to the South Bank site in London, where the wheel was initially assembled flat on temporary platforms over the river before being lifted upright. The original 32 capsules of the The London Eye were designed and manufactured by POMA (a French ropeway and transport technology company) in France, with optical-quality laminated glass imported from Italy.



Figure 6: Panoramic view from London Eye.

Original 1999–2000 Construction Breakdown

- **Capsules:** Made by POMA in France (glass from Italy).
- **Steel:** Supplied from the UK and fabricated by Hollandia in the Netherlands.
- **Cables:** Imported from Italy.
- **Bearings:** Imported from Germany (FAG/Schaeffler Group).
- **Spindle & Hub:** Cast in the Czech Republic.

The A-frame of the London Eye is the massive, tilted steel support structure that holds up the entire observation wheel from one side. Unlike traditional Ferris wheels—which are supported by towers on both sides—the London Eye is a cantilevered observation wheel.

Table 1: Specifications.

Attribute	Specification
Total Height	135 meters (443 feet)
Wheel Diameter	120 meters (394 feet)
Wheel Circumference	424 meters (1,392 feet)
Total Weight	Approximately 2,100 tonnes
Steel Components	1,700 tonnes of structural steel
Spindle & Hub Weight	330 tonnes
Architects	David Marks and Julia Barfield

Key Details of the A-Frame

- **Design & Position:** The A-frame is made of two inclined steel legs that join at the axis of the wheel and tilt over the River Thames at a 65-degree angle.
- **Function:** It absorbs the heavy compression forces of the 135-metre-tall, 1,700-tonne structure.
- **Support Cables:** The A-frame works together with a set of backstay cables (tension cables anchored into the ground/foundations) to keep the whole wheel balanced and upright without needing a second support tower.

Key Design Details

- **Single Support:** Unlike traditional Ferris wheels that are suspended or balanced between two central A-frames on both sides, the London Eye is supported on one side only by a single tilted A-frame.
- **Anchoring:** It is held in place by massive backstay cables anchored into the ground.
- **External Capsules:** The 32 passenger capsules are mounted on the outside of the wheel's rim rather than hanging between struts, giving it a floating appearance as it stands 135 meters tall.
- **Rotation Speed:** A continuous, stately speed of 26 cm per second (approx. 0.6 mph or 0.9 km/h).
- **Rotation Duration:** 30 minutes to complete a single full revolution.
- **Boarding Mechanism:** The wheel moves slowly enough that passengers can step on and off without the wheel needing to come to a complete stop.
- **Maximum Visibility:** On a clear day, passengers can see up to 40 kilometers (25 miles) out, extending as far as Windsor Castle.

Capsule and Capacity Specifications

- **Number of Pods:** 32 climate-controlled glass passenger capsules, each symbolizing one of the 32 London boroughs. They are numbered 1 to 33, omitting the number 13 for good luck.
- **Capsule Weight:** 10 to 11 tonnes per individual pod.
- **Capacity per Capsule:** Up to 25–28 passengers.
- **Total Wheel Capacity:** 800 passengers per full rotation.
- **Hourly Throughput:** Approximately 1,600 passengers per hour.

CONCLUSION

The London Eye is named because its 360-degree, panoramic observation deck lets visitors "see" across the entire city of London, acting like a giant eye looking out over the capital. The London Eye (originally known as the Millennium Wheel) is the world's tallest cantilevered observation wheel. Designed by architects David Marks and Julia Barfield, it stands on the South Bank of the River Thames in London.

Original Name: It was first officially introduced as the Millennium Wheel when it opened to celebrate the year 2000.

Design Concept: Created by architects David Marks and Julia Barfield, the structure functions as an observation wheel—with sealed, external glass capsules—rather than a standard Ferris wheel.

Sponsorship Names: Over the years, corporate naming rights have officially changed its full title to include sponsors like British Airways, EDF Energy, and Coca-Cola.

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