



LA TOUR EIFFEL  
• JEUNE PUBLIC •

Minus

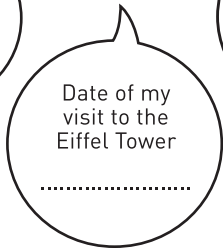
# THE SECRET TO THE LONGEVITY of the Eiffel Tower





# THIS PUZZLE BOOK belongs to

.....



# Welcome to the Eiffel Tower

Built by Gustave Eiffel and inaugurated in 1889, the Tower is more than 130 years old.

And yet, she looks as young as ever.  
What is the secret of her eternal youth?

From the passing of time, to weather, pollution, and more than 6 million visitors every year, she has seen it all. If the Tower looks as beautiful today as it did when it was first built, it's thanks to the specialist companies that renovate it during major works, as well as the technical teams who take great care of her every day.





This booklet will explain  
how we look after this  
architectural masterpiece.

## Ready?

Yes! I love  
construction  
work!



Of course,  
I want to know  
everything!



I really  
want to climb  
to the top!



# Paint, her beauty secret

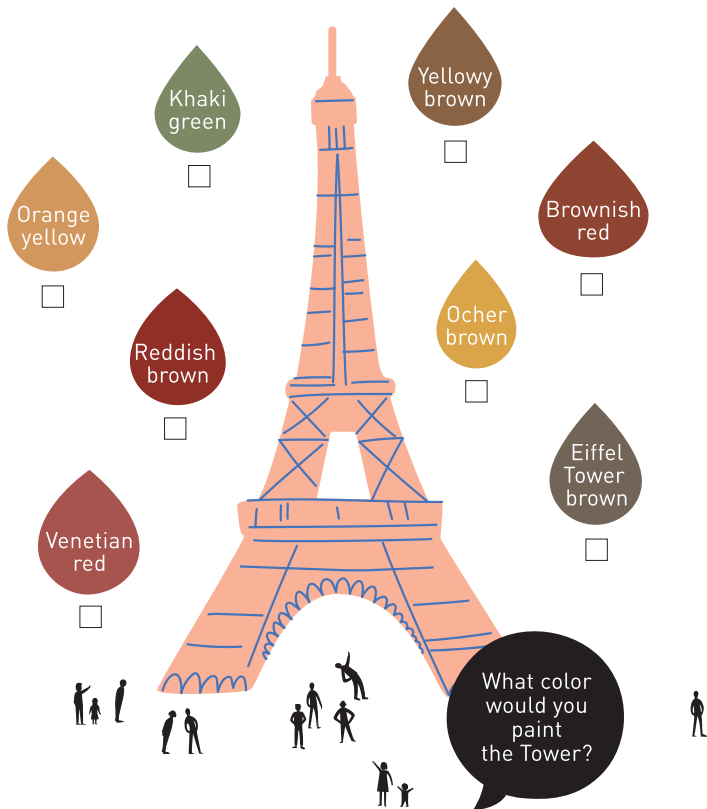
Gustave Eiffel chose to build his Tower with puddle iron, a solid iron that can last forever, if it is repainted regularly. The Eiffel Tower has had different shades since it was built. Right now, the Tower is painted in yellowy-brown. This was the color Gustave Eiffel wanted in 1907, when he found out that his Tower would not be dismantled. A color gradient, ranging from the darkest shade at the bottom, to the lightest at the top, helps the Tower to blend into the Parisian landscape.



Did you know that the Tower has already been repainted 20 times?

# Colors galore!

What colors do you think the Tower has already been painted in?

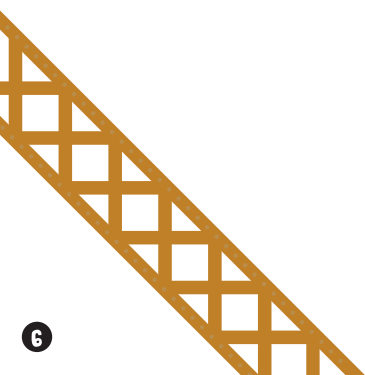


**Answer:** The Eiffel Tower has been repainted in all these colors, except khaki green. The first color was Venetian red in 1887.

# An acrobatic job

It takes nearly **60 tonnes** of paint and several years to paint the Tower. The paint is applied by hand with a large brush called a “guipon”.

The technique is the same today as when the Tower was built. You need to be an acrobat and painter to do this job! And being afraid of heights is out of the question! The painters are securely attached to lifelines which you can spot all over the Tower. They even attach their tools, paintbrushes, and pots to their harness so as not to drop them.



The painters work mostly at night, so they don't disrupt the Tower's activities during the day.

# Ready, steady... go!

How long will it take you to color these beams?  
Ask someone to time you.



Well done!  
You only have  
270,000 sq. feet  
left to paint!

# Historical elevators

Gustave Eiffel was a genius engineer who realized that the Tower needed elevators so people could visit it. It might seem normal to you today, but at the time it was a visionary idea!

These elevators have kept their original mechanism. They are **hydraulic elevators**, i.e., they are powered by water. Hidden under the **East** and **West** pillars is a treasure trove of ingenious pistons and pulleys. Nothing has changed here. Technicians use the same tools, and two times a week they oil the jacks with the same melted grease as in 1899. The screens which monitor the elevators are the only modern addition. If there is the slightest problem or breakdown, it can be spotted straight away.

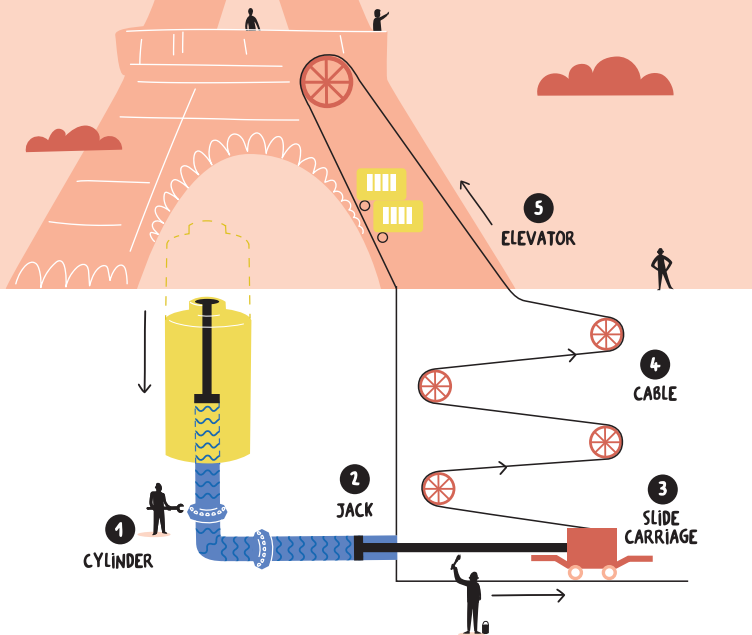
This day-to-day care by technicians is what helps to keep the Tower's mechanism in perfect order.



# Hydraulic mechanism

Step into the shoes of one of the Tower's super technicians!

It's your turn! Match the numbers from 1 to 5 to the corresponding letter to send the elevator up the East pillar.




- 1** CYLINDER
  - 2** JACK
  - 3** SLIDE CARRIAGE
  - 4** CABLE
  - 5** ELEVATOR
- A** THE JACK PUSHES THE SLIDE CARRIAGE
- B** THE SLIDE CARRIAGE PULLS THE CABLE
- C** THE CYLINDER WEIGHS ON THE WATER
- D** THE CABLE RAISES THE ELEVATOR
- E** THE WATER PUSHES THE JACK

Answer: 1C, 2E, 3A, 4B, 5D

# An ultra-moderne elevator

The North elevator is brand new. After five years of work, it began operating again in summer 2024, and is fully electric. This is a **unique prototype**, the only one of its kind in the world, and every part was custom built! Thanks to this outstanding renovation, the elevator is now more efficient and uses less power. It can even generate power by braking. The electricity generated this way is then redistributed to the Tower's power network. Very clever, isn't it?

To preserve these unique facilities, the Tower's technicians test the elevators every morning and operate "empty" trips without passengers. They check the sensors and clean the mechanisms to make sure it keeps working for a long time to come.

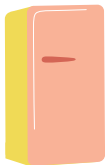
A stylized illustration featuring a red planet with white spots and a ring system, a yellow signal tower with three horizontal bars, and several yellow curved lines representing orbits or paths. The entire scene is set against a dark blue circular background.

Every year the elevators travel the equivalent of 2-and-a-half times around the world, i.e., 64,000 miles.

## Sustainable development

Every time the elevator descends, it produces about 108 kilowatts of electricity as it brakes.

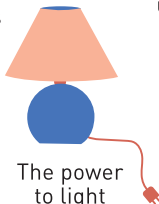
What do you think this is equivalent to?



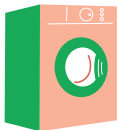
The power used by around 284 refrigerators in one day



The electricity use of a one-room apartment for 2 weeks



The power to light a bedside lamp for 3,650 hours



The power needed to run a washing machine for 6 months



Around 622 miles for a small electric car



**Answers:** All the answers are correct. But these are only approximate equivalents, because it depends on the intensity of power use.

A collection of decorative elements in the top right corner, including a white plus sign, a pink asterisk, a yellow plus sign, a large white star, a yellow star, and an orange star, all set against a dark blue background.

# Dressed to dazzle

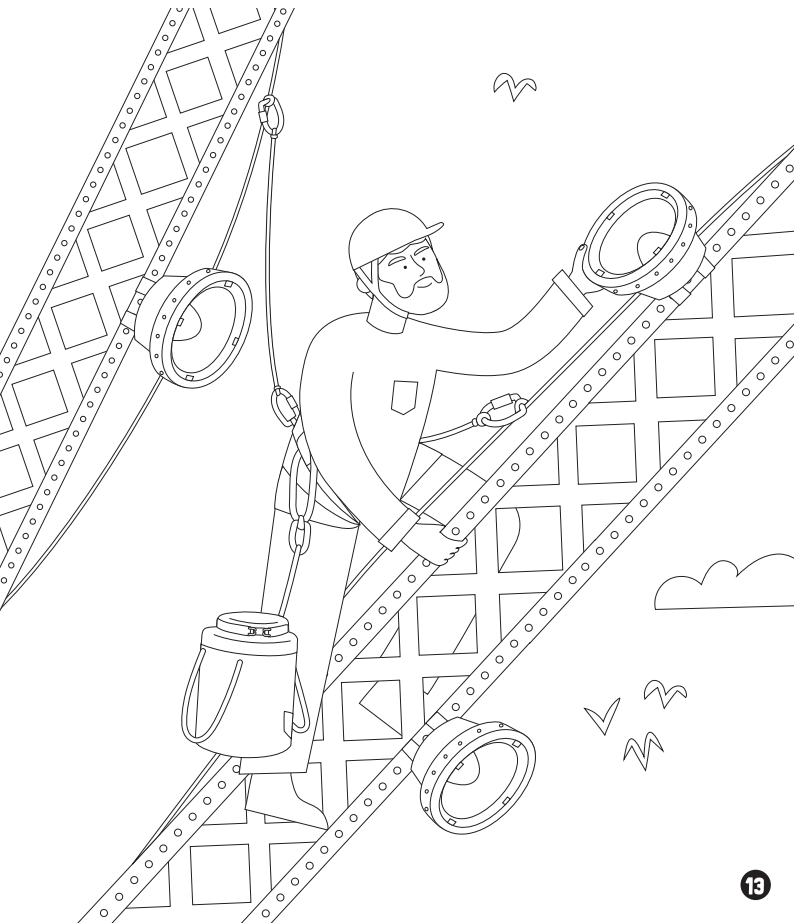
When Gustave Eiffel was building his Tower, he included lighting so people could admire her at night. Originally, no less than 10,000 gaslights showed off the shapes of the monument. The lighting system was converted to electricity in around 1900, and from 1985, **336 projectors** helped the Eiffel Tower done her dazzling golden robe!

Since 2000, as night falls, **20,000 bulbs** sparkle for the first 5 minutes of each hour, to the delight of visitors from around the world. Alongside the Tower's electricians, a team of rope access technicians change 300 to 400 of the sparkling bulbs every year.

The Tower electricians inspect and maintain the bulbs of the golden robe. They regularly take several days just to inspect all the projectors, clean them, and change any faulty bulbs.

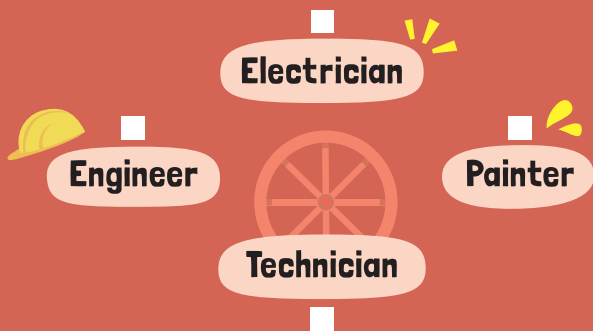
## Super technician

Have fun coloring in this acrobatic electrician.  
At the same time, check that he and his equipment  
are properly roped up.



# Taking care of every detail

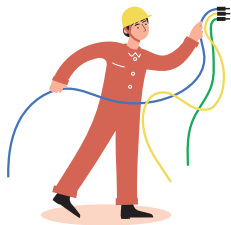
So now you understand,  
the Tower's longevity is thanks  
to a dedicated team which has been  
carrying out the same operations  
for 136 years to preserve  
the soul of this beautiful Iron Lady.  
Now that you know everything about  
its upkeep, which of these jobs  
would you prefer to do?





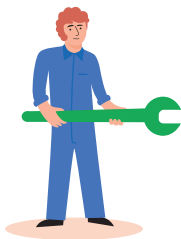
## Painters

They work at a height and use a paintbrush to expertly apply the paint which protects the Tower and ensures its longevity.



## Electricians

Among the technicians, the electricians maintain the electrical system and have no fear of climbing the ropes to make sure the lighting is always in perfect working order.



## Technicians

Around forty technicians carry out the general maintenance of the Tower, and especially the smooth working of the elevators.



## Architects and engineers

They decide in advance the works to be carried out, draw up the plans and supervise operations.

Everything about the Eiffel Tower is extraordinary. This iconic monument is a book of records in its own right. Can you put the numbers in the right place?



The Tower weighs

.....

tonnes

B

There are

.....

steps from the esplanade to the top



It is

.....

meters high

D

It takes

.....

tonnes of paint to repaint the Tower

E

There are

.....

rivets attaching the structure

1

10,100

2

1,665

3

60

4

2,500,000

5

330

Answer: A1, B2 (you have to take the elevator from the 2<sup>nd</sup> floor on), C5, D3, E4.





LA TOUR EIFFEL  
• JEUNE PUBLIC •

Minus

Voilà!  
You know everything  
about the maintenance and  
works needed to preserve  
the Eiffel Tower! Perhaps now,  
when you see the Tower from  
a distance, you'll think of the  
technicians working behind  
the scenes to make sure  
everything operates  
smoothly.

To find out more about the Tower,  
go to: [www.toureffel.paris](http://www.toureffel.paris)



@LaTourEiffel



@toureffelofficielle



@TourEiffel



PEFC/10-31-2690 Printed on paper following an eco-responsible approach.