

TEACHER EXHIBITION NOTES

FERRARI: UNDER THE SKIN

15 NOVEMBER 2017 – 15 APRIL 2018

INTRODUCTION

Ferrari: Under the Skin celebrates 70 years of the car brand created by its namesake Enzo Ferrari. The exhibition looks at the man himself, at the engineering and design of the cars, their history and at the future of Ferrari.

The notes below are laid out to reflect the flow of the exhibition, listing each section in order as they appear in the gallery. Included in these notes is a gallery map to provide guidance in advance of a school visit.

WHAT TO EXPECT

Ferrari: Under the Skin is an exhibition split into six sections. Each section acts as a spotlight on the different aspects of the Ferrari story whilst complimenting the previous section.

The exhibition features cars, full sized replicas, wire models, exploded engine parts, graphic design, specially commissioned films, photographs and documents from private collectors and Ferrari themselves.



HIGHLIGHTS FROM THE EXHIBITION

The exhibition is split into the following sections;

1. ENZO:

How does a car acquire an immortal name? What makes its creator an enigma and a legend? Today, building a new brand is a calculated process. But Ferrari arose in a more natural and authentic way during different, perhaps more innocent times. Enzo Ferrari had unique qualifications. He had been a racing driver in the 1920s and later managed of two racing teams – Alfa Romeo and his own Scuderia Ferrari. He had supervised the development of racing cars and ran dealerships for Alfa Romeo in Modena and Bologna in Northern Italy.

In 1939 Ferrari left Alfa Romeo to manufacture machine tools in a newly built factory in Maranello, outside Modena. In 1945, in what must have seemed a wild gamble in post-war Italy, he returned to motor sport to create his own cars. Ferrari always wanted to make two types of vehicle – pure racing cars for the track and high-performance cars that could also be used for racing. This tradition is still at the heart of Ferrari today, which produces a range of road cars alongside its Formula One team.



Enzo Ferrari at the entrance of the Ferrari Factory, 1957

In this section, you will find:

Timeline of Enzo Ferrari's life

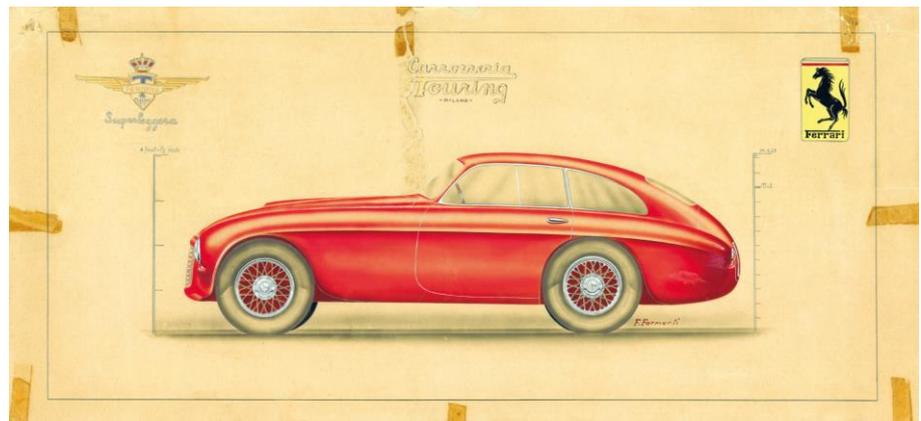
Track the life of company founder Enzo Ferrari and the development of the brand that he built. Tracing life events as well as the launch of famous cars, and racing successes and failures.

Replica of the first Ferrari – 1947 125 S car

This full scale replica of the first Ferrari motor car ever built shows, the engineering and design behind the very first Ferrari model to ever come out of their factory. Both of the two 125 S cars built in 1947 were dismantled, and their parts are thought to have been re-used in production of the 159 or 166 models.

Documents, plan drawings and photos

In this section you can find early documents such as letters and Enzo's international drivers licence. You can also see photos from the early days of Ferrari along with plan drawings of early Ferraris. This section also contains a picture of WW1 Italian flying ace Count Francesco Baracca whose prancing horse family arms were adapted for Ferrari's own logo.



Ferrari 166-195 Sport Coupé MM Figurino a colori 13

2. THE FORM OF A FERRARI:

Ferrari cars emerged when Italian coachbuilding was in its heyday. These 'carrozzerie' included Zagato and the celebrated Touring company in Milan, while Turin had firms such as Allemano, Bertone, Vignale and Stabilimenti Farina (later Pininfarina). Some customers had their own favourites and would specify the firm that would make the bodywork for their car.

The light bodies needed for racing were created by local craftsmen in Modena, particularly Sergio Scaglietti, a long-standing friend of Enzo Ferrari. Scaglietti had started as an auto body repairer near the Ferrari works. Enzo Ferrari admired his skill and began to use him. However, Enzo Ferrari saw that he needed a clear design identity and, in 1952, struck a deal with Pininfarina, run by Battista 'Pinin'

Farina. Pininfarina designed almost all road-going Ferraris for 60 years, although most of the bodywork was produced by Scaglietti using drawings and full-size master models from Pininfarina.

In 2011 Ferrari decided that it needed its own in-house design department and founded Centro Stile Ferrari (the Ferrari Design Centre) at Maranello, which now develops all of the brand's new road models.

In this section, you will find:

J50 Clay model

Automotive clay is wax-based, unlike natural water-based clay which makes it stable and soft enough to shape using traditional sculptors' tools. The J50 uses CNC milling to create the initial shape after which the sculptor smooths and works to give the car its final shape. Move to the back of the car to see the sections left by the different milling heads. A film in this section shows clay sculptors at work.



Ferrari sculptors work the clay with a series of tools including their bare hands.

Wooden and wire frames

The wooden frame of the 365P would have been used as a guide for panel beating and bodywork construction.

The wire frame of the Ferrari 250 GTO (the end car can be found in the racing section) would have been used as a full scale model that is quick to construct in order to give an early impression of the end car.

Wind tunnel model for the Ferrari Sigma F1 concept car, 1969

At a time of increasing injuries and fatalities the concept only F1 racing car designed by car designer Pininfarina put driver safety first. It introduced various safety features not seen in racing cars before such as roll-bars, multi-layer fuel tanks, a fire extinguisher system, plastic fuel-tanks, a safety-belt-system and sidepods protruding behind the rear wheels to prevent them interlocking with another car's wheels. Like many of the wind tunnel models there are a series of metal rods pultruding from the back of the model that link to sensors monitoring air pressure through small holes at the front of the model.



Wind Gallery for Aerodynamic Tests with 1-3 scale models

Ferrari Design Centre film

Watch bodywork designers including clay modellers talk about their trade.

3. BONES:

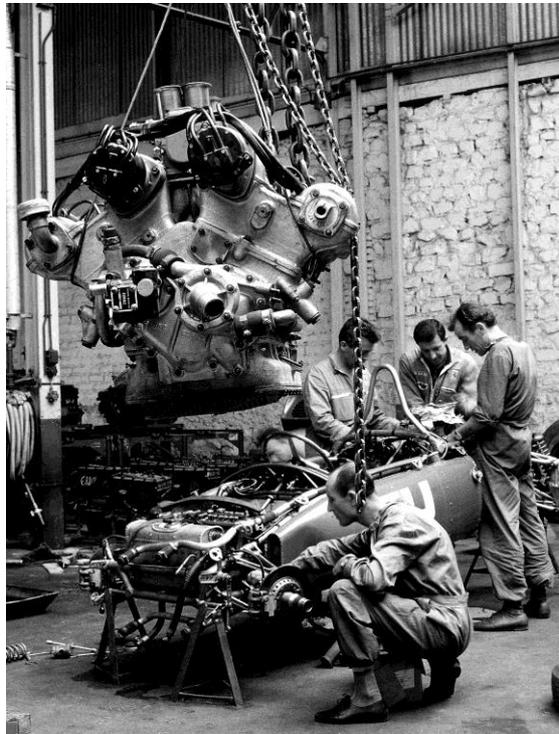
The beauty of a Ferrari is not skin-deep. During the design process, the relationship between the engine, chassis and suspension comes first. The search for performance, ideal weight distribution and perfect handling fixes the architecture of the car. These functional principles were established from the very beginning, because Enzo Ferrari's ambition was to create cars that would win races.

The display of engine parts, chassis and other components in this section of the exhibition, including an original running chassis of a 1957 250 GT Ellena and a Ferrari 458 Spider from 2011,1 explores the engineering that underpins Ferrari cars. Even these unseen items have organic flowing lines. These components reveal the work of design engineers with an innate sense of line, which might be seen as particularly Italian. Everything is intensely functional but also specially designed for its job. Nothing is 'off the shelf'.

In this section, you will find:

Chassis for the Ferrari 458 Spyder, 2011

The word 'Spyder' refers to the open top nature of the Ferrari. Open top cars tend to be less rigid than fully enclosed versions and so their chassis design needs to bear extra stress. This chassis features several types of aluminium alloys chosen for specific structural roles. Ferrari uses the most advanced techniques to shape components, including superplastic forming (heating materials to stretch or mould them). This allows metal to be manipulated like plastics, to make highly complex shapes less than 1 millimetre thick.



The car is the 156 F1, no. 50; The engine hanging, in the foreground, is 6-cylinder V of 65

Engineering at Ferrari film

Featuring interviews with Ferrari's Michael Leiters, Chief technology officer.

4. I CLJETNI:

As Ferrari cars started to win both Italian and international races, discerning clients found their way to the factory. Many early customers were affluent local enthusiasts, like Giannino Marzotto, an expert driver and heir to a textile fortune. Marzotto noticed the growing potential of Ferrari cars and won the gruelling 1950 Mille Miglia (1,000 mile) endurance race in a Ferrari 166.

Impressed by successes like this, film stars, directors, artists, businessmen, committed professional and amateur racers started to come to Maranello.

They found Enzo Ferrari enigmatic – perhaps intentionally so. Sometimes he was engaging and charming, sometimes aloof and sometimes simply unavailable. Nevertheless, he was a brilliant communicator and advocate for his cars, always able to talk persuasively to the press. When asked which was his favourite Ferrari, he replied 'The one that I still have to build'.



Rockstar Mick Jagger points at a Ferrari

In this section, you will find:

Graphic design of Ferrari

Brochures, adverts and signs from through the ages of Ferrari show how graphic design has been at the heart of Ferrari's journey and their marketing as a brand.

Hands on

In this section visitors are invited to try out a couple of Ferrari seats and steering wheels.

Ferrari F40

The car made for Ferrari's 40th year and also the last car made within founder Enzo Ferrari's lifetime.

5. RACING:

For most mainstream car makers, racing has been a way to sell the conventional cars on which they depend on, to drive ,ing force in developing , to drive engineering development and to claim glamour and attention.

For Enzo Ferrari, it was quite different. He formed his company and built his cars in order to race and to win. He did not race to sell cars – he sold cars to keep on racing.

Enzo Ferrari's major objective was to triumph in contests for single-seat racing cars and particularly in Formula One (then better known as Grand Prix racing). However, in the early decades, sports car racing for two-seater road cars was equally important for Ferrari. In that period, long distance races on regular roads held immense prestige. These included the Targa Florio in Sicily, the Mille Miglia in northern Italy and the world-famous Le Mans 24 hour race.

Success in endurance races like these showed the quality of Ferrari's cars and helped increase sales of its road cars to private customers.



F1 2007 - 248 F1 with F2007 livery, led by Raikkonen

In this section, you will find:

Ferrari 250s

Three cars from 1960 – 1962 show the progression within one model. Each with a famous driver and a famous race to compete in.

Racing helmets

The progression of racing crash helmets from the early cork helmets repurposed from polo protection through to the modern day use of composite materials and flame retardant coatings. The rise of advertising, in particular cigarettes, can also be tracked.

Racing suits

Gilles Villeneuve's suit from 1982 and Michael Schumacher's from 1996 show the progression in material technology in just 14 years.

6. FERRARI NOW:

The Ferrari car is a unique creation. Committed to excellence, the company sells just over 8,000 cars a year, but it maintains a workforce of nearly 3,000 people, both to compete in Formula One and to design and produce new road models. Every new Ferrari has to look like a Ferrari – to evoke the essential spirit of the name, without quoting too literally from the past.

These engineering and design challenges mean that each very Ferrari embodies immense artistic effort and intellectual analysis. The cars embody Each car represents an unparalleled 'density of design' – the thought and care that have been applied to every part and every millimetre.

Formula One today is unthinkable without Ferrari technique and Ferrari glamour. But the company also uses Formula One to transform its road cars, importing ideas for energy recovery, hybrid power plants and light structures. This intense design engineering leads to innovative and more efficient transport but, inevitably, the focus will always be on creating the most exclusive and best-performing cars it is possible to build.



LaFerrari in production

LaFerrari Aperta

This mild hybrid sports car uses an electric engine alongside its petrol engine to increase performance. The electric engine cut emissions by 40% of its full blooded petrol equivalent.

What is the future for Ferrari – Film

Focusing on where next for Ferrari and looking forward to the company's future in an increasing driverless and environmentally friendly world.

ACTIVITY SUGGESTIONS

There are many different aspects of the exhibition that can be explored – some sections allow students to interact with exhibits. Please look for interaction opportunities or ask staff if you are unsure of their location.

The use of sketchbooks and pencils is welcomed in the gallery, and will support all of the suggested activities listed below.

The following activity is a starting point for school and sixth form groups visiting the exhibition:



Rally of the South African Ferrari Clubs on the Kyalami Circuit for the 50th Anniversary Celebration, 1997

Design your own

Task A: Get your students to research cars from a particular maker or a particular decade. What do you notice about the shape of the vehicle? What safety features have the designers implemented? Who do you think that this particular car is aimed at? Is this car environmentally friendly?

Task B: The Ferrari Sigma F1 car concept looked at creating a concept car that prioritised the safety of the driver in formula one racing. The car never saw a race but many of its safety features have made their way into the sport of motor racing. Split your class up into small groups and get them to design their own concept car. As a concept it does not have to be something that will be put into production but could be something that follows a particular purpose; it could be environmentally friendly, it could be driverless or it could even be used in the field of sport.

BEFORE YOUR VISIT

Watch our Ferrari: Under the Skin educational resource on the Design Museum's youtube channel. The film gives an overview of the exhibition as well as a few objects from each section to look out for.

EXHIBITION GUIDANCE

Objects in the exhibition are on open display rather than in cases. Care should be taken when moving around the exhibition and most objects should not be touched. Any objects that can be touched will be clearly signed. Please ask staff if you are unsure. We would be grateful if you could brief your students accordingly.

Depending on your group and your itinerary for the visit, we would recommend that you set aside approximately 40 minutes to explore this exhibition.



Present day Ferrari manufacturing

Photography is permitted in this exhibition without the use of a flash apart from the green

Please ensure that you read our school visit Terms and Conditions document before making your visit.

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Ferrari: Under the skin

An exhibition about history, technology and innovation, passion and emotion Ferrari inspires. It's about people – especially the man behind the brand, the formidable company founder - Enzo Ferrari.

Section 1: Enzo Ferrari

Highlight: 1947 125S the first Ferrari car, built to win races
Post WW2 Enzo meets a car designer, both have a vision for a car with a powerful 12 cylinder engine used in war planes or large luxury vehicles. There is a room filled with personal documents, objects and photos relating to Enzo and Ferrari's early years

Section 2: Form of a Ferrari

Highlight: 2016 J50 clay model- traditional method, modern car. These models are on display for the first time outside of the Ferrari workshops.
Ferrari used wind tunnels to get precise aerodynamics of their cars; working closely with design firm Pininfarina, Ferrari also built wire frames and wooden 'bucks' to determine the shape and styling of the bodywork.

Section 3: Bones of a Ferrari

Highlight: Components of an 8 cylinder engine for the Ferrari 488 GTB, 2015
'I don't sell cars; I sell engines', I throw the cars in for free to hold the engines', this was Enzo's famous saying and in this section the usually hidden world of the engine which lives under the skin of each car is revealed through chassis, engines and film

Section 4: I Clienti (the customer)

Highlight: Ferrari 166MM 1960- the car which influenced the beginning of Ferrari's distinctive visual identity
This section explores the relationship between the car's design and culture, fashion and style. Devotees of Ferrari- known as Tifosi include film stars, footballers, models and billionaires.
Visitors can sit in the driving seat of a Ferrari and have a go at the steering wheel!

Section 5: Racing

Highlight: what made Ferrari the name it is today- the amazing race track!
This is racing. The fastest cars. The loudest noise. It's where both vehicles and the drivers are pushed to their limits. Behind it all, the racing obsessed, Enzo Ferrari who once said "I want to build a car that's faster than all of them, and then I want to die."

Section 6: NOW

Highlight: 2017 La Ferrari Aperta (Open) the latest and most spectacular super car
The future of car driving constantly evolves and changes. There is a move to electric cars –even in supercars. Ferrari is subject to the same emissions standards as everyone. It's not only the engine that will change. Many predict a future where satnav, sensors and computer chips will control our vehicles instead of human drivers.

Multimedia Guide - £3.50 available to pre-purchase online, at the ticket desk and at the gallery entrance.

- The guide covers each section in much more detail
 - 50 minutes of content
 - Be led by the curators
- See lots that we cannot show in the exhibition:
- inside the cars
 - under the bonnet
 - how engines work
 - the noises that make up the experience of driving a Ferrari



Vintage posters



Exhibition Catalogue

SHOP Ferrari



Plus lots of souvenirs and gifts !!



Collector's Edition
GQ magazine £3.95 **£1**
to ticket holders!

MECCANICO

Unique enamel badge inspired by Enzo

Ferrari: Under the skin exhibition layout



Form

- The bodywork and the look of the end vehicle.

Bones

- Looking at what's under the body work; the engineering and the power behind the car.

Enzo

- Showcasing the life of the company's founder. His life in photos and documents.

ENTRANCE

Under the Skin
Exhibition Introduction

I Clienti

- Focusing on the fandom and the customers behind Ferrari.

Ferrari Now

- The use of mild hybrid technology in Ferrari's LaFerrari Aperta

Racing

- The sport that inspired Ferrari is represented by its vehicles and racing attire.

EXIT