**Ferrari and the Main Components of a Car Engine**

**Age group/class:** 15 – 16 years old

**Lesson title:** Ferrari and the Main Components of a Car Engine

**School Discipline:** Mechanics, Engineering

**Key concepts:** to understand how a car engine works and what are its main components

**Aims:**

* Understand how a car engine works
* Introduce the main elements of a car engine
* Understand the mechanic and engineering components of a car engine

**Skills developed**: observation, analysis and research

**Materials/Equipment needed**:

* <https://www.youtube.com/watch?v=LU_Zn9Z3ibU>

*(to be used in the introduction activity to provide some basic information about how a car engine works)*

* VR headset
* VR video / link [https://eloquent-ramanujan-887aa5.netlify.app/ferrari-sports.html](https://eloquent-ramanujan-887aa5.netlify.app/chemistry-5.html)
* a panel with car engine’ main components

**Lesson plan:**

|  |  |  |
| --- | --- | --- |
| **Stages** | **Description of activity** | **Time** |
| **Preparation before the lesson** | If this is a first VR experience for students – go through the safety rules:   * Learners are to sit down whilst using the VR glasses and not hold anything in their hands, unless the experience is of such a nature that it requires you standing, in which case, ensure enough space is allowed around all students. * Learners will be told to expect a feeling of vertigo. If it gets worse, students must remove VR glasses. * Learners need to know how to adjust the viewing focus before using the headsets. * Learners must not use the headset when they are: tired, need sleep, under emotional stress or anxiety, when suffering from cold, flu, headaches, migraines as this can worsen their susceptibility to adverse reactions. * Learners should be given the choice to opt out of using VR. |  |
| **Introduction** | Share Learning Intentions with students  The aims of the current lesson plan are:   * Understand how a car engine works * Introduce the main elements of a car engine * Understand the mechanic and engineering components of a car engine   Teacher shows a video providing basic information about how a car engine works and which are its main components:  <https://www.youtube.com/watch?v=LU_Zn9Z3ibU>  In addition to the video, teacher asks students to read the following article:  <https://www.cars24.com/blog/how-a-car-engine-works/> | 10 min. |
| **Initial Immersive Experience** | “And now let’s go inside the atmosphere of the Ferrari museum”: [https://eloquent-ramanujan-887aa5.netlify.app/ferrari-sports.html](https://eloquent-ramanujan-887aa5.netlify.app/chemistry-5.html)  Learners put on the VR headsets and explore the video with the support of the teacher. This experience offers students the opportunity to concretely live the atmosphere, the sounds, and the emotions of the Ferrari museum. | 10 min. |
| **Guided Immersive Experience** | Teacher asks students to watch again the video from minute 5 to minute 8 (in which there is a specific focus on the Ferrari car engine). Teacher asks students to identify the main components which have been described in the previous video. | 10 min. |
| **Follow up** | 1) Quiz time  Teacher presents the following panel to the students:   |  |  |  | | --- | --- | --- | |  | Name | Function | | Changchai 6bt 5.9 Diesel Engine Cylinder Block For Engine Parts 3942162 -  Buy Engine Cylinder Block,Tractor Cylinder Block,Engine Blocks For Sale  Product on Alibaba.com |  |  | | Pristine Pistons: How an Oil Change Can Keep Your Car Engine's Pistons  Running Smoothly | Mr. Clean Car Wash |  |  | | Crankshaft - what is a crankshaft in a car: device | AvtoTachki |  |  | | Camshaft: definition, working, parts, problems, making - studentlesson |  |  | | Oil Pan (New OEM) - 3RZ (93-98) (T100) OEM Toyota P/N: 12101-75060 |  |  |   Students are asked to name each of the car components above and to define their functionality within a car engine. | 20 min.  5 min. |
| **Formative Assessment** | * “Which is the main process within a car engine?” * “Which are the 4 strokes of a car engine?” * “Which is the function of the oil sump?” |  |