

Spirit of Competition: Milestone Cars

Lesson Plan Intro

This lesson plan will provide information to connect students with technology, society, and historic events during the first half of the twentieth century. The automobile has impacted society more dramatically than perhaps any other object in history. However, it can be hard to find tangible objects connecting events taught in the classroom. The Simeone Museum can provide the objects, information, and materials to help make these connections for events between 1906 and 1975. It is possible to teach a complete lesson or segments that align with the topics being taught in your classroom.

Essential Questions

How has automobile racing influenced twentieth-century technology and culture?

Objectives

- Introduce the Simeone Museum and the “Spirit of Competition”.
- Describe the social and cultural impacts of the automobile on everyday society.
- Discuss how automobile racing influenced automobiles and culture.
- Provide tangible connections to various periods in history.

Instructions

- 1) Read over materials to present to the class.
- 2) Conduct further research as necessary.
- 3) Make connections to time and events discussed in class.
- 4) Present material and information to the class using the power point presentation.

Time Needed

- **1-5 class periods**
- 45 Minutes to deliver introduction power point
- 45 Minutes student research period
- 45 Minutes student work period (Computer Lab)
- 45 Minutes student presentations

Activity

1. Create a newspaper front page describing the success of one car and showing other historic events from the same era or decade.
 - a. Can be individual or group activity
 - b. Research the cars and historical period further.
2. Can use word template or power point to create a newspaper front page.
3. Presentations to class.



Age/Grade level

Age and grade appropriate development of final deliverable material (newspaper)

Assessment

Discussion and evaluation of final project.

Differentiation

1. Grading based on level of work.
2. Lesson taught about an individual car to connect with one era or historic time period.
3. Group activity options.

Overview

During the past one-hundred plus years of automobile racing there have been many innovative and successful cars. This lesson plan will discuss four cars that were innovative and successful. The, “Spirit of Competition” was the force that help drive the development of these cars to become better and superior to their rivals. Many of these innovations are regarded as important technologies still used in cars on the road today.

Each car’s important features are examples of innovative technologies that became standard for the everyday automobile. These are direct connections where racing technology influences the automobile. As the automobile became more refined it became cheaper and easier to travel creating the culture we have today, that is dependent on efficient travel.

Background

The hallmark of a successful car is winning the most important races. For sports cars, it gets no bigger or more important than the 24 hours of Le Mans. This race provided a proving ground for a cars durability, reliability, and speed giving the winning cars credibility to say they are the highest performing car of that time. These races were the biggest spectator events of their day with up to 250,000 spectators.

The four cars in this lesson all won the biggest races of their time, the 1936 Bugatti Tank winning the 1937 24 hours of Le Mans, the 1967 Ford GT40 winning the 1967 24 hours of Le Mans, the 1921 Duesenberg winning the 1921 French Grand Prix, that later became the 24 hours of Le Mans, and the 1907 Renault descending from the winning 1906 Renault of the first Grand Prix (Grand Prize) race.

Content Standards

PA History:

Elementary: 8.1.3.C.-8.1.8.C. - Analysis and skill development: Research (For Detailed Descriptions Reference: Pennsylvania Department of Education: Academic Standards for History)



Secondary: 8.1.9.C., 8.1.U.C., 8.1.W.C., 8.1.12.C.- Analysis and skill development: Research
(For Detailed Descriptions Reference: Pennsylvania Department of Education: Academic Standards for History.

NJ History:

6.1 U.S. History: America in the World: Strand C. Economics, Innovation, and Technology
(For Detailed Descriptions and Specific Standards Reference: New Jersey Student Learning Standards for Social Studies)

Resources

Websites

The Simeone Automotive Foundation Museum. www.simeonemuseum.org

Google searches can yield a great deal of information and images

youtube.com (search the cars and races mentioned to help find videos)

Le Mans information. <http://www.24h-lemans.com/en/>

Books

-*The Spirit of Competition*, by Dr. Frederick Simeone, the museums book on the collection and each cars history

-*Art of the Le Mans racecar: 90 years of speed*, by Stuart Codling, history of Le Mans racing

Materials

- Milestone Cars Poster
- Milestone history and importance reference material
- Power Point Presentation
- Student power point lesson worksheet
- Newspaper front page template
- Grading rubric

Milestone Car One

1907 Renault 35/45

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History

In 1906, a race was held in France outside of a town called Le Mans (pronounced, Lə Mā). It was held for the best cars in the world to race for a prize of money. This became known as the first Grand Prize race or Grand Prix. Cars from France, Germany, and Italy raced over a 64-mile course during two days of competition. The competitors dealt with problems from the cars and the course. Flat or punctured tires were a huge problem caused by rough road conditions and early tire designs were less resistant to punctures than modern tires. The roads were tar covered dirt and stone, causing tar to melt in the sun flinging into driver's eyes. Stones breaking loose from the tar became a major cause for most of the punctures. Several teams had the advantage of special Michelin wheel rims that could detach far more easily than other systems used at the time, saving time in the numerous tire changes. This feature was attributed to the success of Renault and other teams. A Renault won the race with a driving time of over 12 hours covering 769 miles.

Importance

Renault's win at what became known as the first true Grand Prix ignited sales for the company, doubling its output from 1906 to 1907. These sales included the extremely expensive Renault 35/45 Runabout built to replicate the Grand Prix car. These cars were built to be sporty cars to drive on the road, but did have limited racing success. Renault 35/45's would have been a supercar in its day and the pinnacle of automobile technology in 1907.

Milestone Car Two

1921 Duesenberg 183 Grand Prix Car



History

In 1921, the Duesenberg racing team saw an opportunity to race the famous French Grand Prix. This would be the first French Grand Prix since 1914 due to the outbreak of World War I. After the Indianapolis 500, the biggest, most important race in the USA, the Duesenberg team skipped three important national American Automobile Association (AAA) championship races to compete in France. Rules for the French Grand Prix aligned with those used at the Indianapolis 500 making it easier for Duesenberg and other Americans to compete since they did not need special cars for the race. Duesenberg sent four cars to the 1921 French Grand Prix, with American Jimmy Murphy winning the race for the team. The car in the museum is the sister car to the winning Jimmy Murphy car, one of the four to race in the 1921 French Grand Prix.

Importance

The 1921 French Grand Prix win was the first for an American team with an American driver. It was unheard of for an American team to send cars over to Europe to compete, however Duesenberg wanted to prove how good their cars were against the world's best. An American driver would not win another international race until Phil Hill won the 1960 Italian Grand Prix in an Italian Ferrari. An "All American Win" (designed, built, and driven by Americans) would not happen again until 1967 when a Ford GT40 Mark IV won the 1967 Le Mans race. These 1921 Duesenberg Grand Prix cars had many innovative features for the time; overhead camshafts, overhead valves, and most importantly hydraulic brakes. Hydraulic brakes are common place today, but in 1921 they would have been like magic, voodoo, or witchcraft- something that couldn't be trusted to be safe. The hydraulic brakes proved to be a great advantage for the Duesenbergs allowing them to stop much faster and brake closer to the turns ultimately yielding faster times around the track.

Milestone Car Three

1936 Bugatti Type 57G "Tank"



History

Jean Bugatti, son of the founder and director of the Bugatti company, persuaded his father to have the company build a sports racing car for long distance endurance racing. To maximize the mechanical features: drivetrain and chassis, of the standard Bugatti Type 57 street car Jean had three race cars built with fully enclosed bodies (no fenders) for aerodynamic efficiency. While not the first car made with a fully enclosed body, that distinction would go to the Type 32 Bugatti a few years prior, it had better lines allowing for improved top speed and fuel efficiency. These cars set many speed records and won many races in the short span of about two years. This car won the 1937 24 hours of Le Mans, as well as several other important races, going undefeated throughout its career.

Importance

This car proved that aerodynamics are important for many factors. The bodywork allowed the car to slip through the air giving it a speed advantage over its rivals. Also, the reduced drag or resistance gave the Bugatti better fuel economy, something that may not seem important except in a 24 hour race this could save several lengthy pitstops. A combination of mechanical and aerodynamic advantages made this car unbeatable in its time. These factors paved the way for aerodynamic importance in automobile design and engineering. While other manufacturers worked with aerodynamics during this time, the Bugattis were the most successful examples that raced in prestigious and highly publicized events. The future of the automobile would include aerodynamic design from this point.

Milestone Car Four

1967 Ford GT 40 Mark IV



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History

In the early 1960's Ford Motor Company decided it wanted to race and win the 24 hours of Le Mans. Lots of myth and controversy surrounds this decision: the story goes Henry Ford II tried to buy Ferrari but at the very last minute Enzo Ferrari said no to the deal. The details of the story do not matter since it is clear Ford Motor Company set out to beat Ferrari and win Le Mans. Ford set the design requirements for a GT, grand touring, car with a roof height of 40 inches, engine in the rear behind the driver. The first few years of the program did not go well with poor results in 1964, and 1965, however in 1966 a Ford GT40 Mark II won Le Mans in a one, two, three Ford GT40 finish. This would prove to not be enough since the cars were built in England through contract and the drivers were not Americans, the press said it was not a true Ford/American win. For 1967 Ford would fix this problem by building the new cars in the USA and hired American drivers to race the cars. The 1967 team cars were also extensively redesigned in all aspects, engine, brakes, suspension, chassis, and aerodynamics. The cars were a great success with AJ Foyt and Dan Gurney winning the 24 hours of Le Mans securing the only all-American (drivers, built, team) victory in this race. The only other all-American international race victories are the 1921 Duesenberg victory at Le Mans, and Dan Gurney's victory in the 1967 Belgium Grand Prix at Spa in his All-American Racers team car.

Importance

This car marked the only all-American (American driver, American designed and built car) win at the famous 24 hours of Le Mans, and the last all-American international sportscar race victory. It would be the second to last all-American victory in any international form of automobile racing with Dan Gurney winning the Belgium Grand Prix in his own car a week later. The GT40 Mark IV's have many innovative features such as monocoque construction, the body forms an integral part of the cars structure. Their aerodynamics proved important with the cars setting speed records at Le Mans going over 220 MPH. Mark IV GT40's were at the pinnacle of automobile technology and proved successful.

Project Grading Rubric

Historical connections to era and car chosen (20 points)	
Accuracy of information provided (20 points)	
Quality of writing (20 points)	
Creativity of design and layout (20 points)	
Ability to work in groups (10 points) group project only	
Quality of class presentation (10 points, 20 for individual projects)	
Total	