



CLASSROOM GUIDE

TERMS TO DEFINE:

Below you will find some terms relevant to this series. Read their definitions and consider the meaning of these words. If you have internet access, visit www.merriam-webster.com for an online dictionary to define any other related terms that come to mind.

aerodynamics (n.) - a branch of dynamics that deals with the motion of air and other gaseous fluids and with the forces acting on bodies in motion relative to such fluids

g-force (n.) - the force of gravity or acceleration on a body

horsepower (n.) - a unit for measuring the power of engines, equal to 746 watts

innovation (n.) - the introduction of something new; a new method, custom, device, etc.

internal combustion engine (n.) - an engine, as in an automobile, powered by the explosion of a fuel-and-air mixture within the cylinders

patent (n.) - an official document that gives a person or company the exclusive right to make or sell a product for a certain period of time

rpm (abbreviation for revolutions per minute) rpm is used after a number to indicate how many times something turns one complete circle during one minute

suspension (n.) - the parts of a vehicle that connect the body to the tires and allow the vehicle to move more smoothly over uneven surfaces

turbine (n.) - an engine that has a part with blades that are caused to spin by pressure from water, steam or air

Top Gear is a fast-paced series on HISTORY® that explores the amazing world of cars. The three hosts – Adam Ferrara, Tanner Foust and Rutledge Wood – are experts who share their knowledge of cars, from the world's most sophisticated vehicles to the regular cars most people drive every day. Many of the cars seen in this series are known as “super cars” because of their excellent performance and design. By studying the way cars are designed and how they function, we can learn a lot about science, engineering and technology. Along the way, we can also explore the history of automobiles and racing to understand how our society has been transformed by the car.

Safety first! The drivers you see on **Top Gear** are professionally trained experts. It is **very important** to remember that **safety is the first priority** when riding in or driving any car. Remember also that it is always mandatory to follow the laws of the road.



NASCAR: FAST FACTS

- NASCAR = National Association for Stock Car Auto Racing.
- NASCAR was founded in 1948 by Bill France.
- Did you know?** Due to high speeds, NASCAR drivers can experience 3 g's of force on turns, comparable to the forces pressing down on shuttle astronauts at liftoff.
- Today, NASCAR is one of the most popular American spectator sports.

Are you interested in NASCAR history? Visit the NASCAR Hall of Fame online and write a mini-bio of one of the drivers who made history.



DISCUSSION QUESTIONS AND SUGGESTED ACTIVITIES:

Students can discuss these questions and activities together or work independently.

- 1. Stock cars and Supercars.** What are “stock cars” and “supercars”? How are stock cars transformed into great racing cars? What makes supercars special? You can search online or in a newspaper to find some examples of stock cars and supercars and make a collage. Or, you can discuss your favorite car model and why you like the design.
- 2. Horsepower and Car Power.** Review the definition of “horsepower.” This term was coined by James Watt, an inventor in the 18th century who designed a steam engine. He used this term to describe the number of horses an engine would replace in terms of power. What is the average horsepower of a car today? What is the average horsepower of a racing car?
- 3. Car vs. Plane.** In one *Top Gear* segment, two of the hosts are challenged to see if it is faster to get from Los Angeles, California to Las Vegas, Nevada by plane or by car. The distance between these two cities is approximately 265 miles. If a car traveled at an average speed of 55 miles per hour, about how long would it take to get from L.A. to Las Vegas? What are 3 factors, other than speed, that could affect the amount of time it would take someone to travel by plane between these cities? What about by car? Which way would you rather travel?
- 4. Fail: Succeed.** In one *Top Gear* segment, host Rutledge Wood quotes the founder of Porsche: “If one does not fail at times, then one has not challenged himself (or herself).” Failure is a common theme when it comes to innovation. What do you think are some of the common characteristics of inventions that do succeed? Discuss.

POST-VIEWING ACTIVITY:

- 1. Cool Careers.** From technology to engineering to sales and advertising, there are hundreds of occupations that are related to cars and racing. Make a list of some of these careers – think broadly about all of the different areas involved in auto design, development, engineering and sales. See if you can think of ten careers related to cars. Are any of these interesting to you? What kind of career do you imagine yourself having some day?
- 2. The Car of the Future?** In one *Top Gear* segment, the hosts each pick a car from the past to test for its ability to be transformed into the car of the future. Some of the factors they consider are the sturdiness of the car, its design and its engine. Imagine you were asked to build the car of the future. What car would you use as a model, or would you create something entirely new? Working independently or in small groups, design your own “Car of the Future.” You can present your own Car of the Future through drawings, or by using PowerPoint, a poster or another format.

Related Websites:

Learn more about cars on

History.com

www.history.com/topics/model-t

Get Involved with Time Warner’s

Connect a Million Minds™ initiative:

connectamillionminds.com

NASCAR Hall of Fame

www.nascarhall.com

Petersen Automotive Museum

www.petersen.org

“America on the Move” from the

Smithsonian: americanhistory.si.edu/

onthemove/exhibition