

TEACHERS NOTES

CARS AND CULTURE OUR DRIVING PASSIONS

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**Explore Australia's love affair with cars
and preview the cars of the future.**

Australians have long been passionate about their cars. This exhibition looks at cars and how they have become part of the family, symbols of freedom and independence, statements of identity, fashion accessories and objects of desire.

Cars and culture explores the pleasures of cars. Without this appeal, cars would never have become so popular and hence so problematic. And it would not be so difficult to make cars, people and the environment live successfully together.



POWERHOUSE MUSEUM

CARS AND CULTURE OUR DRIVING PASSIONS

Cars and culture brings together for the first time rarely-seen cars from the Powerhouse Museum collection, private owners and car manufacturers. What makes it different from other motoring displays is that it also includes film, photography, sculpture, art and advertising.

Cars and culture begins with a Detroit Electric Brougham from 1915 and the immensely popular Mini-K from 1970. An introductory video reflects different people's attitudes to cars, from children playing in pedal cars in the 1930s to family caravan trips to the beach, from young people hanging out with their cars in Wollongong to retired people taking driving holidays around Australia (13 minutes).

The exhibition is then divided into the following major themes:

Australian dreams

Cars can be emblems of nationality and symbols of success for an individual owner and a country. The Holden was launched in 1948 as a people's car for Australia but there was also a range of alternative visions for Australian cars. This section features the 1949 Hartnett and the 1958 Goggomobil.

A video compilation of 40 years of television advertisements for cars and related products reveals the changes in the way Australia sees itself and its aspirations, and reflects the changing depictions of women, from objectified and helpless to independent and powerful (17 minutes).



The 1969 Holden Hurricane was an experimental car that had what you would hope from a true car of the future — technology that was just imaginable then which has become more familiar today, including digital displays, a station-seeking radio, and an automatic route indicator. Reproduced courtesy of Holden Limited.



This stylish 1958 Goggomobil Dart was one of several hundred made between 1958 and 1960. Bill Buckle imported the chassis from Germany and added locally-made fibreglass bodies at his Sydney factory. Powerhouse Museum collection.

Anything seemed possible

Cars have embodied the promises of technology and dreams of better futures. This section features two of Holden's prototype cars of the 1960s and 1970s, the Hurricane and the Torana GTR-X.

This is the man. This is the car.

Jack Brabham was the first Australian to win the Formula One world drivers championship. He won it three times: in 1959, 1960 and 1966. This section features Brabham memorabilia and the 1966 Repco-Brabham, the only championship-winning car to be designed by its driver. A short video shows Jack about to win the 1966 championship (3 minutes).

Crash

This section puts safety precautions to the test and considers the physical, social and economic cost of car crashes. Displays include a crashed car, crash test dummies and safety technologies as well as a video of crash tests (12 minutes).

Love me, love my car

Some people are obsessed with their cars. You can hear car enthusiasts talk about their passion in a video (11 minutes). Their cars will be part of a changing display throughout the period of the exhibition, starting with a street machine then a muscle car, Mazda rotary, a futuristic 'fast four' and a panel van.

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Car romance

Cars are accessories of modern love life. They can be fetish objects or characters in television, movies and literature.

Warning: The 'Car romance' section of the exhibition contains themes suitable for a mature audience, including excerpts from Australian films (36 minutes). Not all excerpts are G-rated and some scenes may cause offence to young viewers. Adult supervision is recommended, or you may request for this video to be turned off before you enter the exhibition — please speak to a staff member when you arrive.

Things by the road

Service stations, drive-throughs, drive-ins, roadside retailers, parking stations ... as the number of cars increased, roadside buildings and signage were reinvented on a new scale and in a new style. They are designed to be viewed by the fast-moving driver rather than the pedestrian.

Shaping the future

The shape of the car you buy today was probably sketched in 1992 and finalised in 1994. This design studio section reveals how Ford and Holden are designing cars today and for the future. It takes you through the stages in the design process from drawings to moulds and models, and you can watch a robot assemble part of a car.

Fuel for thought

We are burning the last reserves of petrol and damaging the environment as we do it. This section considers whether cars have a future and features the new vanadium battery as well as two of the new generation of 'green' cars already on the streets of Tokyo and Los Angeles — the Toyota Prius and GM EV1. A video explains how the Prius's power system works (5 minutes).

Interactives

You will find interactive displays throughout the exhibition.

For young children (K-6)

Look for the interactive units with the red tops.

(1) pedestrian crossing: an animated scene with

sound effects where children can help a pedestrian cross a road by pressing a button to change the traffic lights

- (2) Powerhouse auto spares truck: press the button to see the dashboard controls work, the windscreen wipers wipe and the lights come on
- (3) dashboard indicators: spin the wheel and watch the indicators to see the change in your speed and revs
- (4) car engine noises: turn the wheel to hear six different cars, from a Goggomobil to a country ute that has trouble starting
- (5) cars go!: press the 'eye' and 'ear' buttons to see and hear a variety of cars
- (6) carousel: press the button to see a parade of tin toys move through city, suburbs and race track
- (7) children's roadway: a mini road with child-sized push cars, traffic lights and a pedestrian crossing, which will help kids learn road rules. Restricted to children under 6.

For a general audience

- (1) gridlock: a fun computer-based touch-screen interactive which gives you plenty to think about. You are elected Minister for Transport in the NSW government. What choices will you make to improve traffic flow and reduce the environmental impact of transport, and get



In the work of artist Margaret Dodd, the FJ Holden is linked with the lives and images of women. She cast her *Bridal costume for an FJ Holden*, discarded in fibreglass from a real FJ — a car that holds lots of memories and associations for many Australians. Powerhouse Museum collection.

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This famous pump globe is based on David, a prize merino ram. It was created for Golden Fleece service stations during the 1950s. Powerhouse Museum collection.

yourself re-elected as well? You have three choices from a list of 12 strategies, each with details about the action and the expected result and warnings about the consequences. You can then look three years into the future to see the results of your decision.

- (2) car of the future: design your own car of the future with this computer-based touch-screen interactive. Choices (along with background information) are presented for each step of the design process: what is the vehicle used for? how many people will it carry? what are your design objectives? do you care most about the budget, the environment or performance? Your completed car will be presented on screen with a report on how your choices influenced the final product.
- (3) how does an engine work: a holographic mechanic explains how an internal combustion engine works, with the help of a real engine and simple graphics. Choose specific topics such as water, battery and exhaust by moving the gearstick.

Environmental issues

Congestion, pollution, freeway systems, suburban sprawl, city chaos — these themes are explored in many of the photographs, paintings, artworks and interactives within the *Cars and culture* exhibition.

People are so devoted to cars that it is hard to imagine giving them up. The problem is that we're burning the last reserves of petrol and damaging the environment as we do it.

One solution is to improve batteries and other existing technologies to extend the life of the car as we know it. Another is to research alternative technologies such as fuel cells or hydrogen fuel, or to develop alternatives to the car itself.

Electric cars

Battery-powered electric cars were on the roads early this century but they didn't last. They had a limited range, and a bulky battery pack made up almost half their weight. Adding more batteries improved the range but used up passenger space and added even more weight, which used up more energy, which reduced their range again.

Today more efficient battery cars are re-emerging. The **GM EV1** is one example. It was designed by General Motors in response to a 1985 Californian law which decreed that by 1998 two percent of cars sold there would have zero emissions to reduce air pollution caused by car exhausts. That deadline has been extended but GM released the EV1 in December 1996.

With a range of 80 to 145 km on a single charge, the Electric Vehicle 1 has all the safety, performance and comfort of a 'normal' car but none of the emissions. It can go from 0 to 100 kph in less than 9 seconds and has an electronically-regulated top speed of 129 kmh.

Particular attention has been paid to the weight and aerodynamics of the EV1 to overcome the weight penalty of batteries — its mass is just 817 kg plus 533 kg of batteries.

The EV1 takes three hours to recharge via an electrical induction system. Or it can use standard 'plug-in' power which takes up to 15 hours. Soon-to-be-introduced nickel metal hydride batteries may reduce recharging time to 20 minutes.

Another vision for the future is the **Toyota Prius** (pronounced *pree-us*). It uses a hybrid system — a dual petrol and electric power unit controlled by nine computers. The electric motor performs the functions at which the petrol engine is least efficient and vice versa.

Instead of idling in stopped traffic, the Prius's petrol engine switches off and the car moves away under electric power until the petrol engine takes over again at higher 'revs'.

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The all-electric GM EV1 from 1997.

If the Prius tackles a steep hill, its electric motor helps the petrol engine out. At other times such as when the car is coasting downhill or braking, the revolution of the petrol engine and the kinetic energy of the car's movement is used to recharge the batteries.

The hybrid system cuts carbon dioxide emissions by half and hydrocarbons, carbon monoxide and nitrogen oxide by 90 percent while achieving fuel consumption of 3.3 litres per 100 km (compared to 7.2 litres in the economical Toyota Corolla).

Battery power: problems and solutions

As well as the obstacle of weight, there's another problem with batteries. Although driving a battery-powered car instead of a petrol-powered one reduces air pollution while on the road, the electricity used to charge the battery comes mostly from coal-fired power stations that harm the environment!

A research team at the University of NSW is developing an alternative to the traditional battery. Their **vanadium 'battery'** carries electricity in charged solutions of vanadium in sulphuric acid. The liquids are stored in fuel tanks and pumped through the battery to power an electric motor. When the electric charge is used up, the solutions are easily pumped out and replaced with charged solutions. The old vanadium solutions can be recharged with electricity and used again and again.

Safety

- Many more Australians have died on our roads than in the Vietnam, Korean and two World Wars combined.
- Over the next decade, road death or serious injury will directly affect one in ten Australian families.
- One quarter of Australia's annual public health bill — \$6 billion each year — is crash related.
- Vehicle damage from crashes costs another \$1.8 billion each year.

Our roads and environment create conditions peculiar to Australia which require their own approach to safety. With fewer divided roadways than other countries and more roadside trees, the incidence of head-on and side-on crashes is high. Our cars also require suspension and anti-lock braking systems attuned to the hazards of gravel roads rather than ice and snow. Airbags in Australian-made cars are activated at different times and rates to those in North America where people tend to rely on airbags rather than wear seatbelts. The electronic system that triggers the bags must also account for the effect of kangaroo bars on cars. Kangaroos are a major cause of single car crashes in rural Australia.

Designing Australian cars

For the last 50 years our hearts and roads have been dominated by a uniquely Australian type of car — one with five seats, six cylinders and rear-wheel drive. This is the result of a combination of factors: lifestyle, economic and industrial.

Until recently, many Australians lived in large families. We also tend to drive long distances and often tow caravans and boats. These needs are too specific and our car market too big for Australians to be satisfied just with imports yet the demand isn't large enough to sustain local manufacture of many models. Nevertheless, Mitsubishi, Toyota, Ford and Holden all manufacture cars in Australia for the local market and for export.

The concept of a national car is considered in the 'Australian dreams' section of the exhibition, and the process of 'Australianising' the design of the Falcon and the Holden is part of the section on 'Shaping the future'.

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The long road (the artist) is a 1993 painting by Stewart MacFarlane. He creates in oil paints the look of cars in cinema and pulp thrillers. Collection of Dr P and Mrs M Creasy.

Timeline

1920s

- Holden's Motor Body Builders in Adelaide teams up with General Motors (USA) in 1924 as exclusive suppliers of car bodies for the imported chassis.
- First freeway built in 1924 in Italy.
- Model T Ford production begins in Australia in 1926.
- 100 522 new cars sold in Australia in 1926.
- In 1927, actress and dancer Isadora Duncan is strangled while driving in France when her scarf catches in the wheel of her rented car.
- Ford's Model T is the bestselling model in the 1920s; its advertising catchcry is 'The universal car' — the Model T.

NRMA

- National Roads Association, NSW branch (NRA) established in 1920 as a private non-profit organisation to improve the poor standards of roads in NSW.

- Members' magazine starts in 1921.
- NRA becomes the National Roads and Motorists Association (NRMA) in 1923, providing services to motorists such as tour information, legal and technical advice, car insurance and assistance with registration and licences, and representing their interests to government.
- NRMA starts 'guide' services with four guides and a motorbike in 1924. It was illegal for motor vehicles to be left unattended on the street so guides patrolled parking areas and also provided mechanical first aid services.
- Membership rises from 607 to 47 293 during the 1920s.

1930s

- Holden's and General Motors merge to form GMH in 1931.
- In 1931, there is one car registered for every 15 Australians.
- New car sales plummet to 14 000 in 1932 due to the Depression.
- Aviators Charles Kingsford-Smith and Jim Marks launch a streamlined car called the Southern Cross in 1933.
- Australia's first automatic traffic lights installed on the corner of Kent and Market Streets in Sydney in 1933.
- World's first 'ute' designed in 1934 by Ford Australia in response to a letter from a farmer.
- World's first hatchback body designed by GMH in 1934 for the Chevrolet 'sloper' coupe.
- Chevrolet is the bestselling make in the 1930s; its advertising catchcry is 'Chevrolet ... for the working man'.

NRMA

- Begins a safety campaign in 1929 aimed at educating drivers and pedestrians, extending it to schools in 1930.
- C A Gregory and HEC Robinson continue to produce maps and tourist guides for the NRMA.

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- NRMA road service becomes 24 hour in 1933.
- Speed limits introduced in 1937 due to NRMA lobbying — 30 mph (48 kph) in built-up areas and 50 mph (80 kph) on the open road.
- Membership is 66 234 by the end of the 1930s.

1940s

- New car sales drop to only 5000 in 1942 due to World War II.
- Heated rear windows first installed in cars by Rolls Royce of England in 1948.
- First Holden 48/215 launched by GMH in Melbourne in 1948. With the advertising catchcry 'Australia's own car', it becomes the country's bestselling model.
- Key starting introduced by Chrysler in 1949 to the first US post-war models.

NRMA

- 'Woman at the wheel' section starts in the NRMA magazine in 1939, with tips on driving clothes and recipes for picnics.
- During World War II, NRMA issues petrol coupons, supplies road reports to the defence department and applies for fuel priorities.
- Third party insurance becomes compulsory in 1943, which brings significant increases to NRMA's insurance business.
- New fleet of custom-designed vans with two-way radios introduced in 1949, speeding the response time of road patrols.
- Membership is 117 192 by the end of the 1940s.

1950s

- One-quarter of new cars in Australia in 1950 are locally-assembled British makes. This will fall to nil by 1980.
- In 1951, there is one car registered for every ten Australians.
- First Redex 'outback' reliability trial held in 1953.

- Actor James Dean dies in California in a head-on collision at 120 mph in his silver Porsche 550 in 1955.
- First wholly Australian-designed Holden body produced in 1955.
- Car imports restricted by 25 percent in 1956 to encourage local industry.
- First seatbelts fitted in a mass-produced car by Volvo of Sweden in 1959.
- Holden FC is the bestselling model of the decade.
- Advertising slogans include 'Elegance ... performance ... space ... comfort' for the new Humber, and 'Announcing the new gay look Hillman Minx'.

NRMA

- After continuous NRMA lobbying for more parking in Sydney's CBD, three parking stations are built at Kent Street, Bennelong Point and the Domain in the 1950s.
- NRMA pushes unsuccessfully for more funding for city freeways and national highways.
- In 1955 NRMA supports the most publicised road safety campaign yet devised. It calls for all drivers to stop for 3 minutes at 4.30 pm on the day before Easter to bring awareness to the usually high accident rate during the holiday period.
- By the end of the 1950s there are 408 315 members, 143 service vans and road service calls number 10 000 a week.

1960s

- Australian rock 'n' roll legend Johnny O'Keefe disfigured when he crashes his Plymouth Belvedere in 1960.
- First Volkswagen Beetle made in Australia in 1960.
- First Datsun cars imported to Australia from Nissan Motor Co of Japan in 1960.
- Sales tax on new cars increased to 40 percent in the same year.

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- The locally-made Falcon launched by Ford in 1960 to challenge Holden's domination of the family car market.
- The locally-assembled R series Valiant launched by Chrysler in 1960 as a second challenger.
- By 1962 there is one car registered for every five Australians.
- Zeta mini car launched by Adelaide washing machine and cement mixer baron Harold Lightburn in 1963.
- Car imports are limited to 7500 per model per year from 1964 to encourage Australian assembly or manufacture.
- First Toyota Coronas assembled in Melbourne in 1965.
- The Holden EH Special is the bestselling model of the decade.
- In 1975, the price of petrol doubles!
- Ford's Falcon outsells Holden's Kingswood for the first time in 1974.
- Prime Minister Gough Whitlam chooses a white Mercedes for his official car in 1974, causing an uproar from Australian manufacturers.
- Prime Minister Malcolm Fraser chooses a locally designed and built Ford LTD for his official car in 1976, causing an uproar at Holden's.
- Australian production of Volkswagen ends in 1976. Nissan takes over the factory to build Datsun 200Bs.
- An anti-pollution design rule introduced by the Australian government in 1976.
- Holden has the bestselling model of the decade (the HQ Kingswood) and launches the classic jingle 'We love football, meat pies, kangaroos and Holden cars!'.

NRMA

- School children are the target for major safety campaigns in the 1960s.
- NRMA agrees for the first time in 1961 that motorists should contribute more to road finance. Licence fees are increased 200 percent and motor vehicle registration fees go up 25 percent in 1963.
- Supports driver training schools in 1963.
- Stamp duty on vehicle purchases reduced by 20 percent due to NRMA influence in 1966.
- By 1969 NRMA has issued 500 000 comprehensive insurance policies and introduced household insurance.
- Membership is 830 000 by the late 1960s.
- Other memorable advertising slogans include 'Amoco ... nice clean petrol' and 'Choose your garage door as carefully as you choose a woman'.

NRMA

- A steep increase in petrol prices during the 1970s sees the NRMA publishing guides on how to save fuel.
- Traffic congestion is a major focus for the NRMA in the 1970s, with the company lobbying for freeways and promoting car-pooling.
- Expands to cover boat insurance in 1973 and life insurance in 1977.
- Membership is 1 349 043 by the end of the 1970s.

1980s

- 1970 has the worst road toll on record.
- At the end of 1970, Victoria introduces the world's first compulsory seatbelt wearing law. They introduce random breath-testing in 1976.
- There are big cuts in taxes on imported cars in 1974.
- Last Chrysler Valiant manufactured in South Australia in 1981.
- Movie star and princess Grace Kelly killed when her Rover runs off the road in Monaco in 1982.
- In 1982, a plan is introduced to reduce the tariff on imported cars over 20 years from 57.5 percent to nil.

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- NSW introduces random breath testing in 1982.
- By 1985 new car sales exceed 640 000.
- Mitsubishi launch the Magna in 1985, a local 'family car' version of the Japanese Gallant with an Australian engine.
- All new cars sold in Australia from 1985 must use unleaded petrol.
- First Hyundai cars imported to Australia in 1986 by Alan Bond.
- First Solar Challenge race from Darwin to Adelaide held in 1987.
- Falcon GL XF is the bestselling model of the decade.
- Prominent advertising campaigns include 'Like it? We love it' for Holden Commodore and 'Oh! What a feeling ... Toyota'.

NRMA

- Computer-aided dispatch introduced for road service in 1980.
- A major campaign to promote child restraints in cars is launched in 1981.
- Crime targeted with programs such as 1984's 'Stop a thief' campaign and Neighbourhood Watch sponsorship.
- By 1986 there are 28 branches in NSW and 256 district depots (local businesses that act as agents, do repairs and offer road service).
- NRMA's Best Car Awards launched in 1989.
- Membership is 2 065 321 by the end of the 1980s.
- 1997 has the lowest death rate per capita on record.
- World tour begins for the aXcess concept car in 1998 to showcase Australia's automotive manufacturing and design skills.
- For a brief time, the Hyundai Excel is Australia's biggest-selling privately-bought car.
- The Commodore v Falcon battle for the hearts of Australians continues.

NRMA

- Starts sponsoring a helicopter-rescue service 'CareFlight' in 1990.
- Launches an anti-pollution campaign 'Clean Air 2000' in 1995 to coordinate with the 'green Olympics'. They are the first motoring club in the world to take up the issue.
- NRMA Internet site established in 1996 — www.nrma.com.au
- Home security systems launched by NRMA in 1997.
- Begins operating in the home loan industry in 1997 through NRMA Building Society.
- Starts development of the StarTrack system in 1997 — a high-tech vehicle tracking and security system, which protects against unauthorised entry and also monitors battery levels.
- Membership is 1 850 000 in 1998.

1990s

- In 1992, Sydney Toyota dealers place newspaper ads aimed at gay men.
- In 1996, there is one car registered for every two Australians.
- Diana, Princess of Wales is not wearing a seatbelt when she dies in a crash in Paris in 1997.

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Web sites

Most of the major car manufacturers have their own webpages. This is a selection of some of the many car-related sites on the web; you are sure to come across some fantastic sites of your own.

The list was correct at the time of publication, but you should note that web sites change frequently.

- Advanced Transport Group — transport for the future (UK). An interesting site about an alternative transport system. www.fen.bris.ac.uk/aero/atg/ultra.html
- ARRB Transport Research (Australia). Transport issues and problem solving. www.arrb.org.au
- Art cars in cyberspace (USA). Includes a section on art cars in the classroom and how to make your own art car. www.artcars.com/
- *Australian classic car* and *New Zealand classic car* magazines www.ccar.com.au
- Australian Institute of Traffic Planning & Management www.sinta.uts.edu.au/aitpm/
- Auto Museum. A worldwide listing of museums www.automuseum.com/Museums.html
- Automotive museums in Great Britain www.team.net/www/museums/gb.html
- Bureau of Transport Economics (Australia). Research results and discussion. www.dot.gov.au/programs/bte/btehome.htm
- Car Net (USA). Information for car consumers. www.carnet.com.au/
- Car stuff (USA). 'The web's most complete source of automotive links'. www.car-stuff.com/carlinks/future.htm
- Cars and culture (USA). Not the Powerhouse Museum exhibition but a media site with a variety of material. www.carsandculture.com/
- Cars of the Stars museum. Pictures of some unusual cars. <http://members.aol.com/cotsmm/cots.html>
- Cartalk at cars.com (US chat). A fun page if you follow the links. <http://cartalk.cars.com/Mail/Dangerous/mailbag-special.html>
- CMIS-Intelligent Transport Systems, CSIRO (Australia). Good information page, although it is not interactive. www.cmis.csiro.au/its/
- Damsels of design (USA). Excellent one page article about women car designers in the USA in the 1950s. www.core77.com/AWID/damsels.html
- DaimlerChrysler (USA). Includes a timeline. www3.daimlerchrysler.com/index_e.htm
- Factory muscle (USA). The McGroder collection of rare 60s muscle cars. www.factorymuscle.com/index.html
- Friends of the Earth (UK). Environmental issues. www.foe.co.uk/car/clickon/text/index.html
- Global Positioning System (USA). A good explanation of this navigation system, with diagrams. www.utexas.edu/depts/grg/gcraft/notes/gps/gps.html
- Green pages (USA). Comprehensive directory and information on fuel and transportation systems. <http://eco-web.com/index/chapter-10.html>
- Henry Ford Museum (USA). Lots of pictures and information. www.hfmvg.org/index.html
- How stuff works (USA). Excellent animated graphics with concise explanations about how engines and other car-related objects work. www.howstuffworks.com/
- Institute of Transport Studies, University of Sydney (Australia). Link to their publications. www.its.usyd.edu.au
- Inverell Transport Museum (Australia) www.northnet.com.au/%7Epcollis/itm/itm.html
- Intelligent Transport Systems magazine (USA). The March-April 1999 issue has a cover story on Sydney Olympics traffic management www.itsinternational.com/mag/index.htm

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- Lance Warren's rotary engines (Australia) www.3rotor.com/
- MotorWeb (Australia). An excellent science-based feature articles page. www.themotorweb.com.au/articles/
- Motorcraft (USA). Car racing, design, engineering and history. www.motorcraft.com/History/1950/index.shtml
- Muscle cars home page (USA). Good pictures on-line. www.musclecars.net/
- National Highway Safety Traffic Administration (USA). A source for lots of information. www.nhtsa.dot.gov/
- NRMA (Australia) www.nrma.com.au
- RoadTransport Forum (Australia) www.pubserv.com.au/rtf/default.htm
- *Street machine* magazine: Summernats (Australia). Everything you ever wanted to know about the biggest 'hotrod' event in Australia. www.capint.aust.com/sumnats/Overview.html
- Showroom of automotive history (USA). A mini car museum on the web, plus a research centre page for searches www.hfmgv.org/histories/showroom/intro.html
- *Sydney Morning Herald* 'Drive' section (Australia). www.drive.com.au
- Teen new drivers' home page (USA). Some very relevant tips for drivers new and old! www.ai.net/%7Eryanb/
- Vanadium Battery Development Group, University of NSW (Australia). The vanadium battery is an alternative fuel source displayed in the exhibition. www.ceic.unsw.edu.au/centres/vrb/webframe/option1.htm
- Wankel rotary combustion engines (USA). Everything you want to know about rotary engines (although the graphics are poor). www.monito.com/wankel/
- *Woman motorist* magazine (USA). It's very pink but there is good information on safety, maintenance etc. www.womanmotorist.com/index.shtml

Suggestions for activities

The activities listed here are suggestions to help you start exploring cars and related issues. You can use them before or after your visit to the exhibition.

Some of the activities explore a subject briefly and are particularly fun for young children. However, many activities can also be adapted for older students or used as starting points for study in related topics. For example, the tyre tread activity (no 7) could be applied to older students to introduce work on:

- designing with a purpose
- visual arts pattern-building skills
- mathematical pattern formulas
- material reactions to temperature, stress and patterns of use.



William Street, Sydney. A photograph by David Potts for the exhibition and book, *Australian outrage*, 1964. Powerhouse Museum collection, reproduced courtesy of David Potts.

1. Cars in your life

This activity will help show how our built environment is very much affected by cars.

Think about cars and the affect they have on your life.

Does your family have a car or maybe more than one? How many people use it and where is it driven eg from home to school or a workplace, to sports activities? How would your daily life be if you had a car/didn't have a car?

Find a photograph of a street; maybe the street outside your school, or use the photo below. Make photocopies so that you can work in groups.

Look at the photograph very carefully and circle or list all the things that are there because of cars and other vehicles eg

- roadway itself
- curbing and guttering
- footpaths
- median strips
- pedestrian crossing or traffic lights
- drive-in shop
- parking signs

2. Cars as inspiration

Many musicians, artists, writers, designers and film-makers have been inspired by cars, driving or road trips. Divide the class into groups and give each group a profession. The musicians group will research songs about cars, the artists works of art and so on. Try to bring examples into the classroom to create a car culture environment.

3. Car rhythm

Cars make many different sounds. You can use body percussion, vocalisation and found objects to represent car sounds and make an ostenato or rhythm pattern.

Make a list of all the sounds a car makes eg closing doors, seatbelt warning sound alarms, engine, the sound of the indicator signal and the windscreen wipers, the click of seatbelts. You could also list sounds made by other forms of transport.

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KEY		
	symbol	sound
seatbelt		finger snap
wheels		skid (vocal sound)
engine		cough
rest		silence

After experimenting with all the sounds on your list, choose a few on which to concentrate (make sure they cover a range of sounds). As a whole class, practise making each sound a standard way. You may also want to practise different rhythm skills.

Instead of using traditional notation, you may like to make up a symbol for each of the sounds and combine this with elements of formal notation.

When you have learnt all the sounds and rhythms, divide the class into two groups (you can divide into smaller groups as the skills develop). Give each group its own sound and rhythm line. Try not to finish with a crash!

You can use the example above to get you started.

When you are in the exhibition, listen carefully and you will hear many car-related sounds from the videos and interactives.

4. Box-car races

Collect six large strong cardboard boxes. Sticky-tape the top and bottom flaps open so they give the four sides more strength. Use paint or collage to decorate the boxes and transform them into cars. If the boxes are very big and the children short, cut hand-holds in each side. With your new cars, you can run car relays, obstacle courses and drag races!

5. Safety animals

Collect books that have lots of pictures of animals. Make a picture of your favourite animal emphasising the features the animal has to protect it. For example, some animals are able to avoid dangerous situations because of their very good hearing or good vision, others can change their colour to camouflage themselves. What animal feature would you make part of a fantasy car?

6. Naming game

Create a huge car outline on the board by asking each child to draw a detail of the car and name it. As the car takes shape, fill in and name any additional parts.

When the car is finished, you can use this word list as a basis for building a vocabulary for spelling, context and meaning skills. If you have bilingual students or are studying another language, build the list in the other languages as well.

7. Tyre treads

Tyre treads are made using many different patterns. They may be combinations of flat and rounded sections, fine grooves in large numbers and smaller numbers of courser grooves. Each tread pattern has the same purpose: to move water from the centre of the tyre so that the tyre stays in contact with the road.

CARS AND CULTURE OUR DRIVING PASSIONS

Cut sheets from a roll of grease-free paper for each student. Using a soft crayon or 6B pencil, make rubbings of all the different tyre treads you can find.

This activity can be carried out safely if you have a car park in the grounds of your school and you have the car owners permission.

8. Picture cards

Collect pictures of cars and car parts from magazines and newspapers, and stick each onto a piece of cardboard. When you have a good stack of these cards, you can use them as a basis for lots of activities:

- Snap: played in pairs with each person having a pile of picture cards. You can match colours (red car! blue car!); parts (headlights, dashboard), location (city, country), brand of car.
- Name the part: one person shows a card, the others write down what it is. Everyone checks spelling at the end.
- Easy story-building: each person has a card. One by one (in an order chosen by the teacher), each person shows their picture card and says a sentence related to it, gradually adding to one main story.
- Not so easy story-building: shuffle the stack of cards. As each person has their turn, they take a card from the top of the stack, show the picture and say a sentence relating to it, before passing the rest of the stack to the next person.
- Write the story: put up the picture in order around the room. Everyone writes a story using the same card order as their basis.

9. The right frock for the right car

Cars and clothing fashions often follow similar trends. One of the easiest ways to see this is by looking at advertisements for cars that also have people in them.

Choose a car from another decade, not the 1990s. Match the fashion of the day to the car by finding

pictures or drawing the clothing yourself. Note the materials used, colours, methods of construction and relative costs. To use this idea as the basis of a larger project, add more details and examples from the period eg advertising styles, music, food, customs, the status of women and the market (who was most likely to own or use the car you have selected).

10. Ad safe

Choose a road safety issue that particularly concerns you. For example, is it the high cost of cars with excellent safety features? poor driver-training and practice? road rules? road rage? road design? When you have chosen a concern, design an advertising campaign or segment that seeks to raise community awareness of the issue. Remember to choose an approach that will further your goal.

11. Park it!

In the exhibition you will see a model of a 1930s idea for a parking station by Francis Henry Allport. It features four movable concentric floor sections. Each section could rotate to allow cars to be driven in or out. Can you think of an idea that would efficiently store parked cars?

12. Simple science

Why not design a simple science experiment that applies to cars? You could examine concepts like force, motion, speed, traction, gears and cogs, energy use, efficiency and alternatives. There are many books available that give step-by-step instructions.

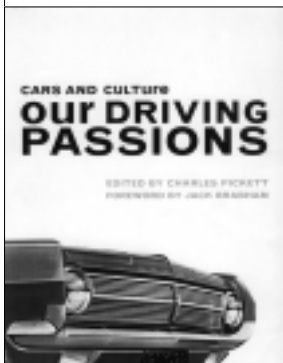
13. Research and extension

Cars have a significant and wide-ranging impact on our lives. Choose one topic to explore in detail, for example:

- architecture and systems in the built environment
- the natural environment
- social relationships and organisations
- cultural pursuits
- sport
- personal safety.

CARS AND CULTURE OUR DRIVING PASSIONS

Exhibition publications



Cars and culture: our driving passions, edited by curator Charles Pickett, with a foreword by Jack Brabham, includes seven essays, assorted personal stories and over 100 fabulous colour and black-and-white images. Co-published by Powerhouse Publishing and HarperCollins Publishers. \$29.95, paperback, 144 pages.

Powerhouse Cars! super fun book, a great activity book for children aged five to nine. \$3.95, paperback, 16 pages plus colour stickers.

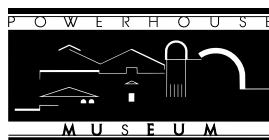
Both available from the Powerhouse Museum Shop, good bookstores and from Powerhouse Publishing mailorder. Tel: (02) 9217 0129.

Front cover images: (*left*) Model for a car of the future made by Charles Beauvais, 1936. Powerhouse Museum collection. (*middle*) Jack Brabham, three-time world champion driver. Photograph by Geoffrey Goddard. (*right*) 'Moderns on the move'. Photograph by Henry Talbot for *Vogue Australia*, 1963.

For further information

For more information on the *Cars and culture* exhibition, visit the Powerhouse Museum's website <http://www.phm.gov.au>

For more information about the museum or to make a booking, contact Education and Visitor Services at the Powerhouse Museum: **telephone (02) 9217 0222, fax (02) 9217 0441, email: edserv@phm.gov.au**



Ideas in Action

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