

## Teacher Resource

# Electric Car Future

## Focus Questions

1. Briefly summarise the BTN *Electric Car Future* story.
2. When was the first electric car developed?
3. What were some of the pros when petroleum powered cars were first developed?
4. Why are some car manufacturers moving away from petrol and diesel fuelled cars?
5. What does EV stand for?
6. Complete this sentence. Electric cars don't produce as much air \_\_\_\_\_.
7. What do experts say we need more of if more people start driving EVs?
8. Why aren't there many EV models available in Australia?
9. What did you learn watching the BTN story?
10. What questions do you have about the BTN story?

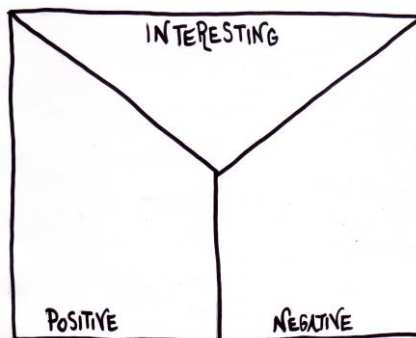
## Activity

### Note taking

Students will practice their note-taking while watching the BTN *Electric Car Future* story. After watching the story, ask students to reflect on and organise the information into three categories.

What information about this issue was...?

- Positive
- Negative or
- Interesting



## Activity

### Key Words

Students will develop a glossary of terms that relate to electric cars. Below are some key words to get them started:

fossil fuels	emissions	hybrid cars
electric vehicle	internal combustion engine	air pollution

## Key Learning

Students will investigate the pros and cons of electric vehicles.

## Curriculum

### Science – Years 5 & 6

Scientific knowledge is used to solve problems and inform personal and community decisions.

Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts.

### Science – Year 7

Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations.

### Design and Technologies – Years 3 & 4

Recognise the role of people in design and technologies occupations and explore factors, including sustainability that impact on the design of products, services and environments to meet community needs.

### Design and Technologies – Years 5 & 6

Examine how people in design and technologies occupations address competing considerations, including sustainability in the design of products, services, and environments for current and future use.

**Define:** What do I want to know?

### Key questions to research

Students can choose one or more of the following questions or come up with their own:

- How are electric cars different to cars fuelled by petrol, diesel or gas?
- What happens if you run out of charge and you're not near a charging station?
- How far can an electric car go on a single charge and how long do they take to recharge?
- Why are alternatives to petrol or diesel cars being explored?
- What emissions do cars produce and why are they a problem?
- What are the pros and cons of electric cars?

### Locate: Where do I find the information?

What resources will help answer my questions? (Internet, people, resource centre, organisations, print). Discuss with students what a reliable source is.

### Select: What information is important for the investigation?

Students may need support to sort through and select relevant information.

### Organise: How do I make sense of the information?

Students can organise their research by creating main headings from their questions. Write each heading on a separate piece of paper. Record the information found for each question.

### Present: How do we let others know about this information?

Each group needs to discuss then decide on the best way to present the information. Possibilities could include:

- A 'Did You Know' Facts sheet
- Infographic
- Oral presentation
- [Prezi](#) presentation
- Create an infographic using [Canva](#)

### Evaluate: What have we learnt?

Each group reflects on what they have learnt about electric cars during their investigation. Students will reflect on their learning and respond to the following.

- What I learned...
- What I found surprising...
- What I would do differently next time...

## Activity

### Pros and cons

Students will research the pros and cons of electric cars organising their information into two columns. Students will use their research findings to help plan and create an information poster.

### Information poster

Students will design a poster or infographic which illustrates one or more of the benefits of electric cars.

- Think of ways that electric cars can help people, the environment and/or the economy.
- Write down your key message that you want to get across. It can be a sentence or a short slogan.
- Create your poster.
- Share and explain your poster design with the class.
- Display your artworks around your school or local community to raise awareness about the topic.

## Activity

### Car of the future

Before starting this activity, hold a class discussion, asking students what sort of car they think they will be driving in 50 years' time?

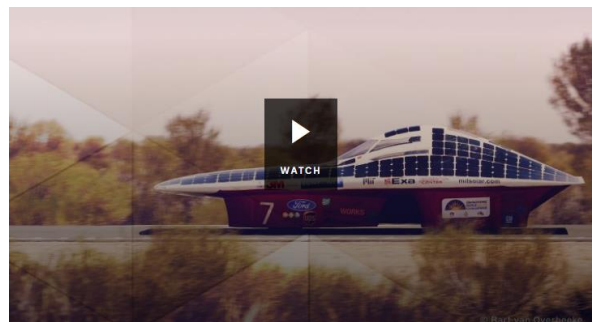
Students will then design an eco-friendly car of the future, with the aim to decrease air pollution. Students will consider the impact that vehicles have on our planet and then design a car that causes as little harm as possible to the environment. Students will need to consider the following:

- Provide a drawing of the car with labels to show its features.
- Choose a body size, engine size, fuel type and accessories.
- What speed will your car travel?
- What materials will be used to make your car?
- What are the interior and exterior features?
- What new technologies will you incorporate in your design?
- How will the car benefit people and the environment?
- Why is your design the best one for your community?
- Present your design to the class.

## Activity

### [BTN Solar Transport story](#)

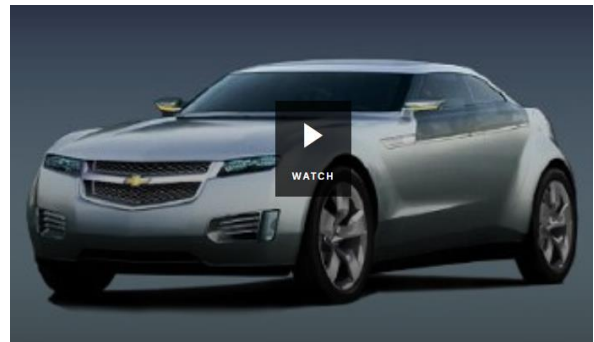
1. Before you watch the BtN story, record what you know about solar powered cars.
2. Where does the *World Solar Challenge* start and finish?
3. How far do the cars travel?
4. The event's been running since the 1980s. How have the cars changed over time?
5. What sort of engines do solar powered cars have?
6. Where is the electricity stored?
7. How has the technology improved in recent years?



8. What are some disadvantages of solar powered cars?
9. What do you think is the future of solar powered cars? Explain your answer.

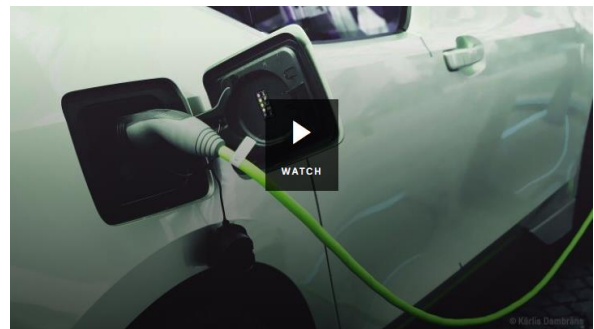
### [BTN Hybrid Cars story](#)

1. Why are alternatives to fuel-powered cars being investigated?
2. What is a disadvantage of an electric motor?
3. What is a hybrid car?
4. In your own words, describe how a hybrid engine works.
5. What are the benefits of hybrid cars?
6. List the disadvantages of hybrid cars?
7. What are some other car technologies on the horizon?
8. What do you think the Government should be doing to support petrol alternatives?



### [BTN Petrol Car Ban story](#)

1. Summarise the BTN story
2. In which decade were electric cars introduced?
3. What are the advantages and disadvantages of petrol engines?
4. Which state recently announced it will have charging stations along a 'super highway'?
5. Electric vehicles are cheaper to run and they're cheaper to maintain. True or false?
6. What other energy sources are used to power cars?
7. Do you think Australia should phase out petrol and diesel-powered cars? Give reasons for your answer.



## Useful Websites

BTN Petrol Car Ban

<http://www.abc.net.au/btn/classroom/petrol-car-ban/10522652>

BTN Electric Cars

<http://www.abc.net.au/btn/classroom/electric-cars/10528362>

BTN – Hybrid Cars

<http://www.abc.net.au/btn/classroom/hybrid-cars/10541082>

BTN – Solar Cars

<http://www.abc.net.au/btn/classroom/solar-cars/10533412>

ABC News – Labor climate change policy proposes tax breaks for businesses to buy electric cars

<https://www.abc.net.au/news/2019-04-01/labor-proposes-tax-breaks-for-businesses-to-buy-electric-cars/10957268>