

Activity

Episode 13 20th May 2014

Electric Cars

Key Learning

Students will investigate alternative energy sources used to power cars. They will look at one in depth to gain a greater understanding of how it works and the advantages and disadvantages.

The Australian Curriculum

Science /Science as a Human Endeavour /Use and Influence of Science

Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives.

Year 5 (ACSHE083) Year 6 (ACSHE100)



Scientific knowledge is used to inform personal and community decisions (ACSHE217) Year 5 (ACSHE220) Year 6



Discussion Questions

- 1. What was the main point of the Electric Cars story?
- 2. Around the turn of the last century, electric cars were quite popular. True or false?
- 3. Why did the internal combustion engine take over?
- 4. What are some disadvantages of petrol engines?
- 5. What has been one of the problems with electric cars in the past?
- 6. How has battery technology changed?
- 7. In which country are electric cars popular?
- 8. What do some people in Western Australia want councils to do?
- 9. What other energy sources are used to power cars?
- 10. What do you think is the future of electric cars? Explain your answer.

Activities

K-W-H-L

After watching the BtN *Electric Cars* story, hold a class discussion about the information raised in the story. Find out what students know about alternative energy sources for cars and what questions they have about the topic. Here are some discussion starters:



K – what do you know?

W – what do you want to know?

H – how will you find out?

L – what did you learn?

Discussion questions

- What is the difference between electric cars and conventional cars?
- What are fossil fuels?
- What are the issues with continuing fossil fuel use?
- What types of alternative energy sources are being developed for future cars?

What is the car of the future?

Students will investigate alternative energy sources used to power cars. The BtN story looked at electricity being used to run a car but other sources of energy are also being explored as potential cars of the future.

Ask students to discuss and make some predictions about the following:

- How could cars be improved? Why?
- Why are scientists and engineers researching ways to make cars better?
- Will attitudes about the use of fossil fuels (petrol and natural gas) change over the next 50 years?
 Why?
- Why might we see changes to the way cars are powered?

Students can then investigate one of the alternative fuel sources to power cars in the future.

Solar



Hybrid



Biofuel



Hydrogen



Electric



Research Task

Students need to investigate:

- How the car works (include a diagram)
- The environmental impact of the energy source
- The advantages and disadvantages
- Any challenges

Students present their research in a number of ways:

Brochure – the *Read Write Think* website has templates students can use to publish their work http://www.readwritethink.org/files/resources/interactives/Printing_Press/

Prezi presentation http://prezi.com/

Students will need to provide a list of references they used in their research, including the websites they referenced.

Discuss which energy source seems most likely to be commonly used in the future. Why? Which would you choose as the car of the future? Why?

Further Investigation

There are some design features of cars that improve performance and fuel efficiency. These include low friction tyres, aerodynamics and improved battery technology. Create a poster that illustrates and explains these technologies.

Evaluate

Students will reflect on their learning

- I learned that...
- I enjoyed/did not enjoy...
- I want to know more about...
- I was surprised to discover that...

Related Research Links

Behind the News – Hybrid Cars http://www.abc.net.au/btn/story/s2275678.htm

Behind the News - Solar Cars

http://www.abc.net.au/btn/story/s3343596.htm

Future Sparks - Cars

http://futuresparks.org.au/inspiration/all-about-energy/cars.aspx

