

Teacher Resource

Episode 30
27th October 2015

Solar Transport

FOCUS QUESTIONS

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. What is the goal of the race?
5. The event's been running since the 1980s. How have the cars changed over time?
6. What sort of engines do solar powered cars have?
7. Where is the electricity stored?
8. How has the technology improved in recent years?
9. What are some disadvantages of solar powered cars?
10. What do you think is the future of solar powered cars?
Explain your answer.

ACTIVITY

Class glossary

Create your own classroom glossary about solar powered cars. Use the BtN *Solar Transport* story transcript to get you started. Start by brainstorming words as a class using a mind map to record your responses and then find definitions for each word. Consider using pictures and diagrams to illustrate meanings.

- sun
- power
- technology
- solar panels
- energy
- convert
- electricity
- electric engine
- battery
- recharge
- alternative fuel



Challenge students by asking them to use words from their class glossary to write their own sentences. Alternatively, students can make their own crossword puzzle or word find.

KEY LEARNING

Students will investigate the advantages and disadvantages of solar powered cars.



Science – Years 5 & 6

Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives. ([ACSHE083](#)) ([ACSHE100](#))

Scientific knowledge is used to inform personal and community decisions ([ACSHE220](#)) ([ACSHE217](#))

Science – Year 6

Energy from a variety of sources can be used to generate electricity ([ACSSU219](#))

Science – Year 7

Some of Earth's resources are renewable, including water that cycles through the environment, but others are non-renewable ([ACSSU116](#))

Science – Year 8

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations ([ACSHE135](#))

ACTIVITY

What is solar energy?

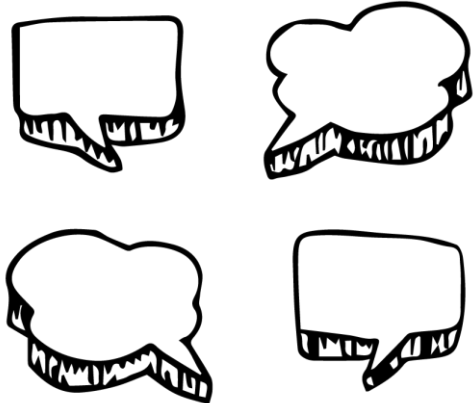
Investigate how energy from the sun can be used to generate electricity. Watch BtN's [Solar Energy](#) and [Solar Future](#) stories as part of your research. Teachers, download the corresponding teacher resources for each story. Students will investigate:

- how we depend on electricity in our everyday lives
- the difference between renewable and non-renewable sources of energy
- the science of solar energy
- the advantages and disadvantages of solar energy, from environmental, economic and social perspectives.

ACTIVITY

Make a list of questions you have about solar powered cars that you would like to ask a scientist or engineer. Use the internet to find answers to your questions. Visit the ABC's [Ask an Expert](#) website, to see if any of your questions are answered. Compare your questions and answers with your classmates.

- What happens if it is a cloudy day?
- Why have solar powered cars?
- What are the pros and cons of solar powered cars?
- How does a solar powered car work?
- How are solar powered cars different to petrol fuelled cars?
- How long will it be before everyone can drive a solar powered car?



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How does a solar powered car work?

Find out as much as you can about solar powered cars using a range of primary and secondary sources (internet, newspapers and books). Use your research to help draw a diagram which includes the following information:

- Solar energy becomes electricity
- Power storage
- Motor controller
- The motor

Become an engineer and build your own solar powered car. Use the internet to find a supplier of educational resources, or refer to the links below for several solar powered car kits that can be purchased online.

[Solar car kits](#)

[Micro solar car](#)

[6-in-1 solar educational kit](#)

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Pros and cons

Research the pros and cons of solar powered cars organising your information into two columns. Use your research findings to help plan and create an information poster.

Information poster

Design a poster or infographic which illustrates one or more of the benefits of solar powered cars.

- Think of ways that solar powered 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

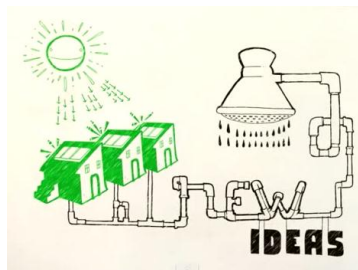
Design a sustainable community

Students will design a community that relies more on renewable resources, like solar energy for transport. Design a community with an emphasis on pedestrians, bikes and transport that uses alternative fuel sources. Students may create a community where we can work, go to school and shop closer to where we live, create more bike lanes, have more people living closer together so they can support public transport and create safer streets to encourage walking and riding.

Students should consider the following:

- What renewable energies will you need to power your city?
- How can your city be more water smart? Consider including storm water harvesting technology.
- Will you build lots of little houses or a few high-density apartment buildings?
- Is your city pedestrian and cyclist friendly?
- What sort of transport will your city use?
- What recycling programs will your city have?

Watch this YouTube animation about [climate change, energy and action](#) to get inspired!



USEFUL WEBSITES

World Solar Challenge – About

http://www.worldsolarchallenge.org/about_wsc_2015/overview

Energy Quest – A Student's Guide to Alternative Fuel Vehicles

<http://www.energyquest.ca.gov/transportation/index.html>

Behind the News – Solar Cars

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

Behind the News – Solar Future

<http://www.abc.net.au/btn/story/s3820130.htm>

Behind the News – Solar Energy

<http://www.abc.net.au/btn/story/s4183229.htm>



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