Teacher Resource

Solar Car Challenge

Episode 29
22nd October 2019

Focus Questions

1. Briefly describe the World Solar Challenge.
2. Where does the race start and finish?
3. What is the distance of the race?
4. How do the solar panels work?
5. Solar power is a non-renewable resource. True or false?
6. The cars are only allowed on the road between _____and _____.
7. Explain how the World Solar Challenge began.
8. What challenges did some of the teams face this year?
9. What is the cruiser class?
10. What do you think is the future of solar cars? Explain your answer.

Activity

Before students watch the BTN story, ask them what they already know about solar cars and solar energy.

Class Discussion

After watching the BTN *Solar Car Challenge* story, students will respond to the following questions:

- What did you SEE in this video?
- What does this video make your WONDER?
- What did you LEARN from this story?
- What QUESTIONS do you have after watching the story?

Glossary

Students will brainstorm a list of key words that relate to solar cars. Students may want to use pictures and diagrams to illustrate the meaning and create their own glossary. Here are some words to get them started.

Solar	Solar panel	Energy
Battery	Renewable	Emissions

Key Learning

Students will learn more about solar cars, how they work and design their own car of the future.

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 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.

Activity

KWLH

Watch the BTN *Solar Car Challenge* story and discuss as a class. What questions were raised in the discussion and what are the gaps in their knowledge. The following KWLH organiser provides students with a framework to explore their knowledge on this topic and consider what they would like to know and learn.

What do I know?	***What do I want to know?***	***What have I learnt?***	***How will I find out?***

Students will develop their own question/s for inquiry, collecting and recording information from a wide variety of sources. Students may develop their own question for inquiry or select one or more of the questions below.

- Why have solar powered cars? What are the benefits?
- What are the pros and cons of solar powered cars?
- How does a solar powered car work?
- How has solar car technology improved in recent years?
- How are solar powered cars different to petrol fuelled cars?
- How long will it be before everyone can drive a solar powered car?
- What are fossil fuels and what are the issues with continuing fossil fuel use?
- What types of alternative energy sources are being developed for future cars?
- What emissions do conventional cars produce and why are they a problem?
- What do you think is the future of solar cars?

Activity

How does a solar powered car work?

Students will find out as much as they can about solar powered cars using a range of primary and secondary sources (internet, newspapers and books). They can use their 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
6-in-1 solar educational kit

Activity

Pros and cons

Students will research the pros and cons of solar 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 solar cars.

- Think of ways that solar 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? BTN has done a number of stories about alternative energy sources for cars. They can check out the following stories to help with their research:

- Electric Cars
- Electric Car Future
- Hybrid Cars

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.

Useful Websites

World Solar Challenge 2019
https://www.worldsolarchallenge.org/

Solar Cars – BTN
https://www.abc.net.au/btn/classroom/solar-cars/10533412

Solar Transport – BTN
https://www.abc.net.au/btn/classroom/solar-transport/10525652