



FUTURE SPARKS

TEACHER RESOURCES

90 minute workshop

www.futuresparks.org.au

Future Sparks is a Green Cross Australia project in partnership with the Department of Climate Change and Energy Efficiency, CSIRO and Clean Energy Council.

Step 1: Engage with the project

Overview of the Future Sparks Clean Energy Future

Show and Tell Competition (5 minutes)

Refer to the Future Sparks Clean Energy Future Show and Tell competition website and explore the requirements to submit a competition entry with the class.

Create a retrieval chart on which to show collected information and ideas e.g. what's needed, resources, time lines, judging criteria, prizes etc.

View videos (20 minutes)

View 'why we need clean energy' and inspiration pages at www.futuresparks.org.au for possible clean energy future solutions.

See additional ideas at:

http://www.3pillarsnetwork.com.au/knowledge/behaviour_change/stories_sizzle_salience_and_social_proof/k181

View **You Tube Videos** for information and inspiration for the student videos:

<http://www.youtube.com/watch?v=vO7UeSDNeX8&feature=related>

http://www.youtube.com/watch?v=_s9dxc_jVIY&feature=related

<http://www.youtube.com/watch?v=oTyWeW5MEio&feature=related>

<http://www.youtube.com/watch?v=Fls90kSkmps>

<http://www.youtube.com/watch?v=NaLBvHYyUA&feature=related>

<http://www.youtube.com/watch?v=TUONjdmFqHI&feature=related>

<http://www.youtube.com/watch?v=qxd8YbyzKsM&feature=share>

<http://www.youtube.com/watch?v=kVskMh0Etc&feature=related>

Step 2: Explore

Research what's new in the clean energy area (15 minutes)

Sustainability will certainly demand improvements to our current technology in order to reduce our reliance on non-renewable and non-recyclable resources. How we get our energy is equally as important as how we use it, which means we need innovative ways of harnessing those resources we have access to.

Invite students to download and read the articles about existing clean energy technology, emerging and new clean energy technologies from www.futuresparks.org.au

Engage students individually or in pairs to choose a topic and define their investigation as '*Sustainable Clean Energy Futures*'. Explain to them that they are to research a topic of their choice and engage in an investigation that is related to their topic.

Adapted from: CSIRO CarbonKids in Action Curriculum Unit, page 10

Explore futures ideas (10 minutes)

Take a 'futures walk' by imagining and envisioning clean energy options for the future. Talk with the students about:

- Possible futures
- Probable futures, and
- Preferable futures (hopes, dreams and visions).

Encourage students to formulate their own questions and then illustrate and describe their clean energy possible, probable and preferable future ideas.

For example:

- A possible clean energy future includes...

- A probable clean energy future might include...
- I hope a preferable clean energy future can include....

Discussing futures (10 minutes)

Ask students to talk about what are issues for them in relation to:

- energy sources in the present
- possible clean energy sources and
- probable clean energy sources.

Expand on these thoughts and ask students what might be done about these issues.

Synthesise ideas and write a recount of ideas collected.

Step 3: Explanation and extension

Check out (10 minutes)

Check out some amazing videos created by students in NSW Public Schools and focus on the video techniques used post creation of a storyboard.

See <http://www.youtube.com/watch?v=tKmb2gYViCU>

and <http://www.youtube.com/watch?v=I7oh-7BZUZE>

Similarly, view winning video entries in a Geoscience Australia video competition for ideas.

See www.ga.gov.au/education/public-events/geologi-short-film-competition/geologi-winners-2011.htm

Bringing it together (10 minutes)

Focus student's attention on:

- What we know;
- What we want to find out;
- What the class now knows;
- What other things we would like to find out.

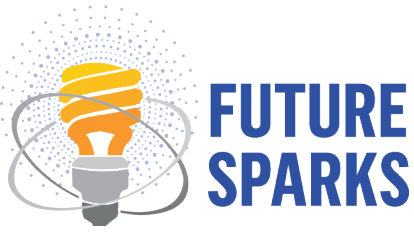
Use 'What we know' as a source for class, small group discussion and use other prompts to plan the way forward. See

<http://office.microsoft.com/en-au/templates/kwlh-chart-TC101887896.aspx>

Step 4: Elaboration

Presentation planning (10 minutes)

Invite students to confirm the 'big idea' planned for their video competition entry in a single sentence or a series of words like a



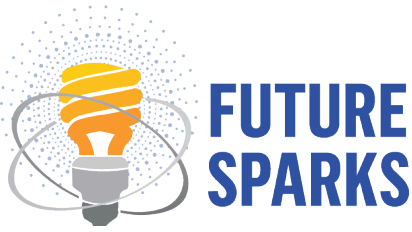
newspaper headline. In small groups, discuss the possible ways to present the big idea in an interesting and engaging format. Create a final plan for completing the presentation requirements for the competition entry. Students may need to document their key messages, create an image bank and their props and collate references and acknowledgements for their work sample.

Students work in groups, pairs or individually to create a video presentation and map their 'big idea' about a clean energy future.

Make the video and peer review it (homework)

Using an iPod, MP3 Player, video camera or iPhone, ask students to capture the video footage as required for their clean energy future video.

Using programs like Movie Maker and iMovie invite students to create and edit video sequences. Add special effects, headings, captions, acknowledgements and any copyright information that may be required.

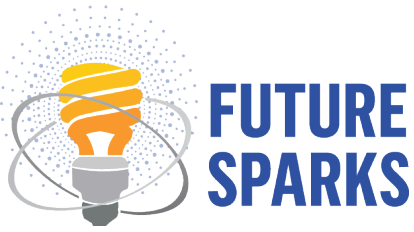


Share videos with class peers seeking their critique before submitting to the Future Sparks Clean Energy competition. The class should consider how well the video meets the judging criteria:

- **The video includes creative and novel ideas, for new technology, application of technology, and/or changes in behaviour that result in less greenhouse gas emissions**
- **The entry demonstrates an excellent understanding of clean energy and the need to transition towards clean energy sources**
- **The presentation in the video has impact, is engaging, original and creative**
- **The video is highly effective at communication its message**
- **The video production is sound, with can be clearly heard and seen**
- **The video does not exceed 3 minutes**
- **PowerPoint presentations will not be accepted. The video should contain only props and material produced by the student and be free from copyright restrictions**

Review checklist and submit the video (unknown minutes)

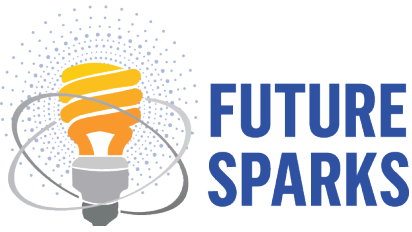
Invite students to reflect on feedback shared in the earlier activity, revise and fine-tune the video to meet entry requirements.



Ensure Parental Consent form has been completed and posted to Green Cross Australia.

Upload the competition entry via www.futuresparks.org.au and look out for the People's Choice vote from Monday 23 July to Sunday 29 July.

Consider hosting a 'Community Show & Tell' to showcase students work to the school community and beyond. A small amount of funding is available to assist with this activity. Send in a request via the link in the Teachers' section of the Future Sparks website.



Educational resources

Acknowledgements

The *Future Sparks Our Clean Energy Future Show and Tell* educational materials project is being undertaken by CSIRO Education for Green Cross Australia.

These educational resources are designed to introduce teachers and students to Australia's use of 'clean energy' as one of the carbon dioxide mitigation options available for achieving significant reductions in atmospheric carbon dioxide emissions. Whilst not an exhaustive educational resource, it is intended to raise the awareness of school-aged students about our changing climate, clean energy practices and applications and the other alternative energy technologies that reduce greenhouse gas emissions.

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Climate change is one of the most challenging issues facing the world today. Our climate is already changing. Our temperature increased over the last century and will continue to do so in the foreseeable future – the question is by how much?

New clean energy technologies and behavioural changes will be needed to modify the impact human activity has on atmospheric greenhouse gases. Improvements to the efficiency and reliability of renewable energy sources, efficiency of energy usage, and other novel ideas and unforeseen technology will also need to be considered as potential courses of action.

The effects of human-produced greenhouse gases are intergenerational. It is going to take years – even decades - to reverse the trend. We need to begin the process of change now.

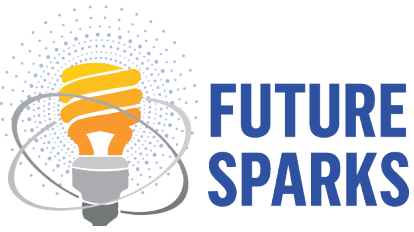
This is where the *Future Sparks Our Clean Energy Future Show and Tell* comes into play. We want to encourage our youth to understand the range of clean energy, renewable and low emission energy technologies being explored as options in managing the risks of climate change by reducing greenhouse gas emissions, particularly carbon dioxide.

How can teachers be part of the process?

As teachers, there is an opportunity to place climate change and clean energy technologies high on the school and classroom agenda – to give all students opportunities to explore the current understanding and science that can reduce greenhouse gas emissions.

This resource has been developed to help teachers:

- Initiate a learning program about clean, renewable and low emission energy technologies and climate change
- Support student’s learning for the *Future Sparks Our Clean Energy Future Show and Tell* video competition.



This resource provides information in three parts.

Section 1

Contains an extended learning inquiry of 1-22 x 40 minute lessons/workshops.

Section 2

Contains a basic learning inquiry of 1-16 x 40 minute lessons/workshops.

Section 3

Contains a learning inquiry of a 90 minute lesson/workshop.

Curriculum Links

The lessons/workshops are designed to be integrated into learning areas in the Curriculum in:

- Science,
- English, and
- Technology.

The lessons/workshops have links to the following general capabilities:

- Literacy
- Information and communication technology (ICT) capability
- Critical and creative thinking
- Ethical behaviour
- Intercultural understanding.

The lessons/workshops have links to the following cross-curriculum priority:

- Sustainability.

The lessons/workshops can be used in a number of ways. There is much choice in each of the inquiry stages and teachers can select, adapt, add to or modify these.