

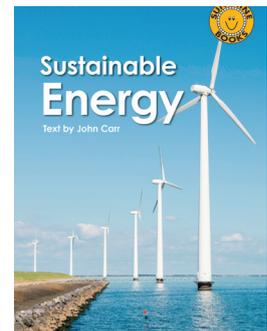


Discovering Sustainability Teaching Notes

These four Discovering Sustainability books discuss the impact of sustainable and non-sustainable activities on the health of Earth's systems. The teaching ideas can be used as a springboard for further investigation and thinking around the issues confronting Earth today. These ideas can be used to build students' understanding, promote discussion and encourage individual or group action.

Energy

1. Have students look at the fact files on pages 2–5. They research and write another fact about sustainable energy.
2. Students investigate and report on ways that energy could be saved in their home and at school.
3. Students find and explore different types of power plants using a search engine. Have them label screenshots (as appropriate) with words like: turbines, dam, powerlines, cooling towers, power station etc.
4. Organise students in pairs or small groups to watch a short video about a particular type of sustainable energy. Then have them play the video to the whole class with the volume turned off as they explain to their classmates what they are watching.



Websites with useful information

U.N. Climate Report Reveals That We're Destined for a Hotter Planet
<https://mymodernmet.com/climate-report-united-nations/>

Solar Energy for Kids
<https://www.renewableenergyworld.com/solar/solar-energy-for-kids/#gref>

Tidal Energy
https://www.nationalgeographic.org/photo/tidalenergydiagram/?utm_source=BiblioRCM_Row

Videos

How do Wind Turbines Work
<https://www.youtube.com/watch?v=DILJwsFI3w>

How Hydro Electricity Works
<https://www.youtube.com/watch?v=q8HmRLCgDAI>

Tidal Power
<https://www.youtube.com/watch?v=VkTRcTyDSyk>

Wave Energy

https://www.youtube.com/watch?v=8miWW2QyN_4

Geothermal Energy

<https://www.youtube.com/watch?v=DFQrE91kZwk&list=RDCMUCbVKIQMvSWEDLnQIAWE9IgA&index=2>

Nuclear Energy

https://www.youtube.com/watch?v=44ovdxOvP_A&list=RDCMUCbVKIQMvSWEDLnQIAWE9IgA&index=5

Making Biofuels

<https://www.youtube.com/watch?v=OJw6WFkTPZo>

Solar Energy to Electricity

<https://www.youtube.com/watch?v=EnYjlsGXugo>

Water

1. Students use an online tool to calculate the water footprint of their favourite meal. Then compare with others in the class. See if they can generalise about the kinds of foods that have the smallest water footprint but are still nutritionally balanced.

<https://www.watercalculator.org/footprint/foods-big-water-footprint/>

2. Have students explain how the water cycle works in their own words with their own drawings. Then organise them in small groups to watch and write a simple narration for a water cycle video. e.g. https://www.youtube.com/watch?v=0_c0ZzZfC8c

They can read their narration to the rest of the class as the video plays.

3. Do simple classroom experiments to demonstrate key features of the water cycle such as evaporation, condensation, precipitation and transpiration. Have students in small groups perform the experiments to the class and explain the results. Videos of many such simple experiments can be found online. Here is one example:

Water Cycle in a Bag <https://www.youtube.com/watch?v=4WQBtAJxMbY>

4. Have students in small groups research, prepare and present simple water saving tips in any one of the following formats: poster, pamphlet, play, song, rap, television advertisement, radio announcement.

Websites with useful information

Climate Kids: Fresh Water

<http://climatekids.nasa.gov/menu/fresh-water/>

Cool Australia

<http://www.coolaustralia.org/>

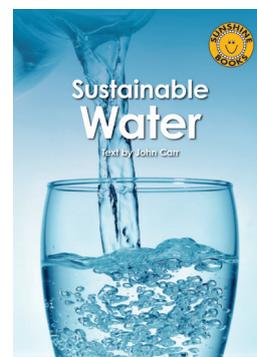
Desalination plants

<https://www.aquatechtrade.com/news/desalination/worlds-largest-desalination-plants/>

Videos

The Science of Water

<https://www.youtube.com/watch?v=zBnKgwnn7i4>



Cleaning a Lake

<https://www.youtube.com/watch?v=O6JseTWJCpY>

Destruction of the Aral Sea

<https://www.youtube.com/watch?v=XJeobqc4mFk>

How do Oasis Form?

<https://www.youtube.com/watch?v=nuJ6QTZdvxM>

What if Antarctica Melted?

<https://www.youtube.com/watch?v=QUd1XColj-s>

Building

1. Have students label an image of a Korowai tree house with sustainability features.

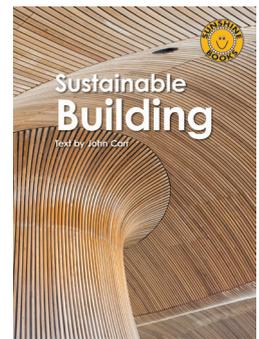
The Korowai Tribe's incredible tree houses

<http://www.mymodernmet.com/profiles/blogs/korowai-tribe-treehouses>

2. Students take digital photographs of buildings at school or in their neighbourhoods and label them with sustainable features and unsustainable features for classroom display.

3. Have students draw a plan of their favourite room in their home and then use the Eco-Cool Remodel Tool (<https://kingcounty.gov/depts/dnrp/solid-waste/programs/green-building/eco-remodel.aspx>) to identify and record three things that could be done to that room to make it more sustainable.

4. Have students investigate and report back on the construction of houses using one of these reclaimed or recycled waste materials: plastic bottles; glass bottles; cardboard; aluminium cans; wood pellets; scrap metal



Websites with useful information

Green buildings: 18 examples of sustainable architecture around the world

<https://edition.cnn.com/style/article/green-buildings-world-sustainable-design/index.html>

Green spaces in cities

<http://www.mymodernmet.com/profiles/blogs/house-for-trees-vo-trong-nghia-architects?context=tag-architecture>

Moon shaped tent

<http://www.mymodernmet.com/profiles/blogs/roomoon-tree-house-tent?context=tag-architecture>

Building materials

<https://www.houzz.co.nz/magazine/going-green-the-7-best-eco-friendly-building-materials-stsetivw-vs~92040968>

Videos

Eco-friendly cities

<https://www.youtube.com/watch?v=T5o7RdIP4FY>

Green materials replacing concrete

<https://www.youtube.com/watch?v=VsahyCrZ9sk>

Sustainable Cities

https://www.youtube.com/watch?v=fsWr0Lfm_uQ

Green Roof in NYC

<https://www.youtube.com/watch?v=FlJoBhLmqko>

Resources

1. Have students view a short video on how a particular waste product is recycled. They draw a simple flow chart to illustrate the process.

How Plastic is Recycled

<https://www.youtube.com/watch?v=zO3jFKiqmHo>

2. Have students recycle waste items to create something new.

Recycling Craft Ideas For Kids

<http://101craftideas.com/kids-craft/81-recycling-projects-for-kids>

25+ Plastic Bottle Crafts for Kids

<http://www.stickybuffalo.com/plastic-bottle-craft-ideas-for-kids/>

3. Have students explore the Amazon Basin on Google Earth and ask them to find and screen shot any evidence of deforestation. Then get them to explore the Amazon Deforestation 1984-2012 time-lapse animation (<https://earthengine.google.org/#intro/Amazon>) and get them to write a paragraph about what they have learned about deforestation in the Amazon.

4. Have students research and write a description card of an animal species that is threatened by deforestation, without naming the animal. Post the profile cards on the classroom wall with an outline map showing where in the world that animal is endangered. Once complete, other students can try to work out the names of the animals.

Websites with useful information

What is Deforestation?

<https://youmatter.world/en/definition/definitions-what-is-definition-deforestation-causes-effects/>

Study Shows That Bottled Water Is 3,500 Times More Harmful to the Environment Than Tap Water

<https://mymodernmet.com/bottled-water-bad-environment/>

LEGO Unveils New Sustainable Toy Bricks Made From Recycled Plastic Bottles

<https://mymodernmet.com/lego-bricks-recycled-plastic-bottles/>

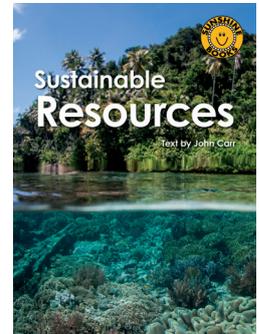
Videos

Climate Change

https://www.youtube.com/watch?v=-D_Np-3dVBQ

Learn all about the 5 Oceans of the Earth

<https://www.youtube.com/watch?v=1WZsxVDTqcU>



Bean time lapse

<https://www.youtube.com/watch?v=w77zPAtVTul>

A recycling hero (Australia) 29 minutes

<https://www.youtube.com/watch?v=4fkbQynfSyY>

Asian Eco Warriors

<https://www.youtube.com/watch?v=vQm1vpVWYbk>

Food Footprint

<https://www.youtube.com/watch?v=k7DQ0EEqxV4>

Inventions that are saving Earth

<https://www.youtube.com/watch?v=FWFb-8hFutY>