

Topic in Focus

Glass



More complex than you think?

Lesson Insight



Believe it or not, glass is not always as simple a material as we think. In this lesson, you will:

- explore glass and the implications of recycling complex materials
- be inspired by Professor Veena Sahajwalla and her work around recycling complex materials.

Curriculum Links



Science as a Human Endeavour (ACSHE223/226 Nature and development of science, ACSHE120/135, ACSHE160/194, ACSHE228/230 Use and influence of science)

Learning Intentions



- ✓ Students learn about the circular economy, its purpose and relevance to our lives.
- ✓ Students explore the challenges and opportunities of recycling.
- ✓ Students investigate how science and technology can be used to find solutions to the problem of waste.
- ✓ Students design a plan of action to respond to, or raise awareness of an issue.

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More complex than you think?

1

Brainstorm

Where is glass in our lives?

Think about your day and create a word cloud or list of anything around you, that you encountered that is made of glass or contains glass.



2

Identify

Is recycling
more complex
than you think?

Work with a partner to review your brainstorm above and highlight all the objects in which the glass can be recycled.

2

3

Watch

Click on the video thumbnail to learn about the Australian Academy of Science Fellow Professor Veena Sahajwalla and her research on recycling of complex materials at the Centre for Sustainable Materials Research and Technology (SMaRT).



4

Read

Click on Veena's image and read about the challenges of recycling complex glass.



5

Respond

“ ———

When you have something as complex as your phones and your computers... standard technologies of recycling are never going to work.

————— ””

Explain Veena's statement.

6

Watch

Click on this Australian Academy of Science video thumbnail to learn about the circular economy and how it can improve sustainable and cost of living.



7

Read

Click on the image of Veena holding ceramic tiles made from glass waste. Read about her views on the necessity for Australia to transition to a circular economy.

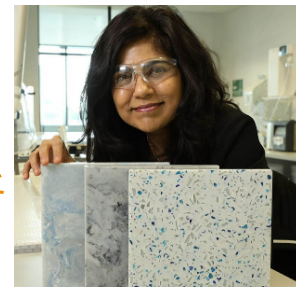


Image adapted from: UNSW

8

Respond

“ ———

We need to change the way we think about waste - to start treating it as a resource rather than a problem.

” ———

What are the barriers to responding to Veena's statement?

9

Reflect

What role do science and technology play in the circular economy?

As individuals, what role do we play in supporting the circular economy?

10

Take Action

A key step towards a circular economy in Australia is raising awareness of the issues associated with recycling complex materials. How can you raise awareness in your school or community? What action would be most effective and what would it look like? Work in a small group to design an awareness-raising activity or resource.

Resource Links



3. [youtube.com/watch?v=9kO01ZJFZ0E](https://www.youtube.com/watch?v=9kO01ZJFZ0E)
4. [science.org.au/profile/veena-sahajwalla](https://www.science.org.au/profile/veena-sahajwalla)
6. [science.org.au/curious/video/what-circular-economy](https://www.science.org.au/curious/video/what-circular-economy)
7. [science.org.au/curious/policy-features/when-going-around-circles-way-forward](https://www.science.org.au/curious/policy-features/when-going-around-circles-way-forward)

Additional Resource Links



Click on the links to further explore the Australian Academy of Science resources to learn more about this topic.

Articles:
[Reduce, reuse, recycle, 're-form'](#)
[The science and technology of composite materials](#)

Infographic:
[What has chemistry ever done for you?](#)

What are you curious about?



The supporting videos and articles for this resource are produced by the Australian Academy of Science. You can explore more videos and topic summaries relating to current science issues here.

