**Stage 2 Chemistry**

**SHE question and answer 1**

Students must learn to identify the four SHE key concepts in articles, videos, talks etc. Students must then be taught how to write short explanations that explicitly show how recent innovations, developments or events illustrate particular SHE key concepts.

For example:

**Question**

Using information from the following short article, identify and discuss:

* one example that illustrates the key concept of influence
* one example that illustrates the key concept of application.

**Article**

The Australian government has set up a new policy in which an [Emissions Reduction Fund](http://www.environment.gov.au/climate-change/government/emissions-reduction-fund/about) (ERF) pays businesses, with Australian Carbon Credit Units ([ACCU](http://www.cleanenergyregulator.gov.au/OSR/ANREU/types-of-emissions-units/australian-carbon-credit-units)s), for reducing their carbon emissions, or capturing and sequestering carbon dioxide already in the atmosphere.  Most of the credits have gone to farmers who have been able to set up projects that qualify for the payment. Hence this scheme has become known as carbon farming. Farmers who want to undertake a carbon farming project are asked to nominate a price they would need to make it profitable for them to go ahead with the project. Through a [reverse auction](https://theconversation.com/explainer-how-does-todays-direct-action-reverse-auction-work-40152) process, the ERF selects the lowest-price proposals. In this way, the government gets the greatest carbon abatement for the least money and the farmers know how much they will be paid before they embark on their project.  The price farmers were paid by the government was $12 [per tonne](http://www.afr.com/business/energy/carbon-price-jumps-in-maiden-run-for-tony-abbotts-emissions-trading-scheme-20180313-h0xfhl) of CO2.

The government also set up a Safeguard Mechanism in which big industrial emitters do not have to pay for CO2 emissions if they keep them under current levels. This caps emissions from big industrial emitters in order to ensure that the reduction in CO2 emissions achieved by the ERF is not offset or cancelled out. However since the scheme has been in action, 16 of these large companies went over their limits and had to buy448,000 carbon credits from carbon farmers, who had surplus carbon credits for sale, to remain in compliance. Interestingly these companies paid up to $18 per tonne to the farmers as the number of carbon credits available for sale decreased.

<http://www.environment.gov.au/climate-change/government/emissions-reduction-fund/about>

**Answer**

* The use of scientific knowledge by the Australian government has been influenced by economic considerations.

The government knows that Australia should reduce its carbon emissions in order to reduce the enhanced greenhouse effect. It also wants to find cheap methods of doing this. The use of the reverse auction process allows this to happen – both the farmers and the government are happy to participate in this process.

* One example of application is the unexpected beneficial consequence of the ERF for farmers who have received extra financial reward.

Some farmers were paid more than they anticipated because some large industrial emitters had to find carbon credits to pay off their excess emissions in order to be compliant with government policy.