teacher guide

Hydrocarbon chemistry 4: Hydrocarbon economy

Components

	NAME	DESCRIPTION	AUDIENCE
	Hydrocarbon economy teacher guide	This resource draws links between properties of hydrocarbons and their intended use. It explores how the imbalance between what is naturally available in Australia, and what is required, is met by processing and import of hydrocarbons.	teachers
	How is crude oil processed? background sheet	This gives teachers some information about how crude oil is refined, including processes of fractional distillation and conversion.	teachers
	Crude oil distillation fact sheet	This introduces crude oil refining to students, focussing on the fractional distillation process.	students
	Hydrocarbon glossary fact sheet	This student reference defines selected terms used in the hydrocarbon industry.	students
	Hydrocarbons in Australia worksheet	A structured worksheet leads students through hydrocarbon production, use, import and export in Australia.	students

Purpose

To **Elaborate** on the role of hydrocarbons in Australia in fuel use, power generation and their part in creating export revenue.

Outcomes

Students understand that:

- a range of hydrocarbons are extracted in Australia;
- different hydrocarbons are required for different applications;
- extracted resources are processed to make useful hydrocarbons; and
- a global trade in hydrocarbons exists to match supply and demand.

Activity summary

ACTIVITY	POSSIBLE STRATEGY
Class discusses the question, 'What hydrocarbons are extracted from natural deposits in Australia?'.	whole class
Continue discussion to include what hydrocarbons are used in domestic and industrial applications, and how these are sourced.	whole class
Distribute fact sheets, *Crude oil distillation* and *Hydrocarbon glossary,* then complete worksheet, *Hydrocarbons in Australia.*	individual
Class may discuss points arising from worksheet, such as 'How dependant is Australia on imported hydrocarbons?'.	whole class

Teacher notes?

This resource encourages students to consider social and economic values used in determining which fuels are used or produced locally, and which are part of a global petroleum market. Further cultural and political values may be discussed during, or following, this activity.

Students may need to consider other sources of information to answer questions in the worksheet, *Hydrocarbons in Australia*

Technical requirements

A modern browser (eg Internet Explorer 9 or later, Google Chrome, Safari 5.0+, Opera or Firefox) is required to view the video. A high quality MP4 version of the video is available by download from the SPICE website.

The guide, worksheet, fact sheet and background sheet require Adobe Reader (version 5 or later), which is a free download from adobe.com. The worksheet is also provided in Microsoft Word format.

Acknowledgements

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Associated SPICE resources

Hydrocarbon chemistry 4: Hydrocarbon economy may be used in conjunction with related SPICE resources to address the broader topic of organic chemistry.

DESCRIPTION	LEARNING PURPOSE
Hydrocarbon chemistry This learning pathway shows how a number of SPICE resources can be combined to teach the topic of organic chemistry.	
Hydrocarbon chemistry 1: Coconut oil This resource engages students in organic chemistry by showing them how fuel can be made from plants in a very basic home set-up.	**Engage**
Hydrocarbon chemistry 2: Biodiesel This resource further explores biodiesel production as students make their own biodiesel and compare its properties with those of other fuels.	**Explore**
Hydrocarbon chemistry 3: Naming hydrocarbons This resource explains to students how hydrocarbons can be drawn and systematically named.	**Explain**
Hydrocarbon chemistry 4: Hydrocarbon economy Australia uses a wide range of hydrocarbons for domestic and industrial purposes. How is this range supplied from available sources?	**Elaborate**