



# What To Do With CO<sub>2</sub>?

Additional teacher and student resources provided to accompany the GeoBus CCS Workshop.

**GeoBus**

**THE CROWN  
ESTATE**



The Crown Estates manages the UK seabed out to the 12 nautical mile territorial sea limit and, under the 2008 Energy Act, hold the rights for carbon dioxide (CO<sub>2</sub>) storage within the Gas Importation and Storage Zone (GISZ), which extends out to the continental shelf. The Crown Estate is an independent commercial real estate business, created by an Act of Parliament, and returns all its profit to the Treasury for the benefit of the nation's finances. It is an active asset manager of the UK seabed, including awarding leases for offshore energy, cables, pipelines and marine aggregates. It has supported GeoBus under its stewardship programme as part of its commitment to good management and creating sustainable added value over the long term. [www.thecrownestate.co.uk](http://www.thecrownestate.co.uk)

**Special thanks go to Katy Relph and Megan O'Donnell for  
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## Chapter 1

### Introducing concepts before the workshop

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- 1.2 Energy, Fossil Fuels and Climate Change
- 1.3 The Carbon Cycle
- 1.4 How Much CO<sub>2</sub> Can Be Stored in a Tree?
- 1.5 The CCS Cinema

## Chapter 2

### Following on and building from the workshop

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- 2.2 Paper Pipelines
- 2.3 What Happens to CO<sub>2</sub> Stored Underground?
- 2.4 Investigating CCS Projects: Past, Present and Future
- 2.5 Writing a Scientific Report
- 2.6 CCS Communication Activity

## Chapter 3

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- 3.1 Climate Change Snakes and Ladders
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## Chapter 4

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- 4.1 CO<sub>2</sub> Stored – Host Your Own CCS Workshop
- 4.2 Young Engineers and Science Clubs – CCS In A Box
- 4.3 Shell Peterhead Project – Active Case Study

## Appendix

### Curriculum Links

- Curriculum for Excellence (Scotland)
- Key Stage 3 (England)

# Carbon Capture and Storage Workshop Support Materials



## Introduction

This resource has been designed to provide teachers with an introduction to carbon capture and storage (CCS), a carbon emissions reduction technology.

It provides experiments, activities, lessons and homework ideas as well as links to a number of other useful CCS education resources.

Each module in this booklet has been organised so that it can be run as a stand-alone lesson, or can be combined to create a mini CCS project over a few weeks, ideally linked to a GeoBus visit.

## Contents Overview

Chapter 1 contains a number of introductory modules designed to expose the students to new vocabulary, concepts and to get them thinking about CCS and why we might need it. Ideally these sessions would be taught before a GeoBus visit.

Chapter 2 consists of follow up materials that may be more technically complex and are intended to recap and summarise a topic taught during the GeoBus workshop.

Chapter 3 provides a number of additional, fun CCS education resources that can be utilised as extension tasks for faster students, or as shorter filler modules for use during another lesson.

Chapter 4 contains information about how to find and request further CCS teaching resources, useful links and publications and any other relevant information.

## CCS: The Main Idea

Carbon dioxide (CO<sub>2</sub>) is a waste gas produced by power plants and industrial processes that compounds climate change by increasing the greenhouse effect. As we use energy and industrial products we have a responsibility to take control of the levels of this gas released into our atmosphere. CCS could help us reduce carbon emissions into the atmosphere by removing CO<sub>2</sub> at source, compressing it and storing it underground in suitable geological formations.