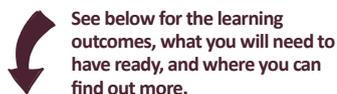


# Wood fuel

## – a cool choice!



See below for the learning outcomes, what you will need to have ready, and where you can find out more.

### Learners will have/be able to:

- Explain why wood fuel can be a more climate friendly source of energy than fossil fuels.
- Contributed to a small dramatic performance
- Contributed to a team effort, and expressed their own ideas and feelings

### Outdoor/indoor space

Large enough for small group work and presentation

#### 4.1A Wood fuel cycle

1 per learner

#### 4.1B Wood fuel cycle completed

1 per learner – optional

#### 4.1C Wood Fuel Picture cards

1 set per group – optional

### Large empty cardboard boxes

and marker pens/paints and craft knives/scissors for making props – enough for all groups

### Forestry Commission England and other websites

[www.forestry.gov.uk/england-woodfuel](http://www.forestry.gov.uk/england-woodfuel)

[www.usewoodfuel.co.uk](http://www.usewoodfuel.co.uk)

[www.woodfuelwales.org.uk](http://www.woodfuelwales.org.uk)

### Wood-for-Warmth – Farm Business

[www.woodforwarmth.co.uk](http://www.woodforwarmth.co.uk)

### Biomass Partnerships Project Scotland

[www.nifes.co.uk](http://www.nifes.co.uk)

### Learning and Teaching Scotland

Schools Global Footprint

[www.ltscotland.org.uk](http://www.ltscotland.org.uk)

### Eco Schools Scotland

Energy and Schools Global Footprint sections

[www.ecoschoolsscotland.org.uk](http://www.ecoschoolsscotland.org.uk)

**This activity introduces learners to the concept of the wood cycle and helps them express how it works in their own words. The diagram provides the structure of the cycle, and the participants need to work through the process together, contributing their own interpretation of what they have heard and seen to the discussion.**

You may like to provide some examples of wood fuel being used – look on some wood fuel websites (see *Sources and further inspiration*). For example, NHS Dumfries and Galloway hospital received funding via FC Scotland to install a wood fuel system. It was important to have a renewable energy source that covered base heat requirement, while reducing carbon emissions. This was achieved by installing a biomass steam boiler that reduced the hospital's carbon emissions by about 2,375 tonnes each year.



Look also at Orchard Community School's experience  
See *Unit 7, Activity 3 – Schools' challenge*

## Preparatory activity

Explain that there is a considerable move towards using wood rather than fossil fuels as a source of heat and power. This is particularly the case for fast growing species such as willow, and that they will see fields of willow being grown in the countryside now. Some power stations are running on these bio-fuels. Watch the second half of the film only – Chris Reynolds at Bedgebury Pinetum. Chestnut coppice is mentioned in the film clip. Use the internet to find out about coppicing, and how the coppice cycle works and introduce the vocabulary they will need in the next activity.

If possible arrange a visit to a Forestry Commission or farm woodland site where management for wood fuel is being practiced and the learners can see for real how coppicing and chipping works.



## Activity 1

- 01** Explain that we are asking them to develop a short TV advertisement for a local farmer who is starting a wood fuel business. He needs to convince future customers why wood fuel is so good, as well as help reduce the greenhouse gases causing climate change.
- 02** Organise small working groups (6–8). First the children need to gather some background information – give everyone a copy of the *4.1A Wood fuel cycle* diagram. Using their prior learning, ask the groups first to discuss what they think is happening at each stage of the cycle. Encourage them to look at what is happening to the trees, and what is happening to the carbon dioxide and the carbon at each stage, and to look at the direction in which the arrows are pointing. Are all these stages required at Bedgebury. They may notice that transport is minimal – as the chestnut coppice is on site.
- 03** In their groups decide on the text to fill in the blank boxes in their own words. The boxes are too small to write in – use a word processor to type out and print copies of the final text; glue to diagram. Now they can use the diagram as a structure for their performance, if they need it. Ask them what other benefits these wood fuel burners may bring to society/economy/ environment – reinforce benefits – e.g. provides a renewable energy source; increased biodiversity and improved landscape quality with new sustainable forests; new business and employment opportunities – manufacturing and fitting the boilers, producing and delivering the wood chips/pellets, selling and promotion of the boilers; using reclaimed clean wood for pellets – reduces landfill; reduction of consumer fuel bills. Use of *4.1B Wood fuel cycle completed*, and *4.1C Wood fuel picture cards* is optional.

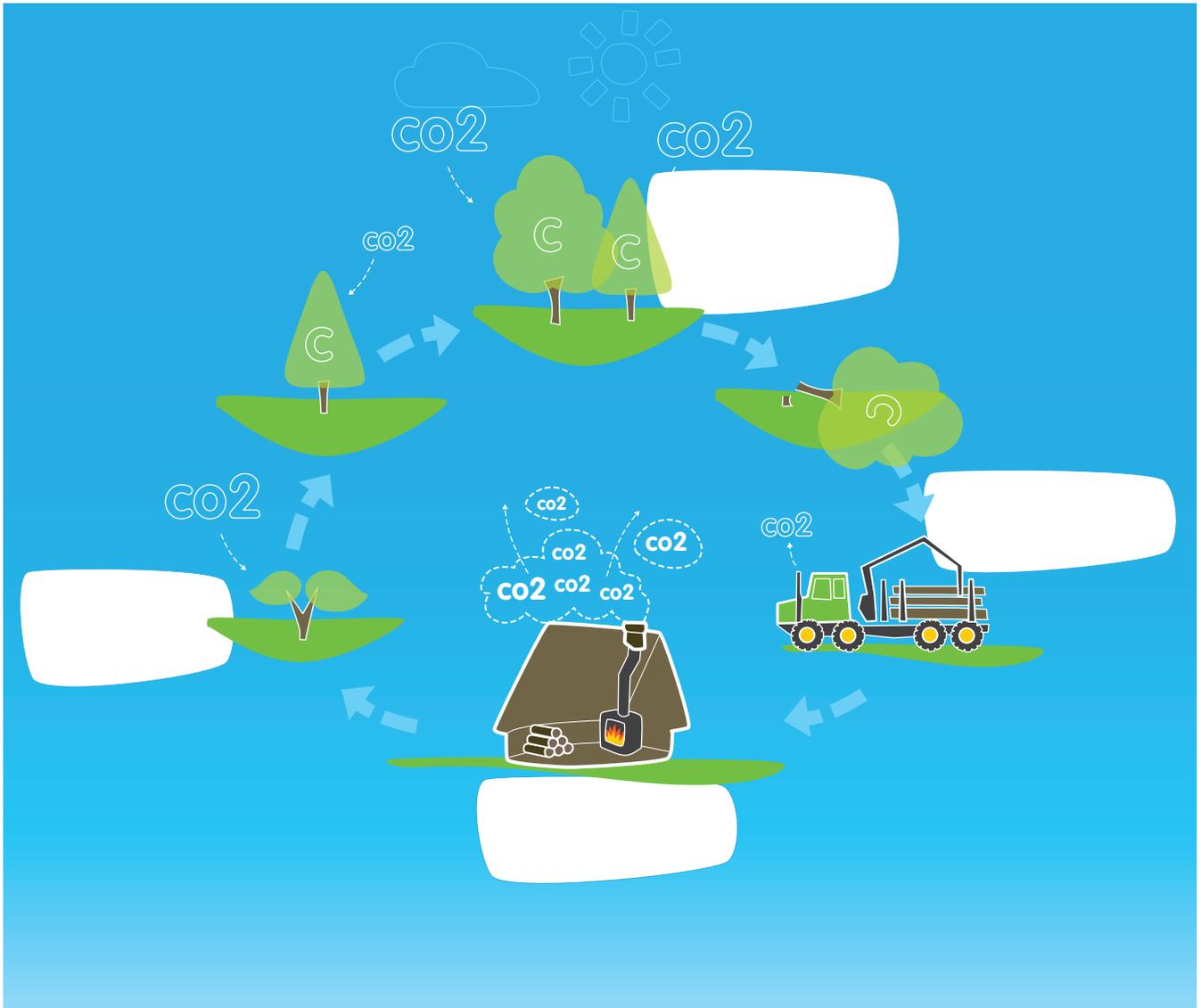
**04** Encourage teamwork and imagination. You may suggest they use one/more narrators, and the rest of the group are the players who must act out the advertisement – everyone should participate. They can use any props they like to make from the cardboard and pen/paint store. Give them a time period to prepare, to practice and hold a dress rehearsal in separate areas.

**05** Ask each group to perform what they have prepared, in front of the rest of the group/class. They can draw lots to decide the order they go in. Those observing should be asked to assess how easy it is to catch the key messages about wood fuel and climate change and why; three things the performers did well, and 3 things they might improve on – gather feedback and make a list for each group to reflect on. Take a vote on the best performance – a show of hands – no voting for their own group!

**06** In summary, bring in the terms **carbon neutral** and **carbon lean** and discuss which of these words can be applied to the wood fuel cycle, and why?

**07** Finally, indoors, listen and watch the Orchard Community Primary School explanation of wood fuel and description of what makes wood fuel carbon lean. What were the strengths of their performance? Make a list. Which explanation did they think clearest – this or their own – why? Make a list of the benefits of wood fuel, apart from saving carbon emissions in gaining heat? Is there a case for their school to look at wood fuel as a future energy source for heating and hot water – can they put a case together to persuade the decision makers?

# Wood fuel cycle



# Wood fuel cycle completed



4.1C

# Wood fuel picture cards

For effective use in the classroom, you may want to enlarge these materials before printing or copying.



1

Trees like this take in carbon dioxide from the air and store it in their wood. Carbon dioxide is the main gas responsible for climate change.

2

Trees are cut down and used to make products like these.

3

The waste material is made into wood pellets.

4

We use wood pellets to heat these buildings. When wood is burned carbon dioxide is released.

5

When more trees are planted in place of those cut down, they begin to take in the carbon dioxide released by burning.

Using wood instead of fossil fuels like oil or gas is better for the environment and can reduce climate change.

