

## Teachers' Pack

### Bardon Mill Village Hall: Teachers' Pack







A warm invitation is extended to all local schools to make use of this fantastic educational resource. Bardon Mill Village Hall is the UK's first, and as yet only, earth sheltered village hall. Built into the hillside on the site of the former Bardon Mill Colliery, the building's highly unusual and ultra-low energy design provides the ideal setting for learning activities linked to energy consumption and renewables. Its woodland setting, all-weather nature trail and stock of field study equipment makes it the perfect 'classroom in the woods' with teaching opportunities across the curriculum.



Bardon Mill Village Hall Bardon Mill Northumberland NE47 7DX

Bookings: 07936 540285

Email: <a href="mailto:bookings@bardonmill-villagehall.co.uk">bookings@bardonmill-villagehall.co.uk</a>
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## How to find us

#### Location

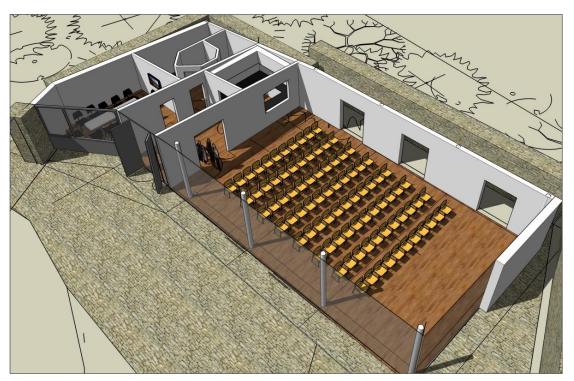
Village Hall Bardon Mill Hexham Northumberland NE47 7DX



Bardon Mill Village Hall is conveniently located just off the A69, two miles East of Haltwhistle. The hall is a ten minute walk from Bardon Mill's railway station, which sits on the main line between Carlisle and Newcastle. There is ample car parking at the village hall and coaches can park safely at the entrance to Redburn Park, immediately adjacent to the hall.



# **Facilities**



Construction of the building was completed in October 2013. The venue offers unrivalled facilities including:

- A vast 140m²hall, seating 120 people in comfort. Tables are available for class work or somewhere to eat packed lunches
- A separate meeting room for 12, ideal for break-away sessions
- A full equipped kitchen with oven, coffee making facilities, fridge/freezer and dishwasher
- Male, female and disabled toilets
- Level access throughout
- Free Wifi throughout

Outside, there is a large field where children can safely let off steam. Redburn Park also benefits from an excellent children's playground – one of the best in the area



# Teaching aids

## Available equipment

The following equipment is available for loan to visiting schools:

- 4 binoculars
- 5 magnifying lenses
- 20 bug boxes/ magnifying pots
- 5 sampling/collection trays
- 10 pooters for collecting insects
- 5 field compasses
- 2 sweep nets
- FSC field identification guides:
  - Woodland name trail (minibeast safari) 10 copies, laminated
  - o Butterflies
  - o Tree name trail
  - Fruits and seed dispersal
  - Grassland plants
  - Day flying moths
  - Grasses
  - Seasons
  - Insects
  - Bugs in bushes
  - Exploring colour
- 10 clip boards
- USB microscope and associated software
- Solar photovoltaic education kit
- PV performance indicator in the reception foyer
- First aid kit (40 person)

A fixed multimedia projector is soon to be installed in the main hall (great for use in conjunction with the USB microscope!). **Use of all equipment is included within the booking fee for hire of the hall**. Please take care of our equipment since breakages must be paid for.



### 'Green design' at the village hall

Bardon Mill Village Hall was designed by one of the region's foremost environmental architects. The innovative design uses a variety of energy saving and renewable energy measures, resulting in a building that has a very small 'carbon footprint' and is incredibly cheap to run.

#### Keep an eye open for:



The unique earth-sheltered design which helps to reduce heat losses and keepthe building warm during the winter



**High levels of thermal insulation** which have been used throughout



High performance triple glazingwhich also helps to prevent heat losses. Such glazing is very rare in this country, but widely used throughout Scandinavia



The South-facing orientation of the building making optimum use of natural light and 'passive solar gain' (i.e. by using the warmth of the sun to help with heating). The stone-filled gabions at the back of the hall help to store heat



Photovoltaic panels on the roof which generate free electricity without depleting fossil fuels or giving rise to harmful greenhouse gases. There is an electronic performance display in the reception foyer



**Rooflights** in the ceiling which fill the building with natural light without the need for using electricity



Low energy A-rated appliances and low energy lighting which have been used throughout to ensure that electricity is not wasted



The air source heat pump which heats the building in a very efficient way. Every unit of electricity it uses is converted into four units of heat. Sophisticated controls get the heat to where it is needed most



Wildflowers on the roof which help to encourage 'biodiversity' and the 500 newly- planted native trees and shrubs planted to replace the conifers that needed to felled when the village hall was built

Can you find the hall's energy performance (EPC) rating? How does it compare with your school's rating?



### Climate change, energy use and renewables

The unusual design of the village hall provides an opportunity for discussing the causes and effects of 'global warming' and actions that might be taken to slow down climate change. The site's historic use as a coal mine is in stark contrast to the 'low carbon' approach adopted throughout the village hall's development. There is scope for developing lesson plans looking at how we use energy, and comparing the benefits of renewable technologies as opposed to the depletive and frequently damaging consumption of fossil fuels. Consider developing lesson plans around the following questions:

- What is climate?
- What is climate change and why should we be worried about it?
- How will wildlife be affected by climate change? (possibly linking to field studies in the adjacent woodland)
- Are there positive ways we can slow down climate change?
- What forms of energy production do not contribute to climate change?

Teachers may also like to explore ideas relating to electricity including making simple electrical circuits and also identifying appliances that run on electricity. At the village hall, all appliances are 'A' rated. Visiting groups can generate their own electricity using our solar photovoltaic kit which can be used to power a light and small fan. Groups can explore how performance is affected by pitch, orientation and shadowing from the sun. A performance indicator in the reception foyer shows how well the village hall's own solar panels are performing at any one time. Note that the village hall's own solar panels are partially shaded by trees. Should we consider cutting them down?

Children should be advised that light from the sun can be dangerous.



## Climate change - useful links for visiting schools

Low Carbon Partnership - lesson plans around Climate Change

CAFOD worksheets on climate change

<u>Cool it Vision – competitions for schools</u>

<u>Cool the World – primary school lesson plans</u>

Friends of the Earth free national curriculum booklets for educators

British Council climate change maps, graphs and lesson plans

Royal Geographical Society's 'Your Climate Your Life' teacher's resources

The Guardian - Green Schools Hub

RSPB lesson plans on climate change and British wildlife

WWF downloadable resources for schools

Child-friendly carbon calculator

Carbon Trust's CO<sub>2</sub> conversion factors



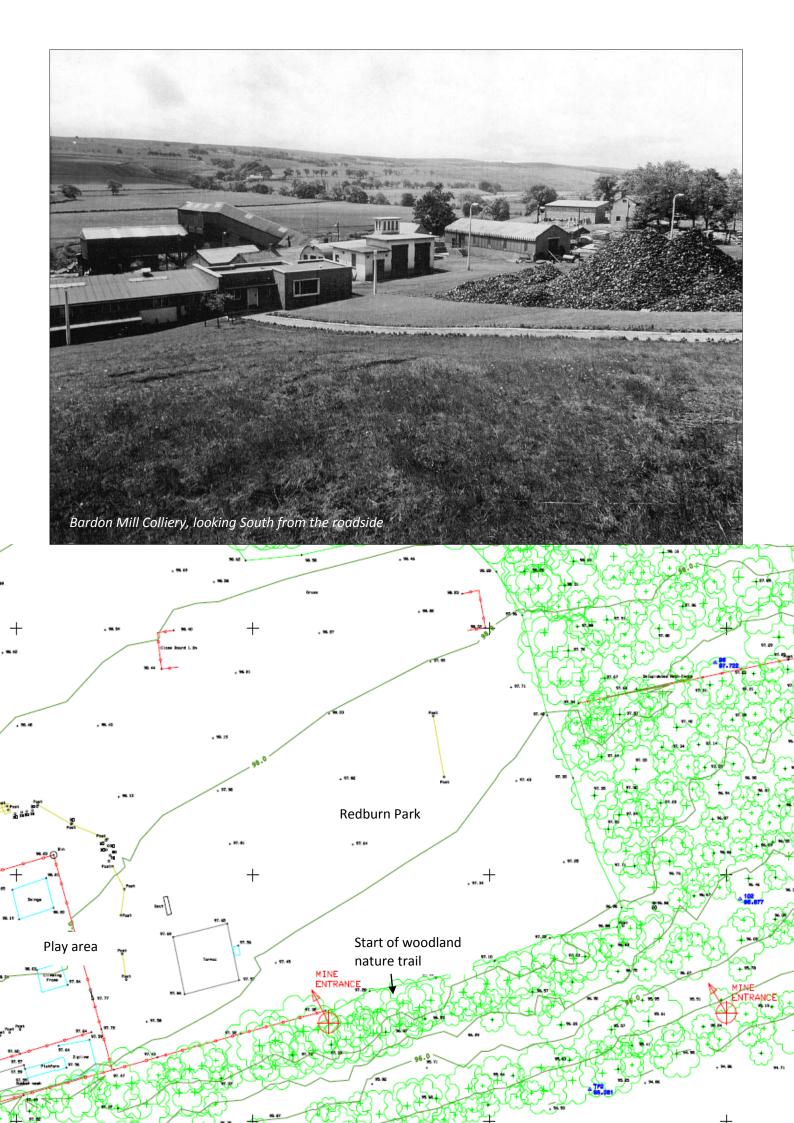
### Coal mining at Bardon Mill

The village hall is built on the site of an active coal mine which once employed 300 men and extracted 156,000 tonnes of coal annually. The mine was active from 1940 until 1973, by which time the coal seams had been largely exhausted and flooding had become a major problem. A total of 39 pumps were needed to maintain safe working conditions, with more than 12,000 litres of water being discharged into the Tyne every day. The photograph below shows miners clocking off on their last day of work, just before the mine was decommissioned.



The photograph on the next page was taken from the roadside (close to where there is now a kissing gate) and looks South towards the river valley. The scene is very different today, nearly all of the trees having been planted since the mine was decommissioned.

Beneath the photograph is a topographical survey showing the location of the two mine entrances, the position of which has now been permanently marked with special plaques. Can you find them?





### The Pitman's Trail

A 300m all-weather nature trail extends around the village hall passing through areas of coniferous plantation, butterfly glades and newly planted areas of broadleaved woodland. Within this area, there are also environmental sculptures and a woodland glade which also serves as an 'outdoor classroom'. A full stock of field study equipment is available for schools to use free of charge when booking the hall.



Entrance to the Pitman's Trail



Toadstool seating around the outdoor classroom



All-weather nature trail



500 broadleaved trees planted to create an entirely new area of woodland



## The Pitman's Trail: suggested activities

There are plenty of teaching opportunities from Key Stage 1 through to 3, particularly in the core area of science but also art/design, English and geography. Suggested activities include:

woodland habitat เ	Observational and investigative skills using a variety of equipment including pooters, sweep nets, bug boxes etc;
are ideal	evidence gathering, basic identification and classification skills; the ability to treat animals with care and sensitivity. Introduction to senses, camouflage and other adaptation in animals. Awareness of the basic needs of animals in terms of their survival
plant sampling. Comparison of broadleaved woodland with coniferous plantation, meadow grass with amenity turf. Which habitats are more diverse and why?  • "Wildlife in Close Up" using the USB microscope and multimedia projector (currently awaiting installation)  • "String of Life" food	Basic plant identification skills, including the distinction between deciduous and coniferous trees. Ability to distinguish between different habitats and the animals that live in them. Awareness that plants need water, light, nutrients and warmth in order to grow. Ability to identify different parts of flowering plants. Basic understanding of seed dispersal. Gathering, recording, classifying and presenting data in a variety of ways using classification, keys, tables and graphs etc; Introduction to the interdependency between different animals and plants, food chains etc, identifying producers, predators and prey



### Nature trail - useful links for visiting schools

The Woodland Trust's nature detectives website (includes activity sheet downloads)

BBC's lesson plan on food webs

"String of Life" food chain game

<u>Sample minibeast pack – includes techniques, H&S considerations and suggested post-visit activities</u>

Sample lesson plan – minibeasts (download requires free registration)

Sample activity sheet - minibeasts

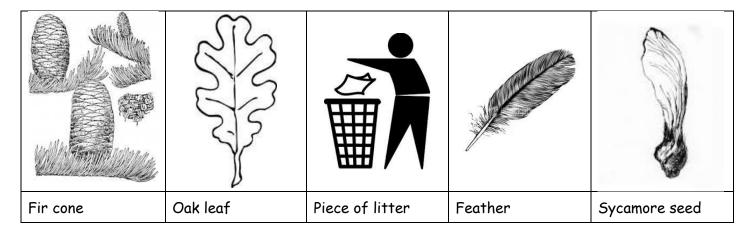
BBC teacher's resources – plants and animals in the local environment

#### Twenty-minute treasure trail!

Start time:	
Finish time:	
Total time taken:	

Target completion time 20 minutes. Deduct 1 point for every minute over!

Collect a bonus point for collecting one of each of the following:



Questions (one point for each correct answer).

Start at the village hall.

1	How many kilowatt hours of electricity have the solar panels produced so far?	
2	How many organisations funded the construction of the village hall?	

#### Cross Redburn Park to the start of the woodland nature trail

3	What name has been given to the woodland nature trail?		
4	Can you find the two mine entrances? On what bearing was the main drift?		
5	How many men worked at the mine?		
6	How many tonnes of coal did they extract every year?		
7	Why did the mine close?		
8	When were the conifers planted?		

#### Follow the woodland nature trail

9	How many toadstools form the 'outdoor classroom'	
10	The piles of dead wood are called 'windrows'. Can you guess what they are for?	

### Just before the kissing gate, turn right leaving the coniferous woodland behind you

11	What type of tree did Collin Dickinson plant?	
12	Can you guess the total number of trees that have been planted in the field?	
13	How many hands are on the bench?	
14	In the distance is Bardon Mill's old pottery dating back to 1878. How many chimneys does it have?	

### Climb the hill until you reach the village hall

1!	5	What do the warning signs on the fence tell us to do?	
10	6	How many roof lights are on the roof of the village hall?	

### Follow the steps to the front of the hall

17	What is unusual about the village hall windows?	
18	On a sunny day each of the solar panels produces 250 Watts. How much electricity is being produced in total?	
19	Who designed the village hall?	
20	When was the hall opened?	

Answers					
1	Take an up-to-date reading from the performance display in the entrance lobby	2	Seventeen organisations funded the village hall		
3	The 'Pitman's Trail'	4	332 degrees		
5	300 men	6	156,000 tonnes		
7	Coal running out, regular flooding	8	In the late 1970s		
9	14 toadstools	10	Shelter for invertebrates ('mini-beasts')		
11	A cherry tree	12	500 trees		
13	18 hands	14	Two chimneys		
15	'Keep off the roof'	16	Seven roof lights		
17	The windows are triple-glazed	18	3.25 kW (3,250W), enough to run an electric kettle or 200 low energy light bulbs!		
19	Newton Architects	20	The hall was opened in 2013		



## Keeping safe

The village hall and surrounding area provides a safe environment for supervised activities involving children. However, we would encourage all users to follow these basic precautions:

- Please ensure that all pupils wear appropriate clothing including wellingtons or outdoor shoes/boots. When weather dictates, fleeces and waterproof coats should be worn
- Remember that Redburn Park is a public park. There is also public access to the
  woodland nature trail. During school times, it is highly likely that you will enjoy
  exclusive use of the hall. However, pupils should be supervised at all times and
  made aware of 'stranger danger'. Please consider the optimum levels of adult
  supervisors to children
- Although the risk of infection is very small indeed, pupils should be asked to
  wash their hands thoroughly following all field study activities. Soap and hot
  water is available in the hall please help us by leaving your muddy boots at
  the door!
- On no account should children be allowed to climb onto the roof of the village hall. They should be fully briefed about the dangers of climbing onto the roof. Children should also be asked not to climb trees, walls, fences or other structures along the woodland nature trail
- Road safety presents very little risk at the hall. Coaches should drop pupils off at the entrance to Redburn Park rather than driving up to the front of the hall. Generally, school parties will have exclusive use of the hall meaning that once they have arrived there should be minimal traffic up and down the access track. Nonetheless, we recommend that shut the gate upon your arrival and advise pupils of the risk of passing vehicles
- There is a substantial fence between the nature trail and the railway. Pupils should be told about the danger of the railway
- While we do check the woodland regularly for tree safety, we advise against
  educational use of the nature trail during periods of strong wind. We advise
  teachers to make an assessment of the weather conditions on (or before) their
  arrival, and in the event of deteriorating conditions, throughout the course of
  their visit
- We make regular safety inspections of the play area and woodland nature trail.
   However, please do advise us if you notice anything requiring repair or replacement



# Booking the hall

The hall costs £15.75 per hour to hire, which includes use of all equipment. In the interests of child safety, we provide exclusive use of the hall to visiting school parties. Discounts may be available for block bookings. Booking enquiries can be made by emailing us <a href="here">here</a> or by calling 07936 540285 or 01434 344424. We'll then send you a form.