Resources

Resource 1a The West Somerset Mineral Railway seal
This was created in 1855 by Waterlow’s of London. It depicts the main elements in the WSMR’s history:

- An engine house stands as a reminder of the heavy mining which went on on the Brendon Hills.
- The train is running on the West Somerset Mineral Railway, an 11 mile line which transported wagons of iron ore mined in the Brendon Hills to Watchet.
- Watchet can be seen with its boats as a busy harbour town. Iron ore was loaded from the trains onto ships, to take it across the Bristol Channel to South Wales.
- In the distance the furnaces of Ebbw Vale in South Wales can be seen. This is where the iron ore was smelted and turned into products such as steel rails.

Drawing courtesy of Mike Jones.
The WSMR seal was created in 1855 by Waterlow’s of London. It depicts the main elements in the WSMR’s history.
West Somerset Mineral Railway Project
Introduction to the West Somerset Mineral Railway

Resource 1d Map of iron mines on the Brendon Hills
Illustration by Mike Jones
Resource 2a and 4c Four miners outside Coltonpits adit

- The Somerset Mineral Syndicate mines c. 1908.
- A group of four miners stand at the entrance to the Coltonpits western adit.
- The miner on the left (perhaps a Cornishman), has a resin helmet.

Photograph courtesy Chris Tilley.
Resource 2b Jack Jewell greasing the rollers

- This photograph, taken in 1890, shows the view down the Incline from two thirds of the way down.
- The man has been identified as Jack Jewell, whose job it was every morning to grease the railway rollers that carried the cables.
- He is carrying tallow on a stick to lubricate the rollers. The wooden poles carry wires for the semaphore signalling system between the top and the bottom.

Photograph courtesy of Chris Tilley.
Resource 2c The safety staff

- This type of staff was used on all single line railways. It was given to the driver by the signalman, and it allowed the driver to take the train along a length of single line, knowing that he would not collide with a train coming the other way, as there was only one staff on each length of line.

- On the WSMR, the line seems to have been operated on the principle of having only "one engine in steam" at once, so a collision would have been impossible. Each signal was operated by whichever member of staff was nearest, be he the station master, porter, or even the locomotive fireman!

This is on display in Watchet Market House Museum, on loan from Somerset County Museum.
“W J Richards, who was killed at an iron mine on the Brendon Hills, met with his death by wilfully infringing the rules of the mine.

Although he would have had to climb only (sic) 82 fathoms (492 feet or 150 metres) he jumped into the ‘tram’ underground in spite of warnings of several of the men and was killed by its tipping over, as he was endeavouring to get out before it had stopped.

The rule forbidding men to ride was posted up in the changing house and on examining the fine book, I saw that several men had been made to pay a penalty for breaking it. Indeed two men had been fined only a fortnight before the accident.”

From Reports of the Inspectors of Mines to Her Majesty’s Secretary of State for the year 1878, quoted in Mike Jones’ and John Hamilton’s book Neither here nor there (2009).
"The miners’ diet consisting mainly of bread and potatoes, with occasional oatmeal porridge: it lacked nourishment. Perhaps this was why John Prole, a miner who lived with his wife and six children in Church cottages was in March 1879 fined 8/=, nearly a week’s wage, for stealing eight Swedes.

Local farmers brought milk, eggs and cream daily to the village; many miners kept a pig or a few chickens in their back gardens to provide for high days. Elizabeth Hole, who was born in Beulah cottages in 1880, related that, unable to afford vet’s fees, an old crone who described herself as a ‘witch’, attempted to cure a miner’s sick pig by muttering incantations and showering the ailing animal with white powder. The pig died, but the event, watched through a gap in the boards between their pigsty and their neighbour’s and recalled nearly eighty years later, made a lasting impression on her. The pig was usually killed for Christmas, which, with Good Friday, were the only two days of official, but unpaid holiday.”

From Mike Jones and J R Hamilton’s book, Neither here nor there? (2009).
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Resource 3a Map of Exmoor National Park
Resource 3b Map showing location of Exmoor National Park in the UK
Resource 4b The ruins of the Raleigh’s Cross Mines
Photograph taken by Herbert Hole, c. 1901.

Photograph courtesy of Chris Tilley
Resource 4d Langham Hill Engine House

- This picture shows the engine house and ore gantry seen from the southeast in 1876. The engine house contained a second-hand Welsh beam engine used for both pumping water and winding iron ore out of the mine.
- The siding on the right conveyed wagons of coal to the engine boiler house, and the timber flume in front of the hedge on the right carried boiler feed water from the mine reservoir to the stationary engine of the cableway at the left side of the picture.
- The timber structure on the right side of the photograph was the point of discharge from the suspended ore buckets into railway wagons on the siding, which continued downhill to the left for wagons to receive ore from the mine ore gantry.
- The whole installation was no longer being used when this photograph was taken.

Photograph courtesy of Mike Jones
Resource 4e: Wagon leaving the top of the Incline

This photograph shows a wagon load of debris leaving the top of the Incline to enable two empty wagons to be brought up. The debris came from the demolition of the Raleighs Cross mine buildings on July 24, 1907.
Resource 4f A scene at the foot of the Incline

- This photograph was taken in the 1870s, when the mines and railway were at their busiest.
- The locomotive Pontypool can be seen on the right.
- Passengers sit on board a wagon loaded with sacks waiting for their free ride to the top.
- The horse (either Lofty or Dragon) is resting.
- On the left a gunpowder van may be waiting to ascend. Miners frequently used gunpowder, and had to buy it from their wages.

Photograph courtesy Mike Jones.
Resource 4g Watchet harbour

This shows Watchet harbour from the east c. 1870, before the west quay was widened.

Photograph courtesy Chris Tilley.
Resource 4h Blast furnaces at Ebbw Vale

Photograph courtesy Mike Jones
Typical Iron Mine

Iron ore was removed from the Brendon Hills by 'stopping'. This involved removing the roof of each heading in the shaft until within a couple of metres of the heading above, making it a dangerous place to work. Ore was then hoisted by a steam winding engine to the surface, where it was tipped into railway wagons destined for Watchet.

This illustrates how the ore was collected in bins at the bottom of a stope and loaded onto trams. Please note there was no mine under the Incline itself.

Resource 4i Miners at work in a Brendon Hill mine

Illustration by Colin Allbrook
Resource 4j Moving trucks of iron ore

Resource 4k Loading iron ore into trucks

Photograph available from
http://www.daylife.com/photo/06Ri7M17iBdhu?q=Rio+Tinto+Iron+Ore+Mining+Western+Australia
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Resource 4: Transporting iron ore

Image available from http://www.dgfuchile.cl/VOCALS_PAPOSO/#Logistics_at_Paposo
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Resource 4m Transporting iron ore from mine to coast

Resource 4o A modern day blast furnace

This can be found at http://en.wikipedia.org/wiki/File:Alto_horno_antiguo_Sestao.jpg
Resource 4p A modern day blast furnace

This is available at http://en.wikipedia.org/wiki/File:VysokePece1.jpg
The Smelting Process at Ebbw Vale

1. Iron ore, limestone, and coke were weighed and hopped into the furnace.
2. The furnace was heated until the temperature reached 1,500°C.
3. The contents grew incredibly hot as they settled in the furnace.
4. Slag was a waste product from the smelting process.
5. Iron was tapped out and cast into moulds known as pigs, because they looked like oversized bullets.
6. When the pig iron solidified, it was dug out. Then the whole process started again!

Illustration by Leo Davey.
Resource 4r Ore Production from the Brendon Hill iron mines between 1853 and 1909

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