

TEACHERS GUIDE – PUFFING BILLY



CURRICULUM APPLICABILITY

HSIE

The Puffing Billy module is principally applicable to the upper primary school curriculum for Human Society and its Environment (HSIE) studies.

The key curriculum concepts covered by the module include:

Change and Continuity

- > Significant events and people
- > Time and change

Cultures

- > National identity
- > Cultural diversity

Environment

- Relationships with environments
- Patterns of settlement and land use
- Natural resources

Science and Technology

There is also scope to use the Puffing Billy module in the primary science and technology curriculum, mainly in discussing the following topic areas:

- > The way in which people shape the built and natural environment
- > Transport systems
- > Forms of energy
- > Mechanical systems

CONTEXT / BACKGROUND INFORMATION

The Puffing Billy Railway now operates as a tourist attraction in the Dandenong Ranges between the country towns of Belgrave and Gembrook. The line was one of four experimental tracks (2'6" narrow gauge) built at the turn of the century in an attempt to open up the rural areas of Victoria. Originally, the trains ran between Upper Ferntree Gully (then known as Ferntree Gully) and Gembrook, carrying passengers and freight (mainly timber).

The regular services on the railway were abandoned in 1953, after it had been blocked by a landslide and the railway was closed officially in 1954. By that stage, better roads and increased private vehicle ownership had made the line redundant, or at least unprofitable. But a dedicated band of

volunteers and advocates kept the memory of the region's steam trains alive. In 1959, with the help of the Citizens' Military Forces (forerunner of the Army Reserve), the landslide was bypassed and in 1962 a section of the old route was reopened. This was gradually extended and rebuilt until the present track was opened in 1998.

The Puffing Billy Preservation Society depends heavily on enthusiastic volunteers to operate. It is one of only a handful of steam trains around the world that still operate on a daily basis.

LOCATION CHALLENGES

1. IN THE SHED

The film *A Steam Train Passes (1967)* demonstrates to students the complicated procedure of preparing a steam train for use - quite different to just flicking the switch on an electric train. The train featured is not actually a Puffing Billy locomotive, but a larger version. The clip shows a driver lighting the engine's boiler, checking and oiling its wheels and other standard tasks.

Possible discussion points;

- > The differences between steam power and other forms of propulsion.
- > How steam can be used to generate electricity.
- > The harder workload on train drivers in the past.
- > The pollution aspects of steam versus electric trains.

Possible classroom or homework activities:

- > Draw a simple diagram to illustrate the way in which steam can produce propulsion.
- > Research what other types of machine were once powered by steam.

2. BELGRAVE

The small town of Belgrave is where Puffing Billy begins its run. The film *Shades of Puffing Billy (1967)* shows how the train depends on volunteers to operate. We then see various local people at their daily jobs. These same people are then shown in their volunteer roles at the railway.

Possible discussion points:

- > The importance of volunteer organisations.
- > Whether students or their families are involved in voluntary organisations.
- > What voluntary organisations exist in the students' community?
- > What jobs would students be interested in if they worked on the Puffing Billy Railway?

Possible classroom or homework activities:

- > Make a list of voluntary organisations in your local community. Are there any historical preservation societies?
- > Research a voluntary group.
- > Research the numbers of people involved in volunteer work in Australia. What are some of the biggest organisations?

3. MENZIES CREEK

This township along the line shown in *Shades of Puffing Billy (1967)* is typical of those that the original railway line helped settle. The film shows children from the 1960's travelling on Puffing Billy. Students may be intrigued by the apparently lax safety standards of the time, with children hanging their heads and other body parts out of the open windows.

Possible discussion points:

- > The pollution aspects of steam trains and the health risks to the drivers.
- > The unpleasant drawbacks of travelling through a long tunnel!
- > The work involved in keeping the boiler fuelled.
- > The limitations placed upon the range of steam trains and the need for re-supply.
- > Why did trains need a whistle?
- > Besides coal, what other fuels could be used to fire a boiler?

Possible classroom or homework activities:

- > Research how a steam whistle works.
- > Research how much coal and water were required to operate a steam locomotive.

4. IN THE FOREST

The journey aboard Puffing Billy winds through some spectacular forest scenery. Indeed, logging was one of the industries that the original rail line supported. As wood was in abundant supply it was a handy construction material for the railway, as evidenced by the spectacular trestle bridge that is still in use.

Possible discussion points:

- > Why do railway lines often require lengthy bridges, even when there is no water to cross?
- > Changing attitudes to logging.

Possible classroom or homework activities:

- > Research bridges. What types are there? What are some of the record-holding bridges around the world?
- > Research logging in Australia. What areas are/were major sources of timber?

5. AT THE CONTROLS

This excerpt from the film compilation *Just Australian Trains (1985)* demonstrates the various controls a driver had to manage on a steam locomotive.

Possible discussion points:

- > What sort of demands were there on a steam train driver compared to the train drivers of today?
- > How hard must it have been to stop quickly when so many systems had to be managed?

Possible classroom or homework activities:

- > List the different sorts of energy used to power trains.
- > What are the factors that make it easier for a train to come to a halt over a shorter distance?

6. EMERALD

The film *A Steam Train Passes (1967)* demonstrates that, as well as being complicated, driving a steam train was hard work physically. The constant need to shovel coal whilst exposed to the heat of the furnace and the weather, as well as needing to load fuel and water aboard at stops made for a tiring day. In one scene two engineers are shown cooking their breakfast in the locomotive cab, using a coal shovel for a frypan.

Possible discussion points:

- > What were some of the unpleasant aspects of driving a steam train?
- > What were some of the health risks?
- > What level of teamwork would be required?

Possible classroom/homework activities:

- > Research the health risks associated with burning coal.
- > Design a meal meant to be cooked only on a shovel.