

# STEAMING STEM



## PROGRAM DESCRIPTION

Using the power of STEM based inquiry, join our education officers on Puffing Billy to examine and explore the past and present design and technology systems of the railway. Students think critically, explore ideas and gather information. They commence their journey at Belgrave Station developing an understanding of the logistics, energy sources, skills and systems used to power the train. Students disembark at Lakeside Station to explore the Visitor Centre. They visit the Menzies Creek Museum and Workshop learning about systems, materials, components and tools. Students explore data, innovative ideas, use design theory and suggest design solutions that contribute positively to meet community needs for a sustainable future.

## KEY THEMES

- Energy, Force, Motion
- Appropriate materials, components, tools and equipment for design and technology solutions
- Innovation
- Measurement, Geometry, Statistics and Probability
- Protecting biodiversity

## YEAR LEVELS

Year 5 – Year 6

## CURRICULUM AREAS AND LEVELS

Level 5 – Level 6

- STEM (Science, Technology, Engineering, Maths)

## PROGRAM OPTIONS

### OPTION 1

Meet the Education Officer at Belgrave Station at 10:30am for a 11am Puffing Billy departure (approx. 50minute journey). Disembark at Lakeside Station at approximately 12pm. Enjoy lunch, the Lakeside Visitor Centre, an Educator led workshop and the natural surrounds. Depart on school bus from Lakeside, approx. 2pm.

### OPTION 2

Meet the Education Officer at Belgrave Station at 10:30am for an 11am Puffing Billy departure (approx. 50minute journey). Disembark at Lakeside Station at 12pm. Enjoy lunch, the Lakeside Visitor Centre, an Educator led workshop and the natural surrounds. Depart on school bus from Lakeside to the Menzies Creek Museum at 1:15pm. Enjoy the Museum. Depart on school bus from Menzies Creek Museum at approx. 2:30pm.

Other options can be scheduled according to Puffing Billy Railway timetable.

### DURATION:

Half Day (approx. 10am - 2pm)

### COST:

Midweek only - \$25 per student  
Midweek only - \$37 per adult  
We offer 1 staff Free of Charge (FOC) for every 10 students travelling.



**BOOKINGS/ENQUIRIES**

**E:** info@pbr.org.au **P:** 03 9757 0700

**PUFFINGBILLY.COM.AU**

# STEAMING STEM



## FOOD, BEVERAGES AND SOUVENIRS

A range of food and beverage options are available for purchase from our stations and the Lakeside Visitor Centre café, including pies, sandwiches, hot and cold drinks as well as ice creams and sweets. Pre-purchased kids' lunch packs are also available.

Additionally, a range of Puffing Billy merchandise is for sale, including the very popular Puffing Billy flags!



## TOILETS

Toilets are located at Belgrave, Menzies Creek, Emerald, Lakeside and Gembrook stations and the Lakeside Visitor Centre. Please note, there are no toilets available on board the train itself, so we encourage students to use the facilities before boarding.

Toilets with wheelchair access are located at Belgrave, Lakeside and Gembrook stations.



## ACCESSIBILITY

Puffing Billy Railway is committed to offering an enjoyable experience for everyone and has a range of accessible facilities available for our passengers.

Our station platforms are not at the same height as our carriage doors; however, ramps are available to provide easy wheelchair access on many of our Excursion Trains. The wheelchair ramp width is 75cm.

Pathways to Belgrave, Lakeside and Gembrook stations are all wheelchair accessible.

To assist passengers with reduced mobility and to avoid our steep pathway entrance to Belgrave Station, passengers may be dropped off at Gate 4 which is in front of our Belgrave Station building on Old Monbulk Road. The area from the station to the platform is on one level.

## CURRICULUM, STAFF AND RATIOS

Our education programs are linked to the Victorian Early Years Learning Development Framework (VEYLDF) and the Victorian Curriculum. Programs are presented by passionate Education Officers, who hold level 2 first aid qualifications and Working with Children Checks or are registered teachers. Puffing Billy Railway Education programs align with the Department of Education and Training excursion ratios.



# STEAMING STEM

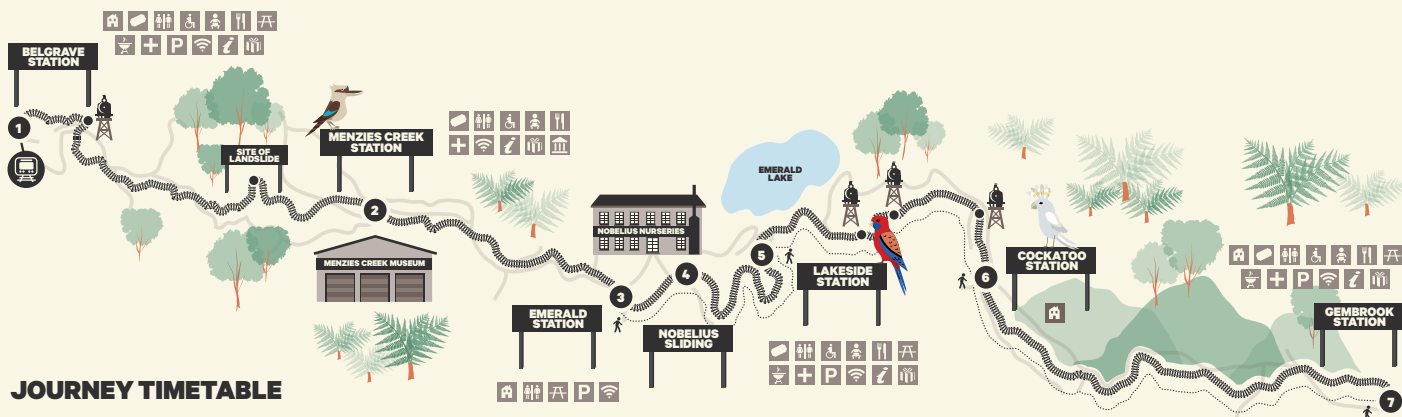
## CURRICULUM LINKS

### THE VICTORIAN CURRICULUM – LEVEL 5 – LEVEL 6

STRAND	SUB-STRAND	CONTENT DESCRIPTION
<b>Technology Contexts</b>	Engineering principles and systems	Investigate how forces or electrical energy can control movement, sound or light in a designed product or system (VCDSTC034)
<b>Technology Contexts</b>	Materials and technologies specialisations	Investigate characteristics and properties of a range of materials, systems, components, tools and equipment and evaluate the impact of their use (VCDSTC037)
<b>Creating designed solutions</b>	Investigating	Critique needs or opportunities for designing, and investigate materials, components, tools, equipment and processes to achieve intended designed solutions (VCDSCD038)
<b>Creating designed solutions</b>	Generating	Generate, develop, communicate and document design ideas and processes for audiences using appropriate technical terms and graphical representation techniques (VCDSCD039)
<b>Science Understanding</b>	Science as a human endeavour	Scientific understandings, discoveries and inventions are used to inform personal and community decisions and to solve problems that directly affect people's lives (VCSSU073)
<b>Science Understanding</b>	Physical Sciences	Energy from a variety of sources can be used to generate electricity; electric circuits enable this energy to be transferred to another place and then to be transformed into another form of energy (VCSSU081)
<b>Measurement and Geometry</b>	Using units of measurement	Choose appropriate units of measurement for length, area, volume, capacity and mass (VCMMG195)
<b>Measurement and Geometry</b>	Location and transformation	Use a grid reference system to describe locations. Describe routes using landmarks and directional language (VCMMG199)
<b>Statistics and Probability</b>	Chance	Describe and interpret different data sets in context (VCMSP207)
<b>Measurement and Geometry</b>	Using units of measurement	Interpret and use timetables (VCMMG226)
<b>Number and Algebra</b>	Number and place value	Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers and make estimates for these computations (VCMNA209)



# STEAMING STEM



## JOURNEY TIMETABLE

JOURNEY (refer to map above)	SINGLE JOURNEY (subject to timetable)	RETURN JOURNEY (subject to timetable)
1 ↔ 2	30 minutes	Allow 3 hours
1 ↔ 3	50 minutes	Allow 3 hours
1 ↔ 5	60 minutes	Allow 3 hours
5 ↔ 7	40 minutes	Allow 3 hours
1 ↔ 7	1 hour 50 minutes	Allow 5 hours

## MAP LEGEND

- Belgrave Metro Station
- Town
- Booking Office
- BBQ facilities
- First aid
- Parking
- Toilet
- Accessible toilet
- Parenting room
- Wi-fi
- Information
- Souvenir Shop
- Parenting room
- Food & drink
- Picnic area
- NEW! Menzies Creek Museum
- Multi-purpose Eastern Dandenong Ranges Trail
- Trestle Bridge

