

TIME FLIES!

LEVEL

Level 5 – Level 6

ACTIVITY DESCRIPTION

The Maths concept of “Time” plays a crucial role at Puffing Billy Railway, requiring precision and accuracy. Students learn about different units of time. Students focus on 12-hour and 24-hour time and make conversions between each.

THEME

Maths - Time

MATERIALS REQUIRED

- “Units of Time”, “24-hour clock”, “Time Conversion” worksheets
- Pencils
- Eraser
- Calculator

INSTRUCTIONS

Time really does fly when you are aboard Puffing Billy Railway enjoying a journey through the magnificent rainforests of the Dandenong Ranges. In fact, in peak season the Passenger Operations team have to co-ordinate the departure and safe arrival of 6 different journeys.

Discuss the concept of “Time” with the students. As a group list the reasons why “Time” at the Railway would be so important.

Examples:

- Railway Operations: Checking the track in the morning, preparing the trains for departure, filling the trains with water, creating a fire to form a “head of steam” in the engine.
- Passenger Services: Ensuring volunteers can assist visitors, help visitors plan their day.
- Reading timetables.
- Time it takes to travel between each station.
- Total time taken for each journey.
- Ensuring each train moves along the track safely.

There are two primary methods of showing the time. First there’s the **12-hour clock** that uses **am** and **pm**, and then there’s the **24-hour clock**.

Most countries prefer the 24-hour clock method, but the 12-hour clock is widely used in English-speaking countries. In the 12-hour clock method, it is 12:00 twice a day at midnight (am) and noon (pm).

12-HOUR CLOCK

The day is split into two 12-hour periods running from midnight to noon (am hours), and noon to midnight (pm hours).

The abbreviations am and pm are from Latin: am: *ante meridiem*, before midday. pm: *post meridiem*, after midday.

24-HOUR CLOCK

The day runs from midnight to midnight and is divided into 24 hours from 00:00 (midnight) to 23. Time is shown in hours and minutes since midnight.

CONVERTING FROM 12 HOUR TO 24-HOUR CLOCK

Starting from the first hour of the day (12:00 am or midnight to 12:59 am), subtract 12 hours: 12:00 am = 0:00, 12:15 am = 0:15

From 1:00 am to 12:59 pm, the hours and minutes remain the same: 9:00 am = 9:00, 12:59 pm = 12:59

For times between 1:00 pm to 11:59 pm, add 12 hours: 3:17 pm = 15:17, 11:59 pm = 23:59

CONVERTING FROM 24 HOUR TO 12-HOUR CLOCK

Starting from the first hour of the day (0:00 / midnight to 0:59), add 12 hours and am to the time: 0:30 = 12:30 am, 0:55 = 12:55 am

From 1:00 to 11:59, simply add AM to the time: 2:25 = 2:25 am, 9:30 = 9:30 am

For times between 13:00 to 23:59, subtract 12 hours and add pm to the time: 16:55 = 4:55 pm, 21:45 = 9:45 pm

Students work systematically through the worksheets 1. Units of Time, 2. 24-hour clock, 3. Time Conversion. Students building on their knowledge of Time as they progress until they have a thorough understanding of the concept.

✔ SUGGESTIONS FOR ASSESSMENT

Contribution to group discussion and individual responses to the worksheets.

▶ CURRICULUM LINKS

Mathematics

Level 5

Measurement and Geometry

Compare 12- and 24-hour time systems and convert between them ([VCMMG197](#))

WORKSHEET 1 – UNITS OF TIME – CONVERSION

UNITS OF TIME – CONVERSION

1 minute = 60 seconds	1 month = 28-31 days
1 hour = 60 minutes	1 year = 12months
1 day = 24 hours	12 months = 365/366 days
1week = 7 days	1 decade = 10 years
	10 decades = 100 years
	100 years = 1 century

CONVERT THE FOLLOWING USING THE TABLE ABOVE

	Question	Answer		Question	Answer
1	2 minutes = seconds		16	200 years = centuries	
2	48 hours = days		17	4years = months	
3	240 minutes = hours		18	730 days = years	
4	21 days = weeks		19	60 days = months	
5	480 minutes = hours		20	4months = days	
6	1 day = minutes		21	200 years = decades	
7	4 weeks = days		22	1825 days = years	
8	5hours = minutes		23	48months = years	
9	2 years = months		24	50 decades= centuries	
10	270 seconds =minutes		25	3 centuries = years	
11	36months = years		26	10 years = months	
12	1hour = seconds		27	96months = years	
13	1690hours = weeks		28	340 years = decades	
14	28 days = weeks		29	74 years = decades	
15	6 weeks = hours		30	Half a year = months	

WORKSHEET 2 – 24 HOUR CLOCK

There are 24 hours in a day. When reading the time digitally you can use the 24-hour clock.
A day can be split into am or pm.

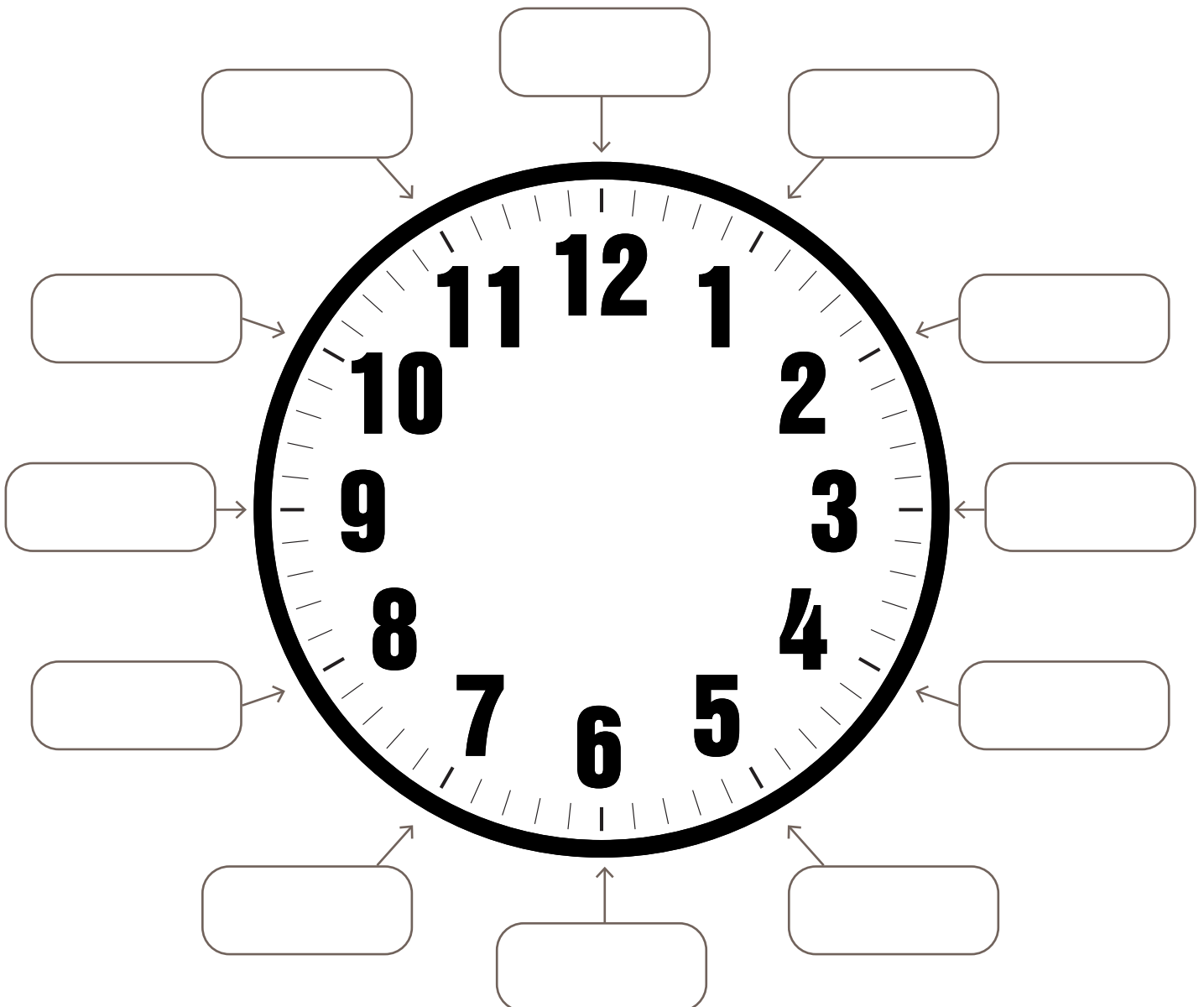
AM – 12 o'clock midnight – 12 o'clock midday (lunch time)

PM – 12 o'clock midday – 12 o'clock midnight (night time)

Using the clock below fill in the 24 hour times

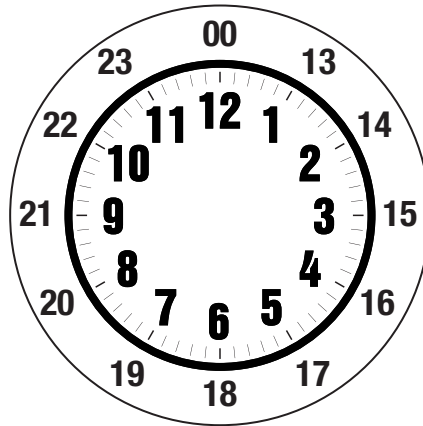
AM times: 01:00, 02:00, 03:00, 04:00, 05:00, 06:00, 07:00, 08:00, 09:00, 10:00, 11:00, 12:00

PM: 13:00, 14:00, 15:00, 16:00, 17:00, 18:00, 19:00, 20:00, 21:00, 22:00, 23:00, 00:00



WORKSHEET 3 – TIME CONVERSION – 24-HOUR TIME

THE 24 HOUR CLOCK



CONVERT THE FOLLOWING 12HOUR TIME INTO 24HOUR TIME

	12hours	24hours		12hours	24hours
1	3:25am	03:25	11	3:25pm	15:25
2	7:20am		12	7:20pm	
3	8:05am		13	8:05pm	
4	10:59am		14	10:59pm	
5	12:25am		15	12:25pm	
6	2:37am		16	2:37pm	
7	4:52am		17	4:52pm	
8	11:17am		18	11:17pm	
9	6:45am		19	6:45pm	
10	5:30am		20	5:30pm	

CONVERT THE FOLLOWING 24HOUR TIME INTO 12HOUR TIME

	24hours	12hours		24hours	12hours
1	06:15	6:15am	11	16:15	
2	09:45		12	19:45	
3	01:23		13	13:23	
4	03:56		14	13:56	
5	08:17		15	18:17	
6	11:56		16	21:56	
7	10:37		17	22:37	
8	05:07		18	15:07	
9	04:10		19	00:00	
10	00:10		20	17:10	