

Mathletics

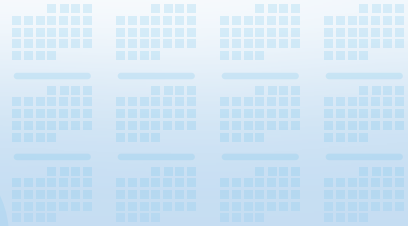
Series



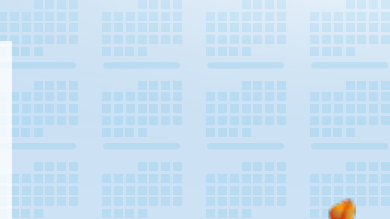
Student



Midnight 6 am Noon 6 pm Midnight



Time



Midnight 6 pm Noon 6 am Midnight

My name _____



Copyright © 2009 3P Learning. All rights reserved.

First edition printed 2009 in Australia.

A catalogue record for this book is available from 3P Learning Ltd.

ISBN 978-1-921861-10-9

Ownership of content The materials in this resource, including without limitation all information, text, graphics, advertisements, names, logos and trade marks (Content) are protected by copyright, trade mark and other intellectual property laws unless expressly indicated otherwise.

You must not modify, copy, reproduce, republish or distribute this Content in any way except as expressly provided for in these General Conditions or with our express prior written consent.

Copyright Copyright in this resource is owned or licensed by us. Other than for the purposes of, and subject to the conditions prescribed under, the Copyright Act 1968 (Cth) and similar legislation which applies in your location, and except as expressly authorised by these General Conditions, you may not in any form or by any means: adapt, reproduce, store, distribute, print, display, perform, publish or create derivative works from any part of this resource; or commercialise any information, products or services obtained from any part of this resource.

Where copyright legislation in a location includes a remunerated scheme to permit educational institutions to copy or print any part of the resource, we will claim for remuneration under that scheme where worksheets are printed or photocopied by teachers for use by students, and where teachers direct students to print or photocopy worksheets for use by students at school. A worksheet is a page of learning, designed for a student to write on using an ink pen or pencil. This may lead to an increase in the fees for educational institutions to participate in the relevant scheme.

Published 3P Learning Ltd

For more copies of this book, contact us at: www.3plearning.com/contact

Designed 3P Learning Ltd

Although every precaution has been taken in the preparation of this book, the publisher and authors assume no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of this information contained herein.

Series G – Time

Contents

Topic 1 – Telling time (pp. 1–8)

Date completed

- analogue and digital _____
- 24 hour time _____
- timetables _____
- L.A. here we come! – *solve* _____
- race against time – *apply* _____

Topic 2 – Calculating time (pp. 9–17)

- time trails _____
- word problems _____
- using a stopwatch _____
- whodunit? – *solve* _____
- connect clocks – *apply* _____

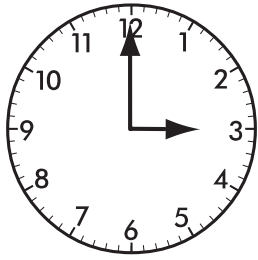
Topic 3 – Time applications (pp. 18–26)

- calendars _____
- Australian time zones _____
- world time zones _____
- “don’t forget to call home!” – *apply* _____
- timelines – *apply* _____
- time of your life – *create* _____

Series Authors:

Rachel Flenley
Nicola Herringer

Telling time – analogue and digital



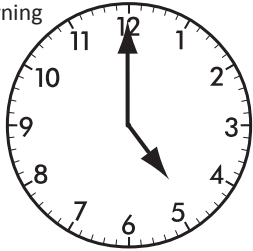
An analogue clock has two hands – an hour hand and a minute hand.



A digital clock shows time using digits. The hour always comes first.

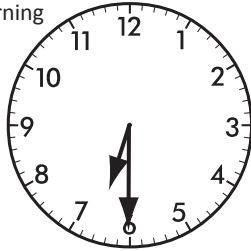
1 Read the time on the analogue clocks and express as digital times:

morning



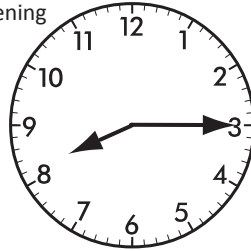
a :

morning



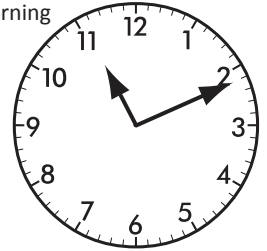
b :

evening



c :

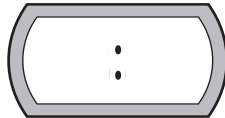
morning



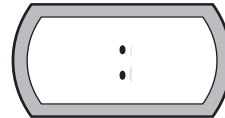
d :

2 Express these times on the digital clocks:

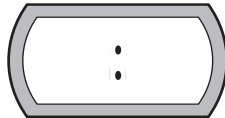
a Half past eight in the evening



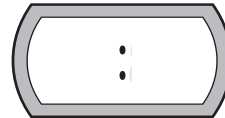
b 13 minutes to midday



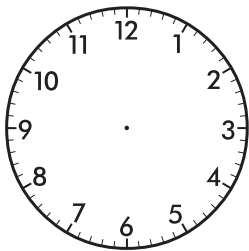
c 17 minutes past five in the morning



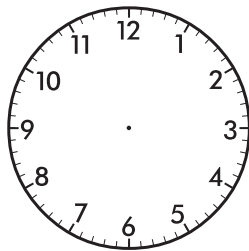
d 10 to 7 in the evening



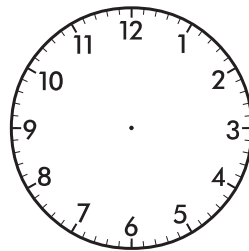
3 Show these digital times on the clocks:



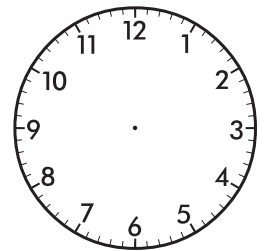
a 5:56



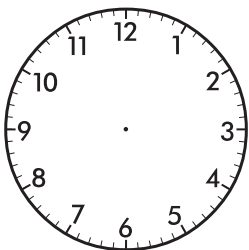
b 12:47



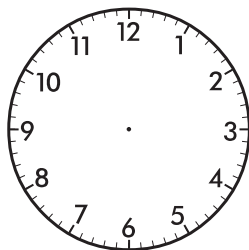
c 1:32



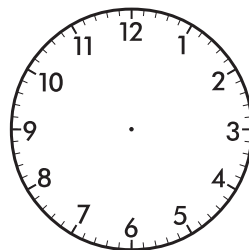
d 8:48



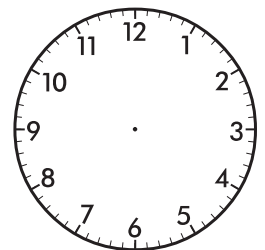
e 9:43



f 12:00



g 3:45



h 11:07

Telling time – analogue and digital

4 Look at the problems below. Indicate the answers as marked:

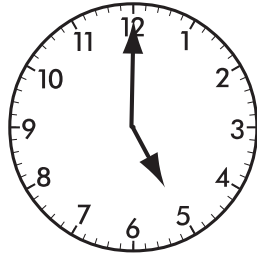
a I go to a movie that starts at 5:30. It runs for 2 hours. Circle the start time and put a box around the finish time.

b I put a cake in the oven at 2:45. It takes 48 minutes to cook. Place a double line under the start time and a cross through the finish time.

Quarter to three

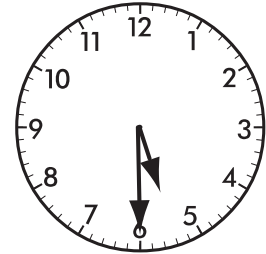
20 to 8

4:30



3:33

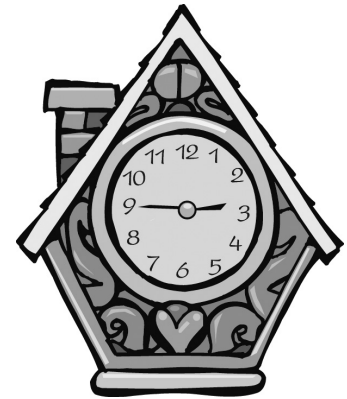
Half past seven



5 You will need 3 different coloured pencils for this activity. Colour the times that match:



1 hour and twenty-three minutes after 10:00



15 minutes after half past two

7 minutes before eleven thirty

1 hour and 44 minutes before 2 pm



3 and a half hours after me is 3:46

6 The time is 38 minutes after 4 o'clock. Show this time in as many ways as you can:

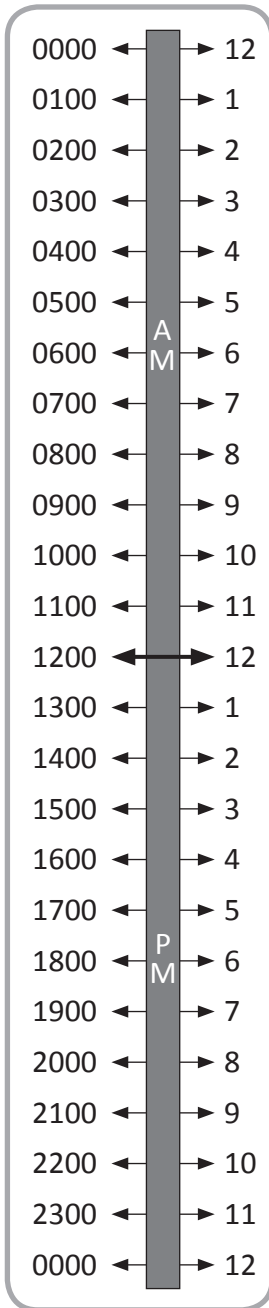
Telling time – 24 hour time

We can also use the 24 hour time model to express time.

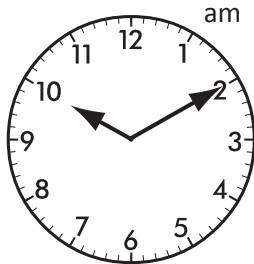
We number the hours from 0 to 23 because there are 24 hours in a day.

When it gets to the 24th hour, it starts again at 0.

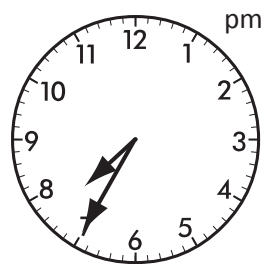
Can you think of situations when it is better to use 24 hour time rather than digital time?



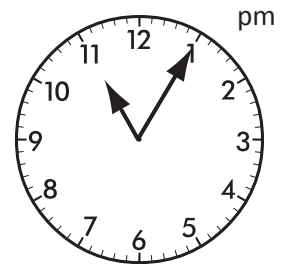
1 Express these times in 24 hour time:



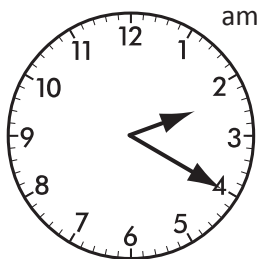
a



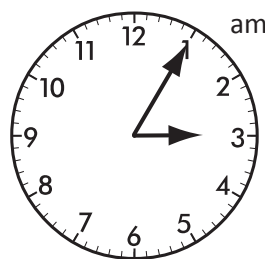
b



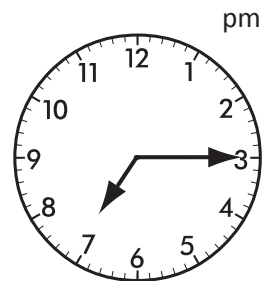
c



d



e



f

2 Use 24 hour time to write:

a 4:25 am

b 9:35 pm

c 12:25 am

d 12:40 pm

e 3:30 am

f 2:45 pm

g 8:15 pm

h 10:20 am

3 Convert these 24 hour times into digital form. Write am or pm next to the time:

a = :

b = :

c = :

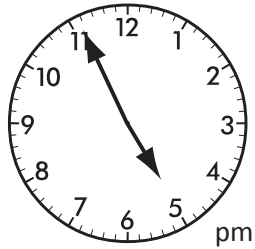
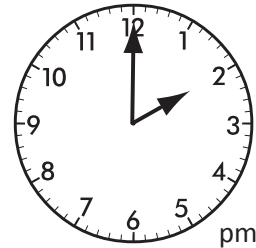
d = :

Telling time – 24 hour time

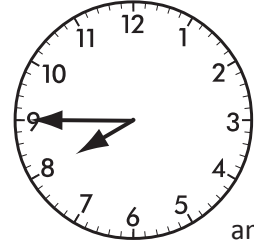
4 Convert these times to 24 hour time then order them from earliest to latest:

2:30 am

20 past 3 in the afternoon

9:35 pm



12:45 am

a quarter to 6 in the morning

half past 3 in the morning

7:05 pm

5 This table shows the session times at the local cinema. Use the information to answer the following questions:

Movie	Screening times	Running time
Animated Family	13:15, 15:00, 18:00	95 minutes
Spooky Movie	19:30	110 minutes
Feel Good Flick	12:00, 15:30	90 minutes
Shoot 'em up Classic	20:00	130 minutes
Highschool Woes	11:00, 13:15	120 minutes

- a The first screening of Feel Good Flick is 12:00. What time does it finish? _____
- b Which movie ends at 9:20 pm? _____
- c Sarah arrives at the cinema at 2:45 pm. How long does she have to wait for the next screening of Animated Family? _____
- d Matt walked out of the 11:00 session of Highschool Woes half an hour before the end. What time did he leave? _____

Telling time – timetables

Timetables are often used to show transport schedules. It is important to be able to read timetables as they have the information we need to plan journeys.

1 Study this bus timetable and then fill in the gaps.

Destination	Bus 1	Bus 2	Bus 3	Bus 4	Bus 5
Geraldton	0900	1000	1100	1200	
Port Leys	1015	1115	1215	1315	
Shelley Cove	1100	1200			
Albertson	1345	1445	1545		
Benlin	1410	1510			1810

This timetable uses 24 hour time.



- a How long does it take to get from Geraldton to Shelley Cove? _____
- b How long does it take to get from Shelley Cove to Benlin? _____
- c How often does the bus leave from Geraldton? _____
- d How often does the bus arrive in Benlin? _____
- e If I was leaving from Geraldton and I needed to get to Albertson by 2:00 pm, which bus should I catch? _____
- f If I was leaving from Shelley Cove and I needed to be in Benlin by 4:30 pm which bus should I catch? _____
- g How long does the entire journey from Geraldton to Benlin take? _____

Timetables are also used to show the scheduling of television programs.

2 Use this TV guide to answer the questions.

17:10	Cartoons
18:00	Comedy
18:30	News
19:30	Documentary
20:45–23:15	Film

- a What is the shortest program? _____
- b I am setting up my DVDR to record the documentary. How long should I record for? _____
- c How much longer is the film than the documentary? _____

Telling time – timetables

3 Use the bus timetable below to answer the questions.

Bus Route – City Hall to Museum

Monday to Friday				
City Hall	Harris Ave	York Street	Holt Street	Museum
Morning				
---	6:30	6:35	6:38	6:45
---	7:10	7:15	7:18	7:25
---	---	7:50	7:53	8:00
---	8:20	---	8:30	8:35
9:00	9:02	9:07	9:10	9:17
9:45	9:47	9:52	9:55	10:02
10:30	10:32	10:37	10:40	10:47
Afternoon				
12:00	12:02	12:07	12:10	12:17
1:30	1:32	1:37	1:40	1:47
3:00	3:02	3:07	3:10	3:17
---	---	3:30	3:35	3:40
3:25	3:27	3:32	3:37	3:42
---	4:30	4:35	4:40	4:50
---	5:30	5:35	5:40	5:50
---	6:30	6:33	6:38	6:45
---	7:30	7:33	7:38	7:43

Saturday				
City Hall	Harris Ave	York Street	Holt Street	Museum
Morning				
---	7:30	7:33	7:38	7:45
9:40	9:42	9:45	9:50	9:57
10:50	10:52	10:55	11:00	11:07
Afternoon				
12:05	12:07	12:10	12:15	12:22
2:35	2:37	2:40	2:45	2:52
---	5:05	5:08	5:13	5:18
---	7:30	7:33	7:38	7:43
---	10:15	10:18	10:23	10:28

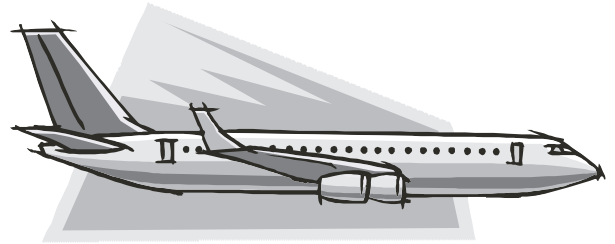
Bus Fares (one way)	
Stops	Fares
1	\$1.80
2	\$2.50
3	\$3.50

- a Which bus does Iqbal need to catch on Thursday from City Hall to be at York Street at 9:52 am? _____
- b Ali wants to be at Museum at 12:22 pm on Saturday. What time does she need to catch the bus at Harris Avenue? _____
- c Lauren travelled from York Street to Museum. How much change would she get from a \$10 note? _____
- d Zac wants to travel from City Hall to Holt Street on Saturday morning. If he catches the 9:40 am bus, how long will his trip be? _____
- e Minh travels from City Hall to Harris Avenue, where he stops for lunch. Next, he travels from Harris Avenue to Museum. How much has he spent on bus fares? _____



Getting ready

Five different families were travelling to Los Angeles for a holiday to one of the many theme parks. Their flights all left on the same day, but each family left at a different time and were going to a different theme park.



What to do

Find out each family's flight number, departure time and the theme park they went to. Read the clues below and use the grid to keep track of what you find out. Use a cross when you are sure 2 variables do not match and a tick when you know that they do. The first clue has been entered into the grid to show you how to do this.

- 1 Flight 938 left at 4:45 pm with the Herringers on board.
- 2 The Herringers and the family going to Seaworld were not on the flight leaving just before 6 pm.
- 3 The Nicholls family who were on flight 762 were not interested in going to Knott's Berry Farm or Disneyland.
- 4 Flight 938 was the flight of the family going to Universal Studios.
- 5 The Kirk family was the last of all the families to fly out on flight 165 on the way to Knott's Berry farm.
- 6 The Flenleys were on Flight 513 which left $1\frac{1}{2}$ hours before flight 938.

Family	Flight Number				Time				Theme Park			
	762	938	513	165	14:38	15:15	16:45	17:53	SW	US	DL	KBF
Nicholls		✗					✗					
Herringer	✗	✓	✗	✗	✗	✗	✓	✗				
Flenley		✗					✗					
Kirk		✗					✗					



Getting ready

This is a game for 2 players. You will each need a photocopy of this page. Cut out the cards. You and your partner should shuffle each other's cards really well. Hand the cards back.



copy



What to do

Race each other to match the cards to make all the sums. You will need to calculate the time sum on the white cards and then find the answer which is on the grey cards. Stop playing when one player has finished.

Check each other's cards.

The winner is the player who has the most sums correct!

= 3:25	3:45 – 20 minutes	9:59 – 1 hour	= 8:59
1:16 + 14 minutes	= 1:30	= 4:00	3:46 + 14 minutes
10:58 + 22 minutes	= 11:20	= 2:25	3:10 – 45 minutes
= 11:25	12:00 – 35 minutes	7:30 + 2½ hours	= 10:00
8:56 + 34 minutes	= 9:30	3:56 + 24 hours	= 3:56
6:30 + 3½ hours	= 10:00	11:50 – 25 minutes	= 11:25
7:14 + 10 minutes	= 7:24	3:17 + 2 days	= 3:17



What to do next

Add to this set of cards by writing your own matching time sums.

Calculating time – time trails

We can use our knowledge of basic time facts to help us convert between hours, seconds and minutes.

By knowing these facts:

$$1 \text{ minute} = 60 \text{ seconds}$$

$$1 \text{ hour} = 60 \text{ minutes}$$

$$1 \text{ day} = 24 \text{ hours}$$

$$1 \text{ year} = 52 \text{ weeks}$$

We can convert times such as:

$$3 \text{ minutes} = 180 \text{ seconds} (3 \times 60)$$

$$1 \frac{1}{2} \text{ hours} = 90 \text{ minutes} (60 + 30)$$

$$1 \text{ week} = 168 \text{ hours} (7 \times 24)$$

$$2 \text{ years} = 104 \text{ weeks}$$

1 How many seconds or minutes? You may use a calculator if you wish:

a 7 minutes = seconds

b 86 minutes = seconds

c 360 seconds = minutes

d 420 seconds = minutes

e 240 seconds = minutes

f 48 minutes = seconds

2 Convert the following into more appropriate units:

a 240 minutes = hours

b 360 minutes = hours

c 360 seconds = minutes

d 420 minutes = hours

e 420 seconds = minutes

f 540 seconds = minutes

3 Use a calculator to help you work out how many:

a minutes in a day _____

b minutes in a week _____

c minutes in a year _____

d minutes you have been alive _____

I need to multiply to move from a larger unit to a smaller unit and divide to do the opposite!



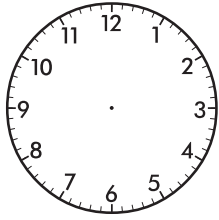
REMEMBER

4 Did you know that the giant tortoise has a life span of 177 years?

How many days is this? _____

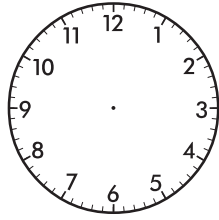
Calculating time – time trails

5 Draw hands on these clocks to show the time half an hour later:



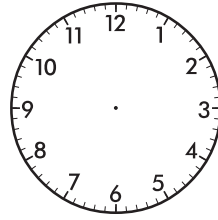
a

10:45



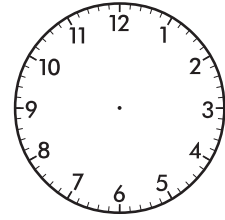
b

8:15



c

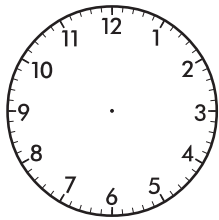
2:20



d

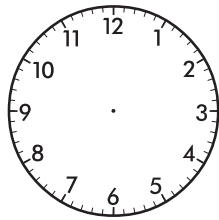
9:55

6 Draw hands on these clocks to show the time half an hour earlier:



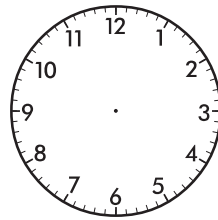
a

1:15



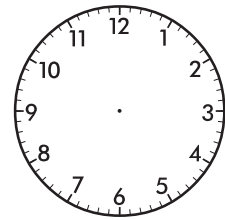
b

5:40



c

11:05



d

7:35

7 Complete these clocks to show the elapsed times:

	35 minutes	42 minutes	59 minutes	17 minutes
Start	3:35	1:14	9:07	6:32
Finish				

	100 minutes	19 minutes	48 minutes	12 minutes
Start				
Finish	8:00	2:05	5:41	10:49

Calculating time – word problems

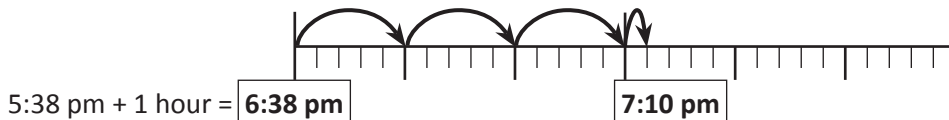
Timelines can help us with more difficult word problems.

Question: Tina went to watch a movie that started at 5:38 pm and finished at 7:10 pm. How long did the movie go for?

- Steps:**
1. First count on in hours in your head to get as close to the finish time as possible and write it in the first box. (The finish time is 7:10 pm so we need to add 1 hour to 5:38 pm make it 6:38 pm.)
 2. Then count on in 10 minute and 2 minute jumps until you get to the finish time.



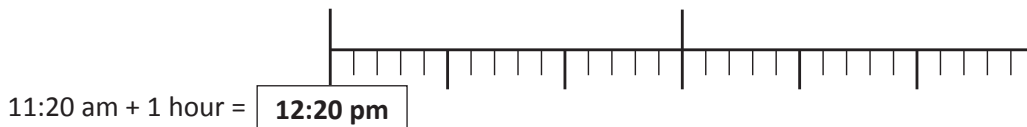
REMEMBER



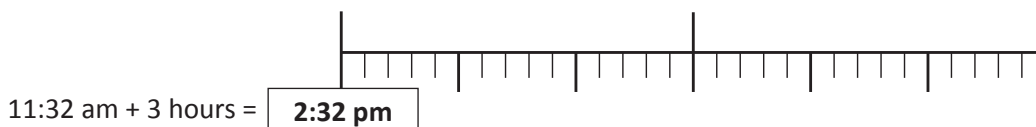
Answer: 1 hour and 32 minutes

1 Show how you use the timeline by adding the jumps to each timeline.

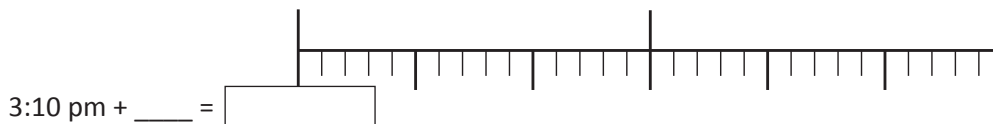
- a Year 12 were doing a writing assessment that started at 11:20 am and finished as 1:12 pm. How much time were they allowed?



- b Tammy entered a shopping centre car park at 11:32 am and left at 3:26 pm. How long was Tammy shopping for?



- c Last Easter holidays, the Gilmore family got stuck in a traffic jam and were delayed. If they arrived at 5:52 pm and were due to arrive at 3:10 pm, how long were they delayed?



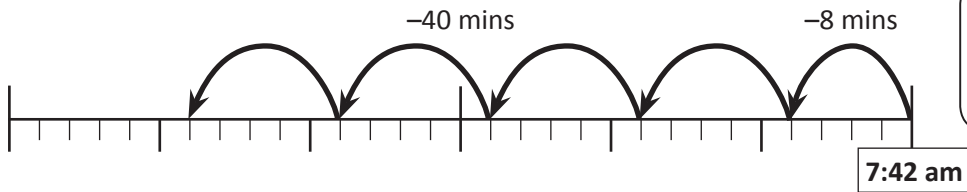
- d On Saturday I went to a film that started at 5:15 pm and finished at 7:52 pm. How long was this film?



Calculating time – word problems

2 Use these timelines to help work out the answers by working backwards:

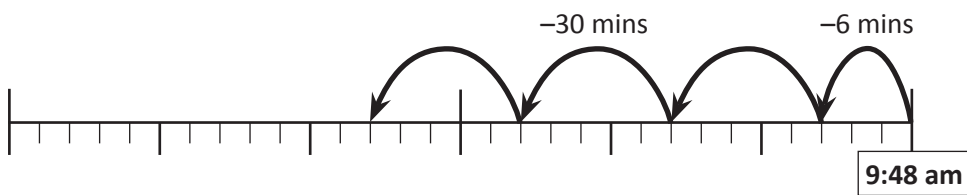
- a Amity's alarm clock went off at 7:42 am. This was 2 hours and 48 minutes too late so she missed her bus. What time should it have gone off?



HINT: Count back in minutes and then hours.

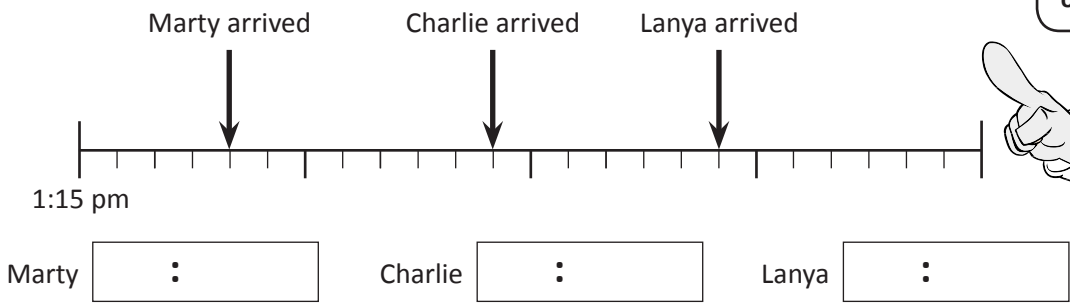


- b A plane arrived in Sydney at 9:48 am. It had left Adelaide 2 hours and 36 minutes earlier. What time did it leave Adelaide?

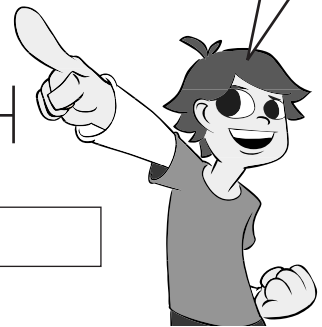


3 Figure out the scale used for these timelines and answer the questions:

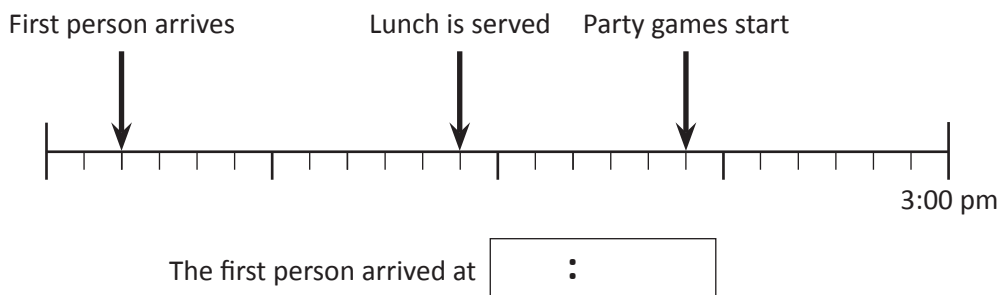
- a Work out the time each person arrived at the soccer match using the scale below and this clue: Charlie arrived 14 minutes later than Marty.



To work out the scale, count the spaces and divide into the number of minutes given.



- b Work out what time the first person arrived at Dan's party using the scale below and this clue: Lunch was served at 12:50 pm.



Calculating time – using a stopwatch

The time on this stopwatch reads as:
3 minutes, 52 seconds and 42 hundredths of a second.



1 Explain what each number represents on the following stopwatches:

a

03:32:21

b

04:47:16

c

05:57:49

2 Show the time on these stopwatches:

a 1 minute, 31 seconds and 99 hundredths of a second.

b 5 minutes, 16 seconds and 59 hundredths of a second.

c 2 minutes, 17 seconds and 89 hundredths of a second.

3 Show the final time on the stopwatch after adding these times together:

36 hundredths of a second

61 seconds

16 minutes

14 minutes

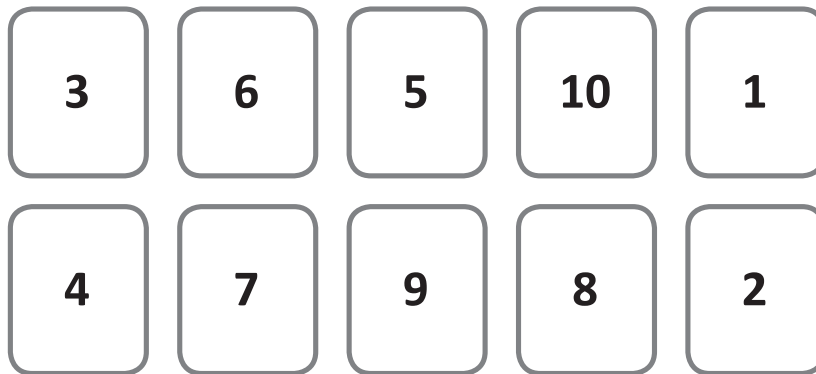
21 hundredths of a second

Calculating time – using a stopwatch

- 4 Jelena and Serena are running time trials in preparation for a marathon. For each trial find the time difference between the two girls:

	Serena	Time difference	Jelena
a	02:18:16		02:18:17
b	01:24:49		01:24:46
c	05:37:18		05:37:94

- d Based on these trials, who do you predict might come first in the marathon? _____



- 5 How fast is your reaction time?
Find a partner and time each other with a stopwatch to do the following tasks:

- a Touch each square in numerical order _____
- b Touch each square in order of even numbers _____
- c Touch each square in order of odd numbers _____
- d Try each of the above with your other hand _____

- 6 Now, work with your partner to estimate and measure the time it takes to complete an activity.
Choose an activity such as race from the library to the office. Make your prediction, then try it out.

How close are you? Do your estimations get closer with practice?





Getting ready

Mrs Smith is livid ... furious ... about to burst a blood vessel. She has come home at 6 pm to find that one of her kids has dropped pizza on the new cream sofa, leaving tomato sauce and ham everywhere. And as for the grease stains, she can't bear to even think about them.

Mr Smith was in the shed the whole afternoon and can cast no light on the matter. She will deal with him later.

She has hauled in all the kids to find the culprit.



What to do

Read each alibi and find out who is lying. Someone has a gap in their timeline. And in that time, they managed to make the mess ... Use the timetable to show who is the guilty party. *Note: They all finish school at 3:30 pm.*

Jack says he couldn't have done it because: "School finished at 3:30 pm and I went straight to soccer practice. It takes 15 minutes to get to soccer practice and the practice lasted for an hour. Then it took 15 minutes to walk home. And Tom came home with me and we were on the PlayStation for an hour and then you came home! Ask Tom, he'll tell you we didn't leave the PlayStation."

Madison's alibi is: "I can't have done it! I had dance class after school in the gym for an hour. And then Li's mum picked me up and took us both out for ice cream. That took 30 minutes. And then I went back to Li's and we MSN'ed for 45 minutes. Then I walked home and that takes 15 minutes. So it wasn't me!"

Dakota claims innocence this way: "Well, it couldn't have been me because I went next door to Nikki's after school for 1 hour and 45 minutes. And then I came home and got changed for kung fu which took 15 minutes. And then just as I finished, Nikki rang at 5:45 pm to say they would pick me up in 15 minutes to go to kung fu, so I am innocent!"

Whodunnit? _____

Time	Jack	Dakota	Madison
3:30–4:00			
4:00–4:30			
4:30–5:00			
5:00–5:30			
5:30–6:00			



What to do next

Think of an appropriate consequence for the guilty party.



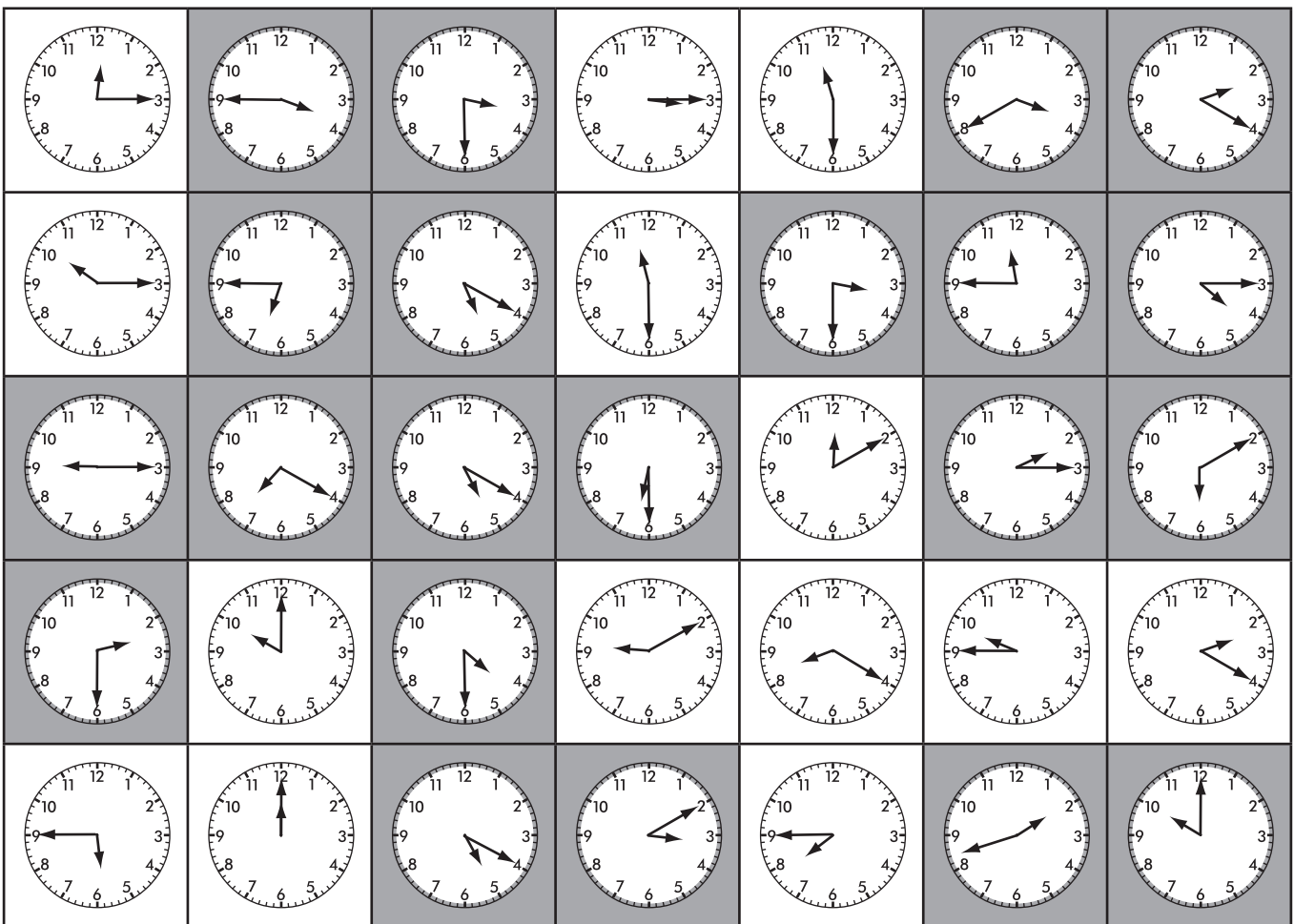
This is a game for 2 players. You will each need a set of 3 counters of the same colour. You will need a photocopy of this page and the next page. Cut out the cards once you have copied the page.



The aim of this game is to get 3 counters in a line either diagonally, horizontally or vertically.

After you have cut out the cards on the next page, you place them in a pile turned over. Player 1 turns the first card over and places a counter on the matching clock face. Player 2 then has a turn and so on.

The winner is the first person is to get 3 counters in a line.



The clocks with grey backgrounds are pm times and the clocks with white backgrounds are am times.



1810	A quarter to twelve at night	1530	11:30 am
3:45 pm	10:15 am	A quarter past three in the morning	2115
1510	9:45 am	Seven twenty pm	8:20 am
Midday	1430	A quarter past midnight	2200
5:20 pm	10:00 am	1540	1415
7:45 am	1810	Ten past midnight	Four fifteen pm
Half past three pm	Eleven thirty am	14:20	1720
9:10 am	1630	2:20 am	A quarter to 6 in the morning
1845	1720	Thirty minutes before 7 pm	18 before 2 pm

Time applications – calendars

- 1** Calendars have been used by different civilisations for thousands of years.
Fill in the rest of the dates on this calendar.



January 2010						
M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

February 2010						
M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	

March 2010						
M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21

April 2010						
M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20					

May 2010						
M	T	W	T	F	S	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20			

June 2010						
M	T	W	T	F	S	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20

July 2010						
M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26						

August 2010						
M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25				

September 2010						
M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21					

October 2010						
M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November 2010						
M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25			

December 2010						
M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20						

- 2** Use the completed calendar to answer these questions:

- a How many times does the end of the month fall on a Saturday?
- b Which day of the week is the last day of the previous year?
- c Which day of the week is the first day of the following year?

Time applications – calendars

- 3** You get an allowance from your parents provided you complete all your chores on time. They let you choose how you want to be paid.

Option 1: Receive \$50 a month

Option 2: Receive \$12 a week

Which option will you choose? _____

Use the calendar to work it out and show your reasoning.



- 4** Use the calendar for 2010 on page 18 to answer this question. What date and day of the week am I?

a I am in the second week of the third month, in 2010. I am a single digit. I am not Monday.

I am _____

b I am in the month with 30 days that comes straight after March. I am in the middle week and I am right before the weekend.

I am _____

c I am the last day of a summer month in the northern hemisphere. I am not July or August.

I am _____

Time applications – Australian time zones

Australia has three time zones. New Zealand has one. Why do you think this is?

Central Standard Time is $\frac{1}{2}$ an hour behind Eastern Standard Time.

Western Standard Time is 2 hours behind Eastern Standard Time.

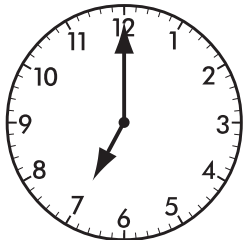
New Zealand is 2 hours ahead of Australian Eastern Time.

1 On the map, label each capital city in Australia and New Zealand.

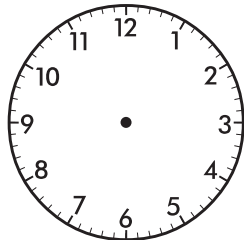
The map shows Australia divided into three time zones: Western Standard Time (left), Central Standard Time (middle), and Eastern Standard Time (right). New Zealand is shown to the east. Empty boxes are provided for labeling the capital cities: Perth (Western), Canberra (Central), Sydney (Eastern), and Wellington (New Zealand).

2 Show the time in each zone based on the first clock.

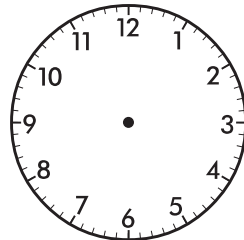
Western Standard



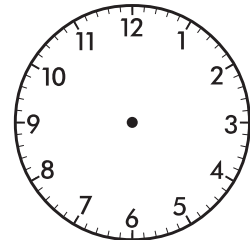
Central Standard



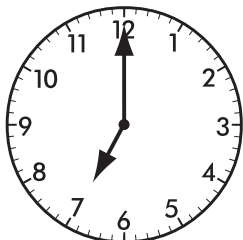
Eastern Standard



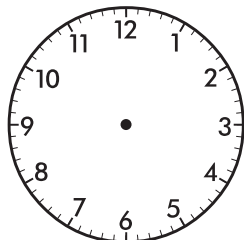
New Zealand



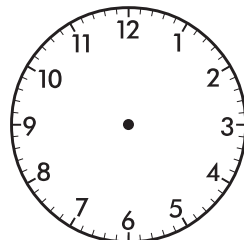
3 You are in Brisbane and it is 7 pm. What time will it be in:



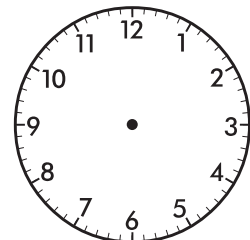
Brisbane



Perth



Darwin



Wellington

4 Now you are in Perth. What time will it be in:



Perth



Darwin



Brisbane



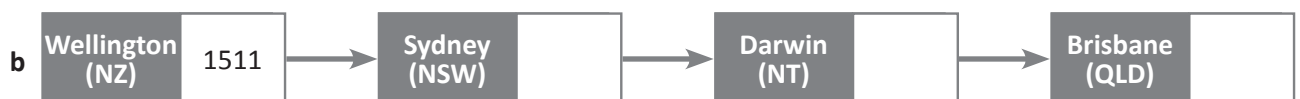
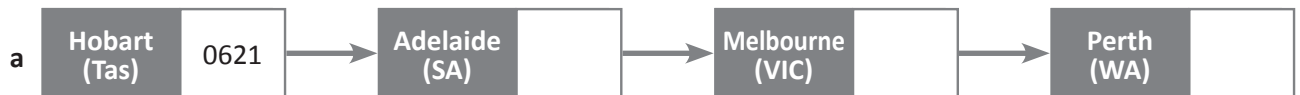
Wellington

Time applications – Australian time zones

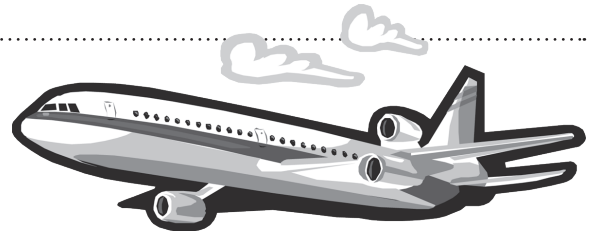
Daylight Saving is used by New Zealand, New South Wales, Australian Capital Territory (ACT), Tasmania, Victoria and South Australia as a way of having more daylight hours after work.

When Daylight Saving begins, clocks are put forward 1 hour. When it ends, clocks are put back 1 hour. Queensland, Western Australia and the Northern Territory do not use Daylight Saving.

- 5 Use 24 hour time to record the corresponding times in each city during Daylight Saving time. Use the time zone information on page 20 to guide you.



- 6 Complete these flight schedules in 24 hour time, noting the flying time. Again, use the time zone information on page 20 to guide you. Remember to take daylight saving into account.



a

Sydney to Wellington 3 hours flying time	
Depart Sydney	Arrive Wellington
1715	
1845	
1915	
2045	

b

Sydney to Brisbane $1\frac{1}{2}$ hours flying time	
Depart Sydney	Arrive Brisbane
1130	
1330	
1530	
1730	

c

Darwin to Sydney 4 hours flying time	
Depart Darwin	Arrive Sydney
1200	
1330	
1420	
1510	

d

Sydney to Perth 5 hours flying time	
Depart Sydney	Arrive Perth
0610	
0810	
1010	
1200	

Time applications – world time zones

Lines of latitude and longitude form a grid that can be used to pinpoint any location in the world.

The equator is an imaginary line around the centre of the earth. It is measured at 0° .

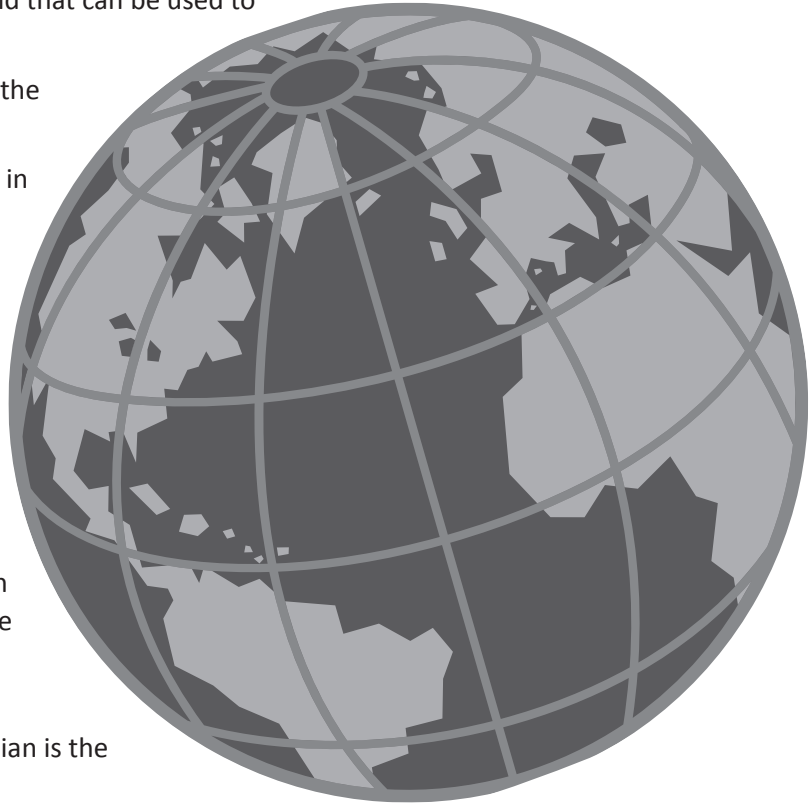
Latitude is the measurement of distance in degrees north and south of the equator.

From the equator to the North and South Pole there are 90° of latitude. Lines of latitude run horizontally.

Longitude is the measurement of distance in degrees east or west of the Prime Meridian. The Prime Meridian divides the earth in half and passes through Greenwich, England at 0° . All lines of longitude pass through the North and South Poles. They run vertically. There are 180° of longitude on each side of the Prime Meridian.

On the opposite side to the Prime Meridian is the International Date Line.

Longitudinal lines to the left of the Prime Meridian give locations in the western hemisphere. Longitudinal lines to the right of the Prime Meridian give locations in the eastern hemisphere.

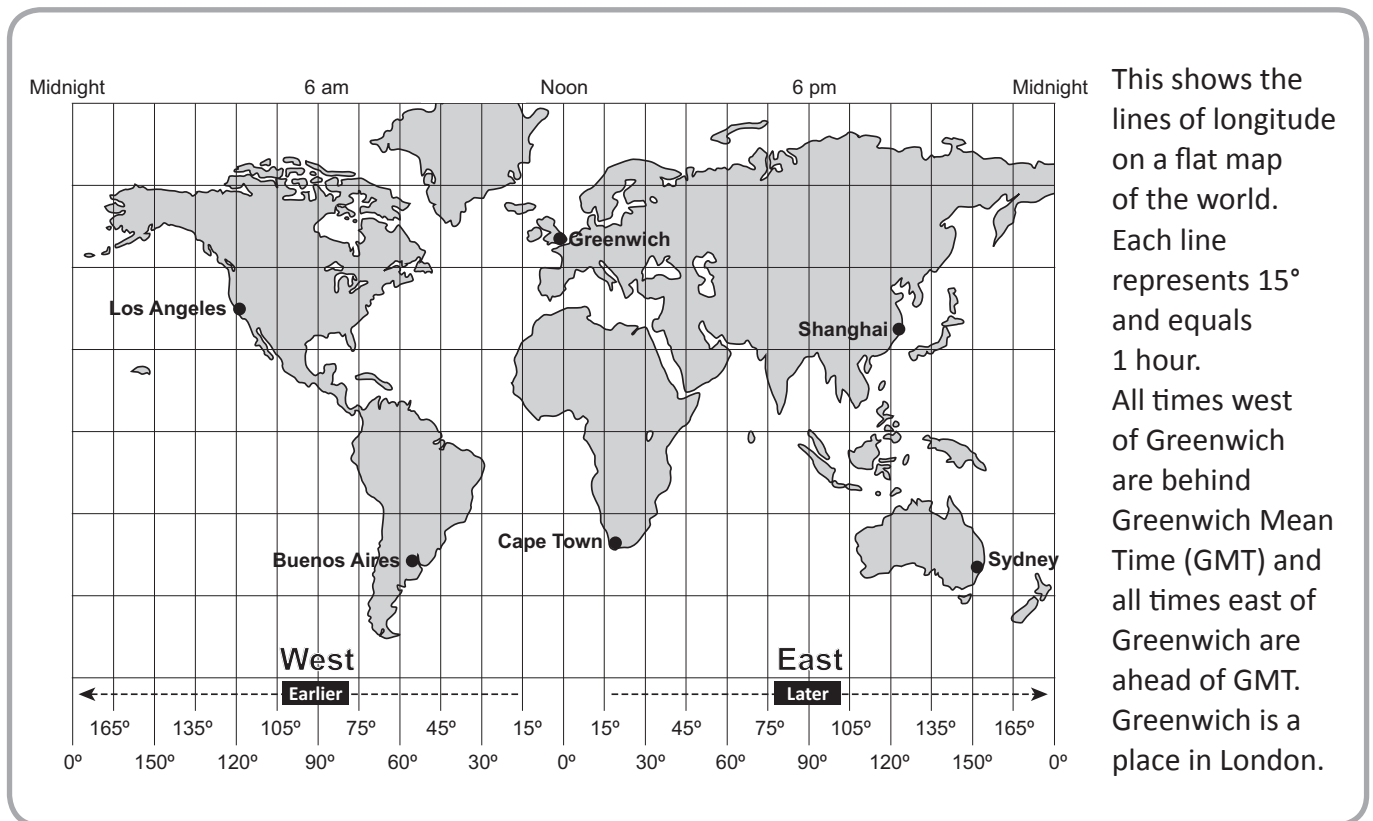


1 Use your own words to describe longitude and latitude to someone:

2 You will need an atlas for this question. Find out the latitude and longitude of the following capital cities. Name their countries:

- a Madrid is the capital of . The latitude and longitude are .
- b Bangkok is the capital of . The latitude and longitude are .
- c Helsinki is the capital of . The latitude and longitude are .

Time applications – world time zones



- 3** Look at the lines of longitude that these cities of the world are closest to. Calculate these time differences.
- a Los Angeles is _____ hours ahead / behind Sydney.
 - b Shanghai is _____ hours ahead / behind Cape Town.
 - c Buenos Aires is _____ hours ahead / behind Greenwich in London.

Going west time is earlier than GMT and east is later than GMT.



REMEMBER

- 4** What time will it be at Greenwich when the time is:
- a 6 pm in Shanghai? _____
 - b 10 am in Sydney? _____
 - c 2 pm in Buenos Aires? _____
 - d 5 am in Los Angeles? _____

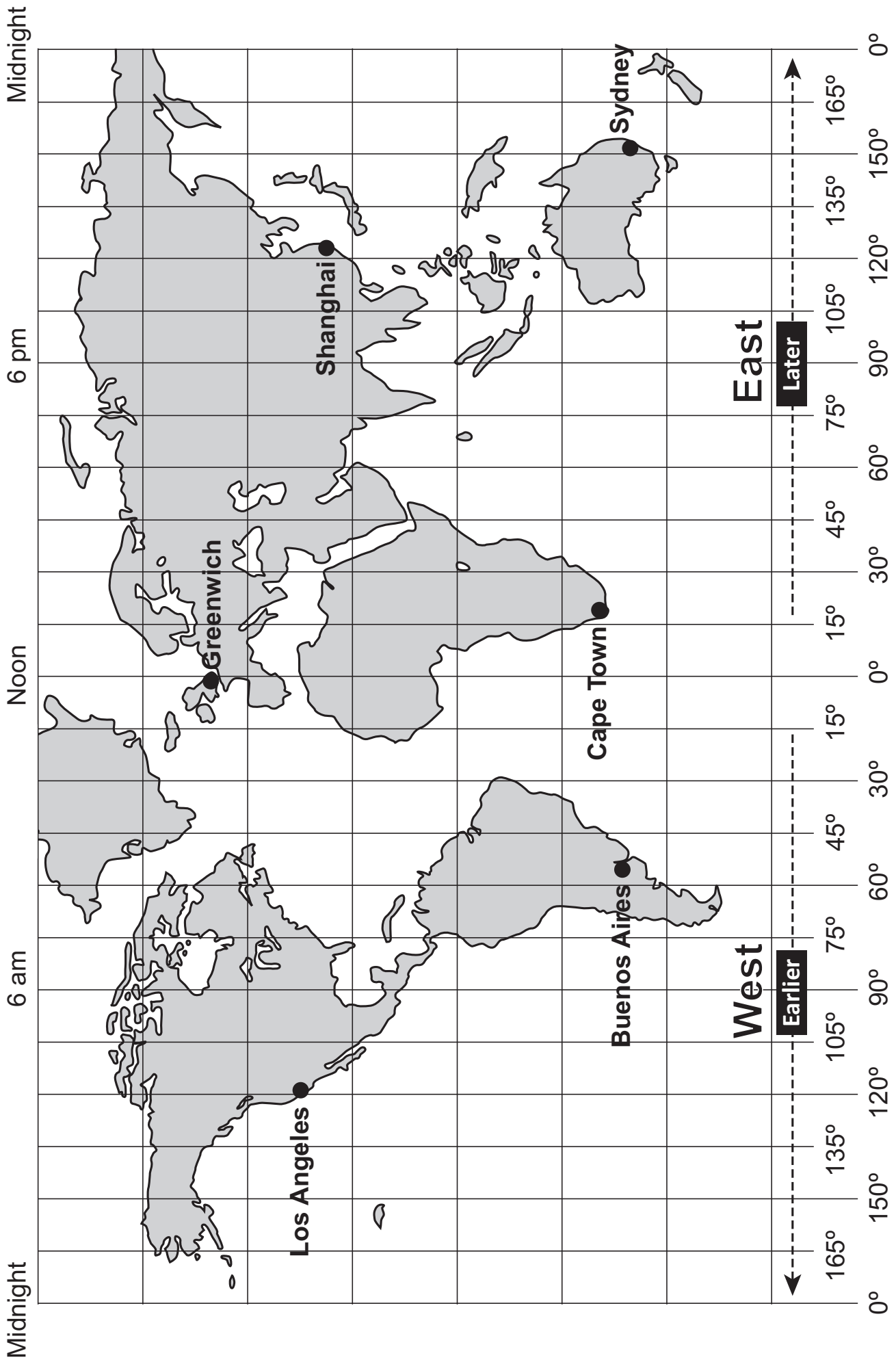
5 Work out the missing times in these flight schedules:

a

Flights from Sydney to Cape Town 14 hours flying time	
Depart local time	Arrive local time
1 pm	

b

Flights from Los Angeles to London 11 hours flying time	
Depart local time	Arrive local time
6 am	





Getting ready

For this game, you will need the enlarged map on the previous page (page 24) and 2 dice. You are a contestant on the reality show, “Don’t Forget to Call Home!” As well as the usual race around the world stunts, you have to call London every day between set hours.

The point scoring system is below. It pays to get the timing right as the winning contestant scores \$1 000 000 in prize money!

Look back to your world time zone map to work out time differences. Remember Greenwich is in London.



Time in London	Points
0900 – 1700	10 points
1800 – 0800	-10 points



What to do

- Roll 2 dice to get the time and place from which you call. For example, if you roll 1 or 2 for the place and a 3 for the time, you are calling from Los Angeles at 1700.
- Work out what time it is in London. Using the same example, the time in London would be 8 hours later which makes it 0100. So you would score -10 points because the early hours of the morning is a bad time to call!
- Keep track of your calls below. The person who gets the most points by the end of the table, wins!

Number on Die	Place
1 or 2	Los Angeles
3 or 4	Shanghai
5 or 6	Sydney

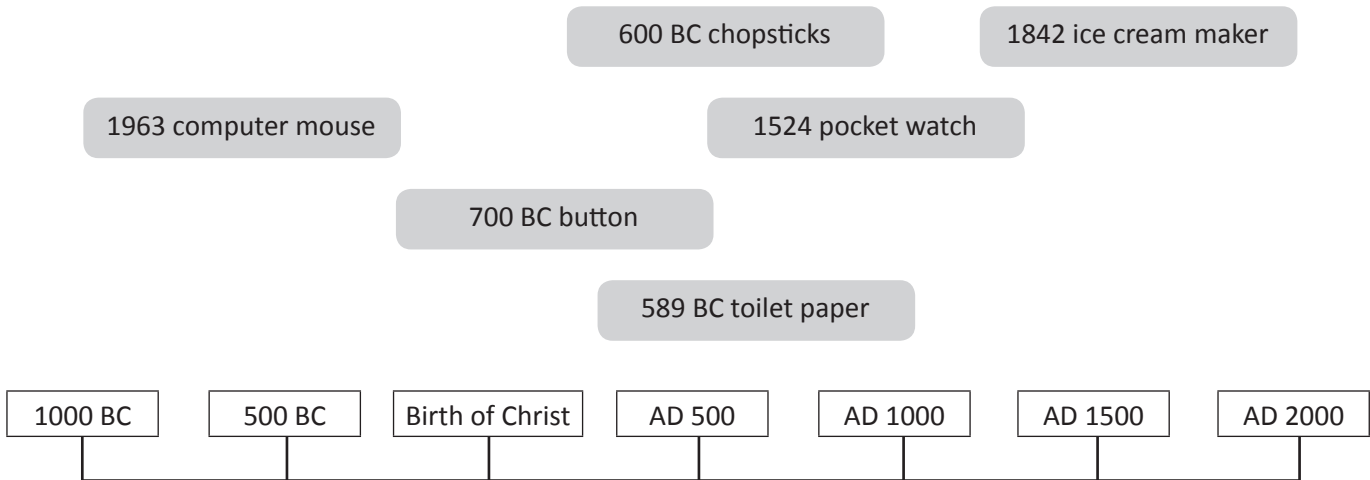
Number on Die	Time
1	1000
2	1400
3	1700
4	1200
5	2100
6	2300

Time and Place	Points	Running Tally



Getting ready

Draw a line from each invention to its corresponding place on the timeline.



- a How many years are there between the invention of the pocket watch and the year it is now? _____
- b How many years are there between the invention of the button and the Birth of Christ? _____
- c How many years are there between the invention of the ice cream maker and the invention of chopsticks? _____

Time of your life

create



What to do

Create a timeline of your life. You may show your whole life or an exciting segment. Make some rough plans below and then decide how you will present the timeline. Think about what scale you will use and how large you want your final product to be.



What to do next

Have a whole class presentation afternoon where you can wander around the room and learn about each other. You could organise a quiz and have a prize for the person who remembers the most about you.