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Time



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Series G – Time

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Series Authors:

Rachel Flenley Nicola Herringer

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Telling time – analogue and digital





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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 takes48 minutes to cook. Place a double line underthe start time and a cross through the finish time.



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



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



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?





Telling time – 24-hour time



5

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



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?



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.

tudy this bus timetable and then fill in the gaps.							
Destination	Bus 1	Bus 2	Bus 3	Bus 4	Bus 5		
Cleethorpes	09:00	10:00	11:00	12:00			
Grimsby	10:15	11:15	12:15	13:15			
Keelby Village	11:00	12:00					
Humber Bridge	13:45	14:45	15:45				
Hull	14:10	15:10			18:10		



- a How long does it take to get from Cleethorpes to Keelby Village?
- **b** How long does it take to get from Keelby Village to Hull?
- c How often does the bus leave from Cleethorpes?
- d How often does the bus arrive in Hull?
- e If I was leaving from Cleethorpes and I needed to get to Humber Bridge by 2:00 pm, which bus should I catch?
- **f** If I was leaving from Keelby Village and I needed to be in Hull by 4:30 pm which bus should I catch?
- g How long does the entire journey from Cleethorpes to Hull take?

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

.....

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 programme?
- b I am setting up my TV 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			
	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			
12:00	12:02	12:07	12:10	12:17			
13:30	13:32	13:37	13:40	13:47			
15:00	15:02	15:07	15:10	15:17			
		15:30	15:35	15:40			
15:25	15:27	15:32	15:37	15:42			
	16:30	16:35	16:40	16:50			
	17:30	17:35	17:40	17:50			
	18:30	18:33	18:38	18:45			
	19:30	19:33	19:38	19:43			

Saturday	1			
City Hall	Harris Ave	York Street	Holt Street	Museum
	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
12:05	12:07	12:10	12:15	12:22
14:35	14:37	14:40	14:45	14:52
	17:05	17:08	17:13	17:18
	19:30	19:33	19:38	19:43
	22:15	22:18	22:23	22:28

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?
- **b** Ali wants to be at Museum at 12:22 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 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?



L.A. here we come!



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.



solve



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 N	lumber	r		Tir	ne			Them	e Park	
	762	938	513	165	14:38	15:15	16:45	17:53	SW	US	DL	KBF
Nicholls		×					×					
Herringer	×	~	×	×	×	×	~	×				
Flenley		×					×					
Kirk		×					×					



Race against t	ime		apply
Getting ready	This is a game for 2 players. Cut out the cards. You and y cards really well. Hand the c	You will each need a photoco our partner should shuffle ea ards back.	opy of this page. ach other's
What to do	Race each other to match th the time sum on the white ca Stop playing when one playa Check each other's cards. The winner is the player wh	ne cards to make all the sums ards and then find the answer er has finished. o has the most sums correct!	5. You will need to calculate r which is on the grey cards.
= 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 + 2 <mark>1</mark> 2 hours	= 10:00
8:56 + 34 minutes	= 9:30	3:56 + 24-hours	= 3:56
6:30 + 3 ¹ / ₂ hours	= 10:00	11:50 – 25 minutes	= 11:25
	+	+	+

What to do next

TOPIC

SERIES

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

We can use our knowledge of basic time facts to help us convert between hours, seconds and minutes. By knowing these facts: We can convert times such as: 1 minute = 60 seconds $3 \text{ minutes} = 180 \text{ seconds} (3 \times 60)$ $1\frac{1}{2}$ hours = 90 minutes (60 + 30) 1 hour = 60 minutes $1 \text{ week} = 168 \text{ hours} (7 \times 24)$ 1 day = 24-hours 1 year = 52 weeks2 years = 104 weeksHow many seconds or minutes? a 7 minutes = seconds **b** 9 minutes seconds **c** 360 seconds = **d** 420 seconds = minutes minutes e 240 seconds = minutes f 20 minutes = seconds Convert the following into more appropriate units: 240 minutes = **b** 360 minutes = hours hours а 360 seconds = **d** 420 minutes = hours С minutes f 540 seconds = e 420 seconds = minutes minutes How many...? a weeks in 5 years weeks = I need to multiply to move from a larger unit to a smaller unit and divide to do the opposite! hours **b** hours in 8 days = c days in 20 weeks days = d days in 192 hours days = e years in 1,040 weeks = years **f** years in a century = years REMEMBER



Calculating time – time trials

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





6

Δ

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



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	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$





Calculating time – word problems





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

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** -40 mins -8 mins back in minutes and then hours. 7:42 am b A plane arrived in London at 9:48 am. It had left La Rochelle, France 2 hours : and 36 minutes earlier. What time did it leave La Rochelle? -30 mins -6 mins 9:48 am Figure out the scale used for these timelines and answer the questions: To work out the scale, count the a Work out the time each person arrived at the football match using the scale spaces and divide below and this clue: Charlie arrived 14 minutes later than Marty. into the number of minutes given. Charlie arrived Marty arrived Lanya arrived 1:15 pm : : : Marty Charlie Lanya **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. First person arrives Lunch is served Party games start

12 G 2

:

The first person arrived at

3:00 pm

Whodunit?



Mrs Smith is livid ... furious ... about to burst a blood vessel. She has come home at 6 pm to find that one of her children 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 children to find the culprit.



What to

do next

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 football practice. It takes 15 minutes to get to football 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 judo 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 judo, so I am innocent!"

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

Whodunnit? _

Think of an appropriate consequence for the guilty party.



Connect clocks

apply



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.



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Connect clocks



~			
18:10	quarter to twelve at night	15:30	11:30 am
3:45 pm	10:15 am	quarter past three in the morning	21:15
15:10	9:45 am	seven twenty pm	8:20 am
midday	14:30	quarter past midnight	22:00
5:20 pm	10:00 am	15:40	14:15
7:45 am	18:10	ten past midnight	four fifteen pm
half past three pm	eleven thirty am	14:20	17:20
9:10 am	16:30	2:20 am	quarter to 6 in the morning
18:45	17:20	thirty minutes before 7 pm	18 before 2 pm



Time applications – calendars



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



January										
s	м	т	w	т	F	s				
31					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				

February									
s	м	т	w	т	F	s			
	1	2	3	4	5	6			
7	8	9	10	11	12	13			
14	15	16	17	18	19	20			

March										
S	м	т	w	т	F	s				
	1	2	3	4	5	6				
7	8	9	10	11	12	13				
14	15	16	17	18	19	20				
21										

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

s	м	т	w	т	F	s
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20		

May

	June										
s	м	т	w	т	F	s					
		1	2	3	4	5					
6	7	8	9	10	11	12					
13	14	15	16	17	18	19					
20											

July										
S M T W T F 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									

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

	August									
s	м	т	w	т	F	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							

	November					
s	м	т	w	т	F	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						
s	м	т	w	т	F	s
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21				

December						
s	м	т	w	т	F	s
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20					

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



Use the calendar on page 16 to answer this question. What date and day of the week am I?

a I am in the second week of the third month. 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.

l am _____



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 the eastern hemisphere.	ridian give locations in
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 t Name their countries:	he following capital cities.
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







20

SERIES

"Don't forget to call home!"



For this game, you will need the enlarged map on the previous page (page 20) 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!

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





- 1 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.
- 2 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!
- **3** Keep track of your calls below. The person who gets the most points by the end of the table, wins!

Time and Place	Points	Running Tally

Number on Die	Place
• or •	Los Angeles
•• or ••	Shanghai
or •••	Sydney

What

to do

Number on Die	Time
•	1000
•	1400
••	1700
	1200
	2100
	2300





Time of your life

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.

create

Think about what scale you will use and how large you want your final product to be.



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.

