

Reasoning and Problem Solving

Time – Year 3

About This Resource:

This resource is aimed at Year 3 Expected and has been designed to give children the opportunity to consolidate the skills they have learned in Summer Block 2 Time.

The questions are based on a selection of the same 'small steps' that are addressed in the block, but are presented in a different way so children can work through the pack independently and demonstrate their understanding and skills.

Small Steps:

Months and years
Hours in a day
Telling the time to 5 minutes
Telling the time to the minute
Am and PM
24 hour clock
Finding the duration
Comparing the duration
Start and end times
Measuring time in seconds

National Curriculum Objectives:

Mathematics Year 3: (3M4a) [Tell and write the time from an analogue clock; 12-hour clocks](#)

Mathematics Year 3: (3M4b) [Tell and write the time from an analogue clock; 24-hour clocks](#)

Mathematics Year 3: (3M4c) [Tell and write the time from an analogue clock, including using Roman numerals from I to XII](#)

Mathematics Year 3: (3M4d) [Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight](#)

Mathematics Year 3: (3M4e) [Know the number of seconds in a minute and the number of days in each month, year and leap year](#)

Mathematics Year 3: (3M4f) [Compare durations of events \[for example to calculate the time taken by particular events or tasks\]](#)

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The Circus is Coming to Town!

You are the Ringmaster from the
Moonlight Circus

You are planning a national tour of all the major cities across the United Kingdom.

1. The circus will visit 2 cities per month, what is the maximum number of cities they can visit in a year?



A message arrives about the performers' holidays. Read the email below:

to:	ringmaster@moonlightcircus.com
bc:	
cc:	all.performers@moonlightcircus.com

Hi Ringmaster,
Just to let you know the performers have asked for the following holidays during the year of the national tour:

Easter: 2 weeks leave
Christmas: 2 weeks leave
Holiday: 1 week leave

2. How many weeks do you have left to perform the circus this year?



Using the calendar below, plan the first 3 months of the tour. It takes 3 days to set up the tents, the circus runs for 1 week in each city.

You will need 2 days to pack the

equipment away again and then 1 day to travel between cities.

3. How could you plan six cities of the tour? Leeds has been done for you.

<i>Leeds</i> ✓	<i>Manchester</i>
<i>Belfast</i>	<i>Cardiff</i>
<i>Aberdeen</i>	<i>Bristol</i>

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

	M	T	W	T	F	Sa	Su
August	29	30	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	31	1

	M	T	W	T	F	Sa	Su
September	26	27	28	29	30	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

The tickets for the following six cities need preparing for the printers.

4. The dates need to be added to each of these tickets for the final performance.

Glasgow: Arrive 20th September

Newcastle: Arrive 3rd October



Cardiff: Arrive 11th November

Portsmouth: Arrive 8th December



Edinburgh: Arrive 14th January

London: Arrive 23rd February



One of your acrobats has an injury and will need an operation on 25th April, she'll be on rest and recovery for 15 days after the operation.

5. What date will she return to work?



To create a magical atmosphere, the Moonlight Circus begins 60 minutes after sunset. Local councils have said you need to finish your performances by midnight.

6. Why will summer be a challenge?

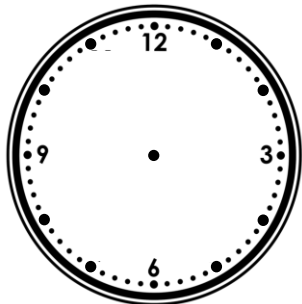
The sunset times for some of the cities you will visit are in the table below.

7. Calculate how long your show can be on each evening.

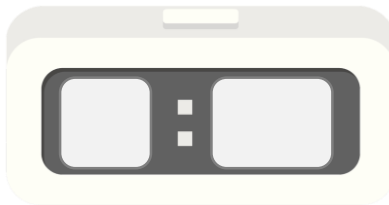
City	Sunset	Show begins	Maximum Show Duration
Leeds	21:15		
Edinburgh	17:35		
Aberdeen	20:45		
London	15:15		

The stars of the circus need to know when their part of the show begins. Each dressing room has a different type of clock.

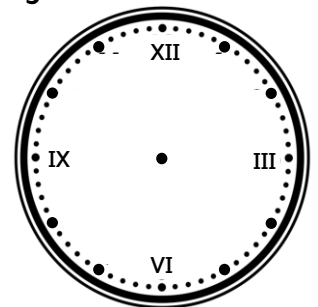
8. Set the clocks to show what time the performers are due on stage.



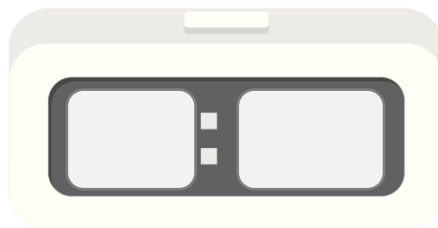
half past 7



17 minutes to 6



24 minutes past 10



18 minutes past 8
(hint use 24 hour clock)



It's time for the dress rehearsal!

Half way through, the clowns (who are in the dressing room that has the 24 hour clock) want to know how long until they are on stage. You check your watch....



9. How long is it until they are due on stage?



Suddenly, an elephant runs past and knocks you over. Oh no! Dust your self down and take a glance at your watch.

AAAARRRGH!
The screen is smashed.

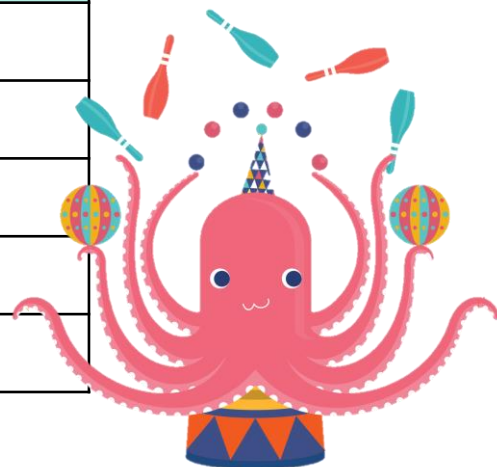


10. What time could it be?
Explain how you know.

You are expecting deliveries at the Big Top head office and you need to know when to expect them.

11. Tick the correct column to show whether the time is a.m. or p.m.

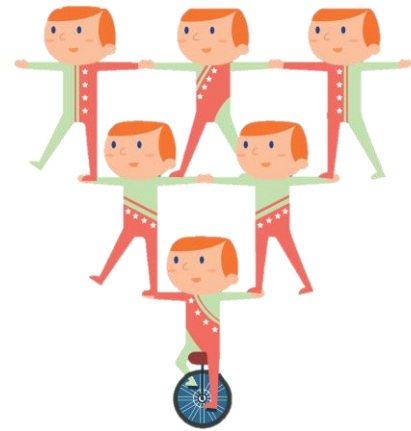
Items Ordered	Delivery time	a.m.	p.m.
balloons	09:35		
feathers	11:57		
sawdust	20:34		
rubber chicken	06:59		
Candy floss	21:45		



The performers are trying to perfect some new tricks. As Ringmaster, you are in charge of keeping the show running on time.

12. Calculate the duration of each act.

Act	Start time	End time	Duration
Balancing Bikes	10:33	10:55	
Aerial Gymnastics	11:15	12:27	
Dance Tricks	13:45	14:23	
Contortionists	14:30	15:41	



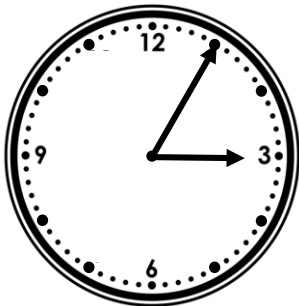
Which act is the longest? Which is the shortest?



The venues are asking for arrival times of the circus.

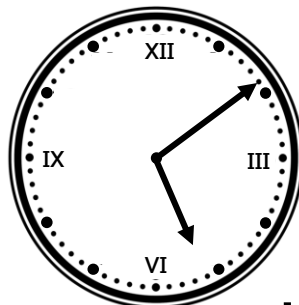
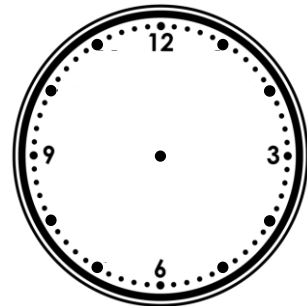
13. Use the set off time and journey duration to calculate when you will arrive in each city.

Leaving

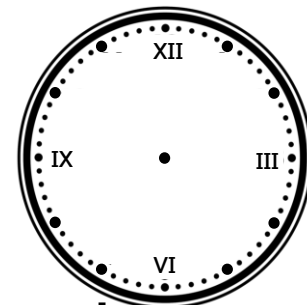


Edinburgh
4 hours 32 mins

Arriving



Carlisle
2 hours 14 mins




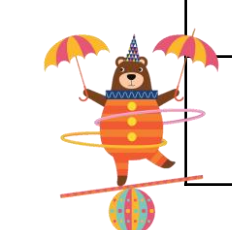

Some venues are working in digital clocks, watch out for the 24 hour clock:



There are many acts that are daring in the circus. To boost ticket sales, the Moonlight Circus are planning to advertise their record breaking acts of wonder!

You have decided to make some world record attempts, the results of which are below. Have you made it into the world record books?

14. Tick the box to show which are a successful world record attempt. The acts need to record a longer time than the current record.

	Activity	Current record	Moonlit attempt	Record? ✓ or ✗
	Longest Cannon Flight	$\frac{1}{4}$ hour	Begun 12:12 pm	<input type="checkbox"/>
			Ended 12:30 pm	
	Acrobat Upside Down	12 hours	Begun 2:00 am	<input type="checkbox"/>
			Ended 7:00 pm	
	Ball Balance	$\frac{1}{2}$ hour	Begun 8:53 am	<input type="checkbox"/>
			Ended 9:21 am	

The posters are up, the planning is done, now it's time to get this show on the road!
Happy Travels!!

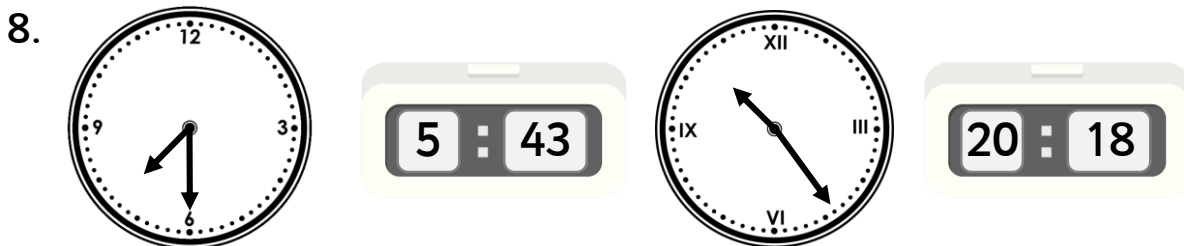


Reasoning and Problem Solving – Time – Year 3

- 24
- 47
- Belfast: July 17th – July 29th
Aberdeen: July 30th – August 11th
Manchester: August 12th – August 24th
Cardiff: August 25th – September 6th
Bristol: September 7th – September 19th
- Glasgow: September 30th
Newcastle: October 13th
Cardiff: November 21st
Portsmouth: December 18th
Edinburgh: January 24th
London: March 2nd
- May 11th
- Summer will be a challenge because the sun sets later in the evening.

7.

City	Sunset	Show begins	Maximum Show Duration
Leeds	21:15	22:15	1h 45m
Edinburgh	17:35	18:35	5h 25m
Aberdeen	20:45	21:45	2h 15m
London	15:15	16:15	7h 45m



- 2h 48m
- 5:45, 6:45, 7:45. The minute hand is at 9 and it was already past 6 o'clock so it can't be earlier. If it was any later than 7:45, it would be during the show.

11. a.m., a.m., p.m., a.m., p.m.

12. 22m, 1h 13m, 38m, 1h 11m. Longest – Aerial Gymnastics,
shortest – Balancing Bikes

13. Edinburgh: 7:37

Carlisle: 7:23

Kettering: 12:46

Rhyll: 16:07

14.

Activity	Current record	Moonlit attempt	Record? ✓ or ✗
Longest Cannon Flight	$\frac{1}{4}$ hour	Begun 12:12 pm	✓
		Ended 12:30 pm	
Acrobat Upside Down	12 hours	Begun 2:00 am	✓
		Ended 7:00 pm	
Ball Balance	$\frac{1}{2}$ hour	Begun 8:53 am	✓
		Ended 9:21 am	