

Reasoning and Problem Solving

Step 6: Timetables

National Curriculum Objectives:

Mathematics Year 5: (5M4) [Solve problems involving converting between units of time](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use information to calculate a start time. All differences between times in intervals of 10 minutes using the 24 hour clock.

Expected Use information to calculate three different start times. All differences between times in intervals of 5 or 10 minutes using the 24 hour clock.

Greater Depth Use information to calculate up to four different start times. Differences between times are any interval using the 24 hour clock.

Questions 2, 5 and 8 (Reasoning)

Developing Read a timetable to extract information and explain answers. Start and end times clearly given. Times are within one hour using the 24 hour clock.

Expected Read a timetable to extract information and explain answers. Answers require calculation. Times are beyond one hour using the 24 hour clock.

Greater Depth Read a timetable to extract information and explain answers. Answers may require multiple calculations. Times are beyond one day using the 24 hour clock.

Questions 3, 6 and 9 (Reasoning)

Developing Read and interpret information on a timetable and convert between minutes and hours, using multiples of 10 minutes.

Expected Read and interpret information on a timetable and convert between seconds and minutes or minutes and hours, using multiples of 5 or 10 minutes.

Greater Depth Read and interpret information on a timetable and convert between seconds, minutes and hours, using intervals of 1 minute.

More [Year 5 Converting Units](#) resources.

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Timetables

1a. Kenneth has spilled paint on his TV guide.

Animal Kingdom: 16:10 – 16:50
Top Car:



Top Car starts 20 minutes after Animal Kingdom and ends 10 minutes before Animal Kingdom ends.
What time does Top Car start and end?



PS

Timetables

1b. Hattie has spilled paint on her timetable.

Aerobics: 14:20 – 14:40
Dance:



Dance starts 10 minutes before Aerobics and ends 10 minutes after Aerobics ends.
What time does Dance start and end?



PS

2a. Kirsty thinks Science lasts for the longest amount of time on a Monday.

	9:00 – 10:00	10:00 – 11:00	11:00 – 12:00	12:00 – 13:00	13:00 – 14:00
Mon	Maths	Break	Science	Lunch	Reading
Tues	English	Break	History	Lunch	English

Do you agree with her? Explain why.



R

2b. Alan thinks Quiz Time is on for the longest amount of time at the weekend.

	13:00 – 14:00	14:00 – 15:00	15:00 – 16:00	16:00 – 17:00	17:00 – 18:00
Sat	Master Baker	The Island	Quiz time	The News	Lotto
Sun	The News	Judge Jimmy	Bargain Hunters	Quiz time	The News

Do you agree with him? Explain why.



R

3a. Simone has created a homework timetable. She thinks she spends 60 minutes doing her homework.

Reading	Spelling	Times Tables	Writing	Maths
16:00 – 16:10	16:10 – 16:20	16:20 – 16:30	16:30 – 16:40	16:40 – 16:50

Do you agree with her? Explain why.



R

3b. Mason thinks that the coach from Leeds to Chadderton takes over half an hour.

Leeds	09:00
Bradford	09:10
Chadderton	09:20
New Moston	09:30
Falsworth	9:40
Manchester	09:50

Do you agree with him? Explain why.



R

Timetables

4a. A cinema is showing three films. Use the information below to create a timetable to show what time each film starts and ends.

Robo-Warrior starts 15 minutes after Space Turtles and ends 5 minutes before it. Space Turtles last for 1 hour 35 minutes and finishes at 20:15. Magical Mind starts 10 minutes before Space Turtles and ends 20 minutes after Robo-Warrior.



PS

Timetables

4b. A sports centre is providing three classes. Use the information below to create a timetable to show what time each class starts and ends.

Karate starts 10 minutes after Judo and ends 10 minutes before it. Judo lasts for 55 minutes and ends at 7:25pm. Taekwondo starts 20 minutes before Judo and ends 15 minutes after Karate.



PS

5a. George thinks French is his longest lesson on Tuesday.

	9:05 – 10:05	10:05 – 11:05	11:05 – 12:05	12:05 – 13:05	13:05 – 14:05
Mon	English	Computing	Lunch	Maths	Science
Tues	Science	Maths	Music	Lunch	French
Wed	Maths	English	Choir	Lunch	P.E.

Do you agree with him? Explain why.



R

5b. Jo thinks Space Invaders is on for the longest amount of time over the week.

	13:15 – 14:15	14:15 – 15:15	15:15 – 16:15	16:15 – 17:15	17:15 – 18:15
Mon	Space Invaders	Super Chef	Quiz Master	Terry Trouble	The News
Tues	Space Invaders	The Hunt	Quiz Master	The Hunt	Inspector
Wed	Terry Trouble	Super Chef	Quiz Master	Inspector	The News
Thur	Inspector	Quiz Master	The News	Space Invaders	
Fri	The News	Super Chef	Terry Trouble	Space Invaders	

Do you agree with her? Explain why.



R

6a. Emma has created a timetable of what she does after school. She thinks she spends more than 3,000 seconds a day reading.

Piano	Reading	Swimming	Games	Reading
15:35 – 16:10	16:35 – 16:50	18:15 – 19:05	20:00 – 20:30	20:45 – 21:00

Do you agree with her? Explain why.



R

6b. Simon thinks that the coach from New Moston to Chadderton takes 1,800 seconds.

Manchester	09:15
Failsworth	09:35
New Moston	09:45
Chadderton	10:20
Bradford	10:45

Do you agree with him? Explain why.



R

Timetables

7a. The TV Guide shows what time three shows are on. Use the information below to create a timetable to show what time each show starts and ends.

Gardener's Globe starts 13 minutes after Grumpy Granny and finishes 8 minutes before it. Grumpy Granny lasts for 1 hour 47 minutes and finishes at 7:32pm. Super Heroes starts 21 minutes before Grumpy Granny and finishes 23 minutes after Gardner's Globe.



PS

Timetables

7b. Four trains are soon departing from the station. Use the information below to create a timetable to show what time each train departs.

The train to London leaves 18 minutes after the train to Manchester, 28 minutes before the train to Glasgow and 13 minutes before the train to Birmingham. The train from Edinburgh to Glasgow leaves at 17:53.



PS

8a. Bobby thinks he spends the most time studying English each week.

	9:20 – 10:20	10:20 – 11:20	11:20 – 12:20	12:20 – 13:20	13:20 – 14:20	
Mon	English	Science	Lunch	French	Maths	R.E
Tues	Maths	French	History	Lunch	Art	R.E
Wed	Science	P.E.	Lunch	Maths	History	
Thurs	P.E.	French	Lunch	Maths	History	
Fri	Art	Music	Maths	Lunch	English	

Do you agree with him? Explain why.



R

8b. Zak thinks The Island is on for the longest amount of time over the week.

	13:15 – 14:15	14:15 – 15:15	15:15 – 16:15	16:15 – 17:15	17:15 – 18:15	
Mon	Born to Win	Vets and Pets	Quiz Time	The News	Bargain Hunters	
Tues	The News	Spell Better	Judge Jimmy	The Island	Genius	
Wed	Country Life	Quiz Time	Bargain Hunters	The Island	The News	
Thurs	Spell Better	The News	Genius	Vets and Pets	Quiz Time	
Fri	Judge Jimmy	The Island	Quiz time	The News	Lotto	

Do you agree with him? Explain why.



R

9a. Georgia has created a timetable of her activities. She thinks she spends more than 5,000 seconds a day playing on her computer.

Karate	TV	Homework	Computer	Reading
09:45 – 11:30	13:25 – 15:58	16:34 – 17:39	18:53 – 20:24	20:45 – 21:10

Do you agree with her? Explain why.



R

9b. Hashim thinks that the coach from London Victoria to Luton Airport takes 1,260 seconds.

London Victoria	14:32
Marble Arch	14:41
Baker Street	14:46
St John's Wood	14:51
Golders Green	15:08
Luton Airport	15:53

Do you agree with him? Explain why.



R

Reasoning and Problem Solving Timetables

Developing

- 1a. 16:30 – 16:40
- 2a. Yes. Science lasts for 2 hours, split into two 1 hour slots.
- 3a. No. 16:00-16:50 is only 50 minutes.

Expected

- 4a. Timetables should include:
Space Turtles – 18:40 to 20:15
Robo-Warrior – 18:55 to 20:10
Magical Mind – 18:30 to 20:30
- 5a. No. Both French and Maths last 1 hour and 30 minutes.
- 6a. No. Emma spends 30 minutes reading which is 1,800 seconds.

Greater Depth

- 7a. Timetables should include:
Grumpy Granny – 5:45 to 7:32
Gardener's Globe – 5:58 to 7:24
Super Heroes – 5:24 to 7:47
- 8a. No. He studies English for 2 hours but he studies Maths for more than 4 hours.
- 9a. Yes. She spends 1 hour and 31 minutes a day playing on her computer which is 5,460 seconds.

Reasoning and Problem Solving Timetables

Developing

- 1b. 14:10 – 14:50
- 2b. No. Quiz Time is only on for 2 hours whereas The News is on for 3 hours.
- 3b. No. The coach only takes 20 minutes.

Expected

- 4b. Timetables should include:
Judo – 18:30 to 19:25
Karate – 18:40 to 19:15
Taekwondo – 18:10 to 19:30
- 5b. Yes. Space Invaders is on for 5.5 hours in total.
- 6b. No. The journey takes 35 minutes which is 2,100 seconds.

Greater Depth

- 7b. Timetables should include:
London 17:25
Manchester 17:07
Glasgow to 17:53
Birmingham to 17:38
- 8b. No. Both The Island and The News are on for 4 hours.
- 9b. No. 1,260 seconds is 21 minutes. The journey takes 1 hour and 21 minutes which is 4,860 minutes.