# Reasoning and Problem Solving Step 7: Finding the Duration

#### **National Curriculum Objectives:**

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

#### Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use two clues describing the duration of an event to work out when the event started. Includes increments of 10 minutes (using 12 hour clock).

Expected Use three clues describing the duration of an event to work out when the event started. Includes increments of 5 minutes (using 24 hour clock).

Greater Depth Use three clues describing the duration of an event to work out when the event started. Includes increments of 1 minute (using 24 hour clock).

Questions 2, 5 and 8 (Problem Solving)

Developing Given a duration of time, subtract increments of 10 minutes to work out how much time is left (using 12 hour clock).

Expected Given a duration of time, subtract increments of 5 minutes to work out how much time is left (using 24 hour clock).

Greater Depth Given a duration of time, subtract increments of 1 minute to work out how much time is left (using 24 hour clock).

Questions 3, 6 and 9 (Reasoning)

Developing Compare two statements describing a duration of time to work out which is the longest. Includes increments of 10 minutes (using 12 hour clock).

Expected Compare two statements describing a duration of time to work out which is the longest. Includes increments of 5 minutes (using 24 hour clock).

Greater Depth Compare two statements describing a duration of time to work out which is the longest. Includes increments of 1 minute (using 24 hour clock).

More Year 3 Time resources.

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### Finding the Duration

#### **Finding the Duration**

1a. Brian arrived at a sea lion show 20 minutes after it started. Hazel arrived at 11:40 which was 10 minutes after Brian.



What time did the show start? What time did Brian arrive?



2a. Joe has 1 hour and 30 minutes left of P.E. He spends 20 minutes running, 40 minutes playing football, and 20 minutes playing tennis.



How much time does he have left?



3a. Sofia and Billy are doing their maths work.



I took half an hour and ten minutes to finish.

Sofia

I took five lots of 10 minutes to finish.

Who took the longest? Explain your answer.



1b. Belen got to the cinema 40 minutes before the movie. Mohamed arrived at 8:30 which was 30 minutes after Belen.



What time did the movie start? What time did Belen arrive?



2b. Wilma is going to a party in 1 hour and 30 minutes. She eats her dinner for 20 minutes and then walks her dog for 40 minutes.



How much time does she have left?



3b. Lola and Micah are waiting for their friends to arrive.



Mine took half an hour and 10 minutes to arrive.

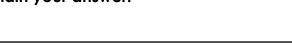
Mine took four lots of 10 minutes to arrive.

Micah

Whose friend took the longest? Explain your answer.







Billy

#### Finding the Duration

#### Finding the Duration

4a. Eugene arrived at a party 10 minutes after it started. Tess arrived 20 minutes later. Sergio arrived at 15:30 which was 30 minutes after Tess.

4b. Aleah got to school 15 minutes before the bell rang. Lu arrived 15 minutes before her. Julio arrived at 8:30 which was 25 minutes after Lu.





What time did the party start? What time did Eugene arrive?

What time did the bell ring? What time did Aleah arrive?





5a. Seth has 1 hour and 10 minutes to tidy his room. He spends 25 minutes moving toys, 5 minutes making his bed, and 35 minutes putting clothes away.

5b. Helen is meeting friends in 1 hour and 55 minutes. She eats her dinner for 15 minutes, walks her dog for 45 minutes and cleans the house for 20 minutes.







6a. Miley and Ezra are doing their homework.

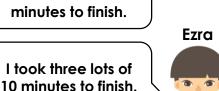






Miley

I took 3 quarters of an hour and 5 minutes to finish.



6b. Kiara and Nico are waiting for their bus.



**Kiara** 

My bus took seven lots of 5 minutes to arrive.

Nico

Who took the longest? Explain your answer.



Whose bus took the longest? Explain your answer.





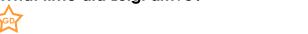
#### **Finding the Duration**

#### Finding the Duration

7a. Luigi arrived at a tea party 17 minutes after it started. Sal arrived 13 minutes later. Jill arrived at 19:12 which was 28 minutes after Sal.



What time did the tea party start? What time did Luigi arrive?



8a. India has 1 hour and 17 minutes to bake cupcakes. She spends 11 minutes preparing ingredients, 27 minutes mixing the batter and 13 minutes pouring batter into bun cases.









Mario

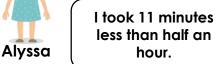
How much time does she have left?



9a. Alyssa and Mario are competing in a race.



I took 3 quarters of an hour minus 21 minutes to finish.



Who took the longest? Explain your answer.



7b. Sandy went shopping 58 minutes after the mall opened. Ben arrived 21 minutes before her. Rico arrived at 8:46 which was 24 minutes after Ben.



What time did the shopping mall open? What time did Sandy arrive?



8b. Piper the Witch has 1 hour and 3 minutes to brew a potion. She mixes ingredients for 27 minutes, lets it boil for 18 minutes and cackles for 13 minutes.



How much time does she have left?



9b. Rhona and Bill are waiting for their plane to take off.



auarters of an hour.



Rhona

Mine took 8 minutes more than 27 minutes.

Mine took 7

minutes less than 3

Whose plane took the longest? Explain your answer.



Bill





## Varied Fluency Finding the Duration

#### <u>Varied Fluency</u> <u>Finding the Duration</u>

**Developing** 

1a. 11:10; 11:30 2a. 10 minutes

3a. Sofia – 40 minutes; Billy – 50 minutes

**Expected** 

4a. 14:30; 14:40 5a. 5 minutes

6a. Miley – 50 minutes; Ezra – 30 minutes

**Greater Depth** 

7a. 18:14; 18:30 8a. 26 minutes

9a. Alyssa – 24 minutes; Mario – 19

minutes

**Developing** 

1b. 8:40; 8:00

2b. 30 minutes

3b. Both friends – 40 minutes.

**Expected** 

4b. 8:35; 8:20

5b. 35 minutes

6b. Kiara's bus – 37 minutes; Nico's bus –

35 minutes

**Greater Depth** 

7b. 7:45; 8:43

8b. 5 minutes

9b. Rhona's plane – 38 minutes; Bill's plane

- 35 minutes

