Reasoning and Problem Solving
Step 1: Hours, Minutes and Seconds

National Curriculum Objectives:

Mathematics Year 4: (4M4c) Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Explain whether the <, > or = statement is true or false using hours, minutes and seconds in multiples of 10. Two statements.
Expected Explain whether the <, > or = statement is true or false using two consecutive units of time, i.e. 5 hours and 35 minutes. Three statements.
Greater Depth Explain whether the <, > or = statement is true or false using any two units of time and unconventional partitioning, i.e. 5 hours and 90 minutes. Three statements.

Questions 2, 5 and 8 (Reasoning)
Developing Explain who is correct using hours, minutes and seconds in multiples of 10.
Expected Explain who is correct using two consecutive units of time, i.e. 5 hours and 35 minutes.
Greater Depth Explain who is correct using any two units of time and unconventional partitioning, i.e. 5 hours and 90 minutes.

Questions 3, 6 and 9 (Problem Solving)
Developing Calculate which cake will be baked first using hours, minutes and seconds in multiples of 10. Three times to compare.
Expected Calculate the order in which the cakes will be ready using two consecutive units of time, i.e. 5 hours and 35 minutes. Three times to order.
Greater Depth Calculate the order in which the cakes will be ready using any two units of time and unconventional partitioning, i.e. 5 hours and 90 minutes. Four times to order.

More Year 4 Time resources.

Did you like this resource? Don't forget to review it on our website.

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Hours, Minutes and Seconds

Hours, Minutes and Seconds

1a. True or false? Explain why.

A.   30 minutes $\boxed{>}$ 1 hour

B.   2 minutes 30 seconds $\boxed{<}$ 180 seconds

⭐ D

R

1b. True or false? Explain why.

A.   240 seconds $\boxed{=}$ 4 minutes

B.   3 hours $\boxed{>}$ 240 minutes

⭐ D

R

2a. Haleema says,

> I ran the race in 210 seconds. I win.

Sami says,

> I ran the race in 3 minutes. I win.

Explain who is correct.

⭐ D

R

2b. Jo says,

> I ran the race in 4 hours 30 minutes. I win.

Maria says,

> I ran the race in 300 minutes. I win.

Explain who is correct.

⭐ D

R

3a. Everyone starts baking at the same time. Which child's cake will be ready first? Which will take longest?

Child A	60 minutes
Child B	2 hours
Child C	1 hours 30 minutes

⭐ D

PS

3b. Everyone starts baking at the same time. Which child's biscuits will be ready first? Which will take longest?

Child A	4 minutes 30 seconds
Child B	240 seconds
Child C	5 minutes

⭐ D

PS

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Reasoning and Problem Solving – Hours, Minutes and Seconds – Developing

Hours, Minutes and Seconds

4a. True or false? Explain why.

A. 1 minute 15 seconds **>** 80 seconds

B. 160 minutes **<** 2 hours 30 seconds

C. 3 hours 10 minutes **<** 195 minutes

R

4b. True or false? Explain why.

A. 230 seconds **=** 3 minutes 40 seconds

B. 1 hour 55 minutes **<** 115 minutes

C. 2 minutes 25 seconds **>** 135 seconds

R

5a. Henry says,

I ran the race in 175 seconds. I win.

Salema says,

I ran the race in 2 minutes 45 seconds. I win.

Explain who is correct.

R

5b. Jonah says,

I ran the race in 4 hours 25 minutes. I win.

Ellen says,

I ran the race in 425 minutes. I win.

Explain who is correct.

R

6a. Everyone starts baking at the same time. Find the order in which the cakes will be ready.

Child A	130 minutes
Child B	2 hours 25 minutes
Child C	$2\frac{1}{4}$ hours

PS

6b. Everyone starts baking at the same time. Find the order in which the biscuits will be ready.

Child A	5 minutes 45 seconds
Child B	340 seconds
Child C	$5\frac{1}{2}$ minutes

PS

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Reasoning and Problem Solving – Hours, Minutes and Seconds – Expected

Hours, Minutes and Seconds

Hours, Minutes and Seconds

7a. True or false? Explain why.

A. 3 hours 96 minutes [>] 216 minutes

B. 403 seconds [=] 6 minutes 53 seconds

C. 717 minutes [<] 11 hours 58 minutes

GD

R

7b. True or false? Explain why.

A. 482 seconds [<] 8 minutes 22 seconds
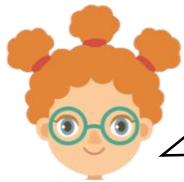
B. 9 hours 25 minutes [<] 575 minutes

C. 7 minutes 76 seconds [>] 446 seconds

GD

R

8a. Ida says,

I ran the race in 6 hours 58 minutes. I win.

Umer says,

I ran the race in 428 minutes. I win.

Explain who is correct.

GD

R

8b. Austin says,

I ran the race in 737 seconds. I win.

Anoushka says,

I ran the race in 12 minutes 17 seconds. I win.

Explain who is correct.

GD

R

9a. Everyone starts baking at the same time. Calculate the order in which the chocolate cakes will be ready.

Child A	$4\frac{1}{2}$ hours
Child B	282 minutes
Child C	4 hours 27 minutes
Child D	$4\frac{3}{4}$ hours

GD

PS

9b. Everyone starts baking at the same time. Calculate the order in which the buns will be ready.

Child A	11 minutes 44 seconds
Child B	$11\frac{3}{4}$ minutes
Child C	744 seconds
Child D	$11\frac{1}{4}$ minutes

GD

PS

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Reasoning and Problem Solving – Hours, Minutes and Seconds – Greater Depth

Reasoning and Problem Solving
Hours, Minutes and Seconds

Developing

1a. A is false because 1 hour = 60 minutes. So 30 minutes < 1 hour. B is true.

2a. Sami is correct because 3 minutes = 180 seconds which is fewer than 210 seconds.

3a. Child A's cake will be ready first as 60 minutes = 1 hour. Child B's cake will take longest as 2 hours = 120 minutes.

Expected

4a. A is false because 1 minute 15 seconds = 75 seconds which is < 80 seconds. B is false because 160 minutes = 2 hours 40 minutes which is > 2 hours 30 minutes. C is true.

5a. Salema is correct because 2 minutes 45 seconds = 165 seconds which is fewer than 175 seconds.

6a. Child A (130 minutes), Child C (135 minutes), Child B (145 minutes).

Greater Depth

7a. A is true. B is false because 403 seconds = 6 minutes 43 seconds which is < 6 minutes 53 seconds. C is true.

8a. Ida is correct because 6 hours 58 minutes = 418 minutes which is fewer than 428 minutes.

9a. Child C (267 minutes), Child A (270 minutes), Child B (282 minutes), Child D (285 minutes).

Reasoning and Problem Solving
Hours, Minutes and Seconds

Developing

1b. A is true. B is false because 3 hours = 180 minutes. So 3 hours < 240 minutes.

2b. Jo is correct because 4 hours 30 minutes = 270 minutes which is fewer than 300 minutes.

3b. Child B's biscuits will be ready first as 240 seconds = 4 minutes. Child C's biscuits will take longest as 5 minutes = 300 seconds.

Expected

4b. A is false because 230 seconds = 3 minutes 50 seconds which is > 3 minutes 40 seconds. B is false because 1 hour 55 minutes = 115 minutes so they are both equal. C is true.

5b. Jonah is correct because 4 hours 25 minutes = 265 minutes which is fewer than 425 minutes.

6b. Child C (330 seconds), Child B (340 seconds), Child A (345 seconds).

Greater Depth

7b. A is true. B is true. C is true.

8b. The race was a draw. 737 seconds = 12 minutes 17 seconds.

9b. Child D (675 seconds), Child A (704 seconds), Child B (705 seconds), Child C (744 seconds).

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Reasoning and Problem Solving – Hours, Minutes and Seconds **ANSWERS**