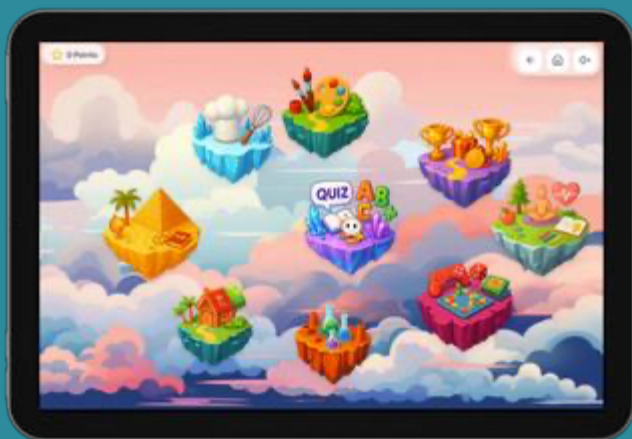




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24-Hour Time and Reading Timetables – Year 6

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24-HOUR TIME TOOLKIT



MIDNIGHT
00:00 = 12:00 am




NOON
12:00 = 12:00 pm




MORNING (am)
Keep the hour. Use two digits.
7:35 am = 07:35



AFTERNOON & EVENING (pm)
Add 12 to the hour except at 12 pm.
1:20 pm = 13:20



CONVERT BACK
If the hour is greater than 12, subtract 12 and use pm.

12-HOUR	24-HOUR
12:05 am	00:05
7:40 am	07:40
12:30 pm	12:30
1:18 pm	13:18
4:56 pm	16:56
11:09 pm	23:09



CHECK: 24-hour time uses four digits and a colon.

READING TIMETABLES & ELAPSED TIME

READ A TIMETABLE

1. FIND the headings: route, stop, service and time.



2. CHOOSE one service column.



3. TRACE that service from start to finish.



4. CHECK arrival deadlines and missing stops.



5. ALLOW enough transfer time between services.



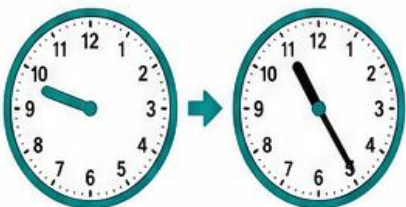
ROUTE	STOP	SERVICE 101	SERVICE 205	SERVICE 310
City Centre	Depart	08:15	09:20	10:35
Central Station	Stop 1	08:28	09:33	10:48
Riverside	Stop 2	08:41	09:46	11:01
Parklands	Stop 3	08:55	10:00	11:15
Hillview	Stop 4	09:10	10:15	11:30
Lakeside	Stop 5	09:25	10:30	11:45
Harbour Point	Arrive	09:40	10:45	12:00



CALCULATE ELAPSED TIME

1

COUNT ON



09:47 → 10:00 = 13 min

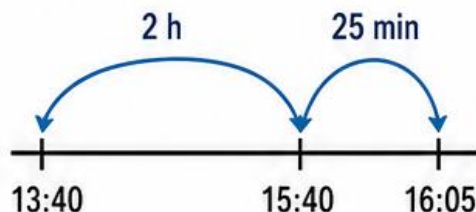
10:00 → 11:25 = 1 h 25 min

TOTAL = 1 h 38 min

2

USE A NUMBER LINE

13:40 → 16:05 = 2 h 25 min



3

CONVERT TO MINUTES

18:30 = 1,110 min

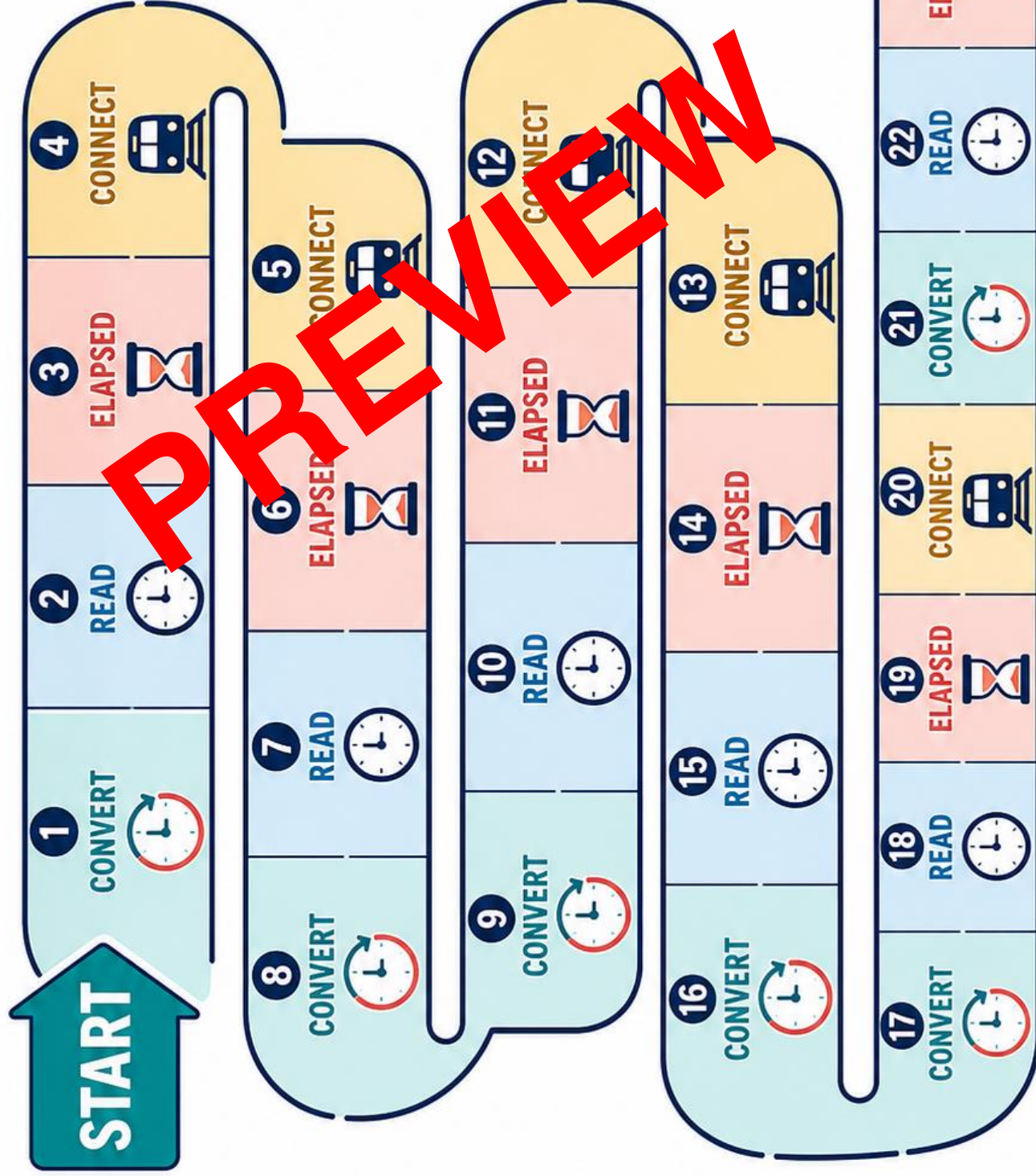
21:15 = 1,275 min

$1,275 - 1,110 = 165 \text{ min} = 2 \text{ h } 45 \text{ min}$



CHECK: Does your answer fit the timetable?

CLOCK CONNECTION QUEST



HOW TO PLAY

1. Each player chooses a marker.
2. Roll a 1-3 spinner and move.
3. Draw a card that matches the space.
4. Answer correctly to stay.
5. If incorrect, move back one space.
6. The first player to FINISH wins.



CLOCK CONNECTION QUEST



CARD 1

CONVERT

Convert 7:35 pm
to 24-hour time.



CARD 2

CONVERT

Convert 00:15
to 12-hour time.



CARD 3

CONVERT

Convert 12:42 pm
to 24-hour time.



CARD 4

CONVERT

Convert 21:06
to 12-hour time.



CARD 5

READ

Put in order,
earliest to latest:
14:05, 00:30, 06:50



CARD 6

READ

Is 12:00
noon or midnight?



CARD 7

ELAPSED

Find the elapsed time:
13:25 to 15:10



CARD 8

CONNECT

Start at 22:50.
Travel for 1 h 35 min.
When do you arrive?



CLOCK CONNECTION QUEST

ANSWER KEY

CARD 1

19:35



CARD 2

12:18 am



CARD 3

12:42



CARD 4

9:06 pm



CARD 5

00:30, 06:50, 14:05



CARD 6

Noon



CARD 7

1 h 45 min



CARD 8

00:25 the next day



CHECK EACH ANSWER BEFORE THE NEXT TURN.

TIMETABLE DASH

COASTAL EXPLORER

STOP	RED	BLUE	GREEN	GOLD
Seabreeze	08:05	08:40	09:15	09:50
Marina	08:22	08:57	09:32	10:07
Harbour Museum	08:39	09:14	09:49	10:24
Ocean Park	08:58	09:33	10:08	10:43

TEAM RULES

1. Work in teams of 2–4.
2. Use the timetable to solve a card.
3. Record the service, working and answer.
4. Earn 1 point for an accurate answer.
5. The first team to 6 points wins.



TIMETABLE DASH

CARD 1

How long does RED
take from Seabreeze
to Ocean Park?



CARD 2

You reach Marina at 08:50.
Which service is next?
How long do you wait?



CARD 3

Which is the latest
service that arrives at
Ocean Park by 10:10?



CARD 4

You miss GREEN at
Harbour Museum by
3 minutes.
How long until the
next service?



CARD 5

How long does BLUE
take from Marina to
Harbour Museum?



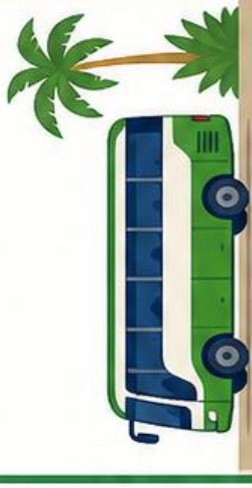
CARD 6

How long does GOLD
take from Seabreeze
to Ocean Park?



CARD 7

How much later does
GREEN arrive at
Ocean Park than RED?



CARD 8

Leave Seabreeze
after 09:00.
Arrive at Ocean Park
before 10:15.
Which service works?



TIMETABLE DASH



ANSWER KEY

- 1 53 min
- 2 BLUE; wait 7 min
- 3 GREEN
- 4 32 min
- 5 17 min
- 6 53 min
- 7 1 h 10 min
- 8 GREEN

TEAM RECORDING GRID

CARD	SERVICE	WORKING	ANSWER
1			
2			
3			
4			
5			
6			
7			
8			

TOTAL POINTS:

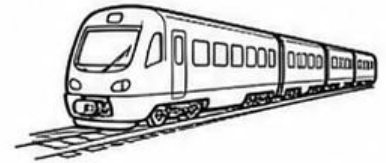
WORKSHEET 1: CONVERT, COMPARE & EXPLAIN

PAGE A: CONVERTING TIME



Name: _____

A. Convert to 24-hour time.



1. 12:05 am = _____
2. 7:40 am = _____
3. 12:30 pm = _____
4. 1:18 pm = _____
5. 4:56 pm = _____
6. 11:09 pm = _____

B. Convert to 12-hour time. Include am or pm.

7. 00:42 = _____
8. 06:15 = _____
9. 12:55 = _____
10. 14:07 = _____
11. 19:38 = _____
12. 23:50 = _____

Show one example of your conversion rule:

WORKSHEET 1: CONVERT, COMPARE & EXPLAIN

PAGE A: CONVERTING TIME



Name: ANSWERS

A. Convert to 24-hour time.

1. 12:05 am = 00:05

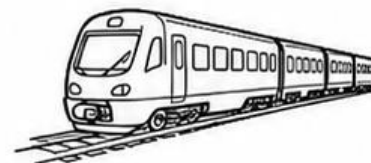
2. 7:40 am = 07:40

3. 12:30 pm = 12:30

4. 1:18 pm = 13:18

5. 4:56 pm = 16:56

6. 11:09 pm = 23:09



B. Convert to 12-hour time. Include am or pm.

7. 00:42 = 12:42 am

8. 06:15 = 6:15 am

9. 12:55 = 12:55 pm

10. 14:07 = 2:07 pm

11. 19:38 = 7:38 pm

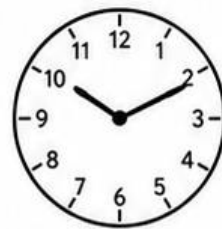
12. 23:50 = 11:50 pm

Show one example of your conversion rule:

Example: 4:56 pm + 12 hours = 16:56.

WORKSHEET 1: CONVERT, COMPARE & EXPLAIN

PAGE B: THINKING ABOUT TIME



Name: _____

A. Complete the table.

EVENT	12-HOUR	24-HOUR
Breakfast	6:45 am	_____
Lunch	12:20 pm	_____
Training	_____	17:35
Bedtime	_____	22:10

B. Error detectives

1. Mia says, "00:20 is 12:20 pm." Is she correct? Explain.

2. Noah says, "18:05 is 6:05 pm." Is he correct? Explain.



C. Order these times from earliest to latest.

23:40

00:15

12:05

07:30

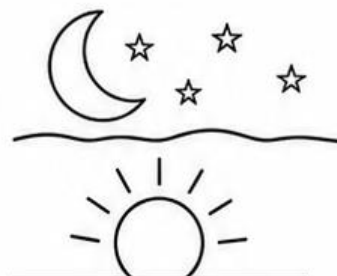


1. _____ 2. _____ 3. _____ 4. _____

D. Midnight and noon

1. Fifteen minutes after midnight = _____

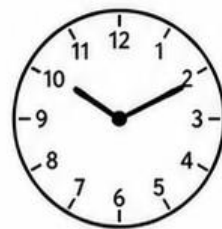
2. Thirty minutes after noon = _____



WORKSHEET 1: CONVERT, COMPARE & EXPLAIN

PAGE B: THINKING ABOUT TIME

Name: _____ **ANSWERS**



A. Complete the table.

EVENT	12-HOUR	24-HOUR
Breakfast	6:45 am	06:45
Lunch	12:20 pm	12:20
Training	5:35 pm	17:35
Bedtime	10:10 pm	22:10

B. Error detectives

1. Mia says, "00:20 is 12:20 pm." Is she correct? Explain.

No. 00:20 is 12:20 am, twenty minutes after midnight.

2. Noah says, "18:05 is 6:05 pm." Is he correct? Explain.

No. 18:05 is 6:05 pm.



C. Order these times from earliest to latest.

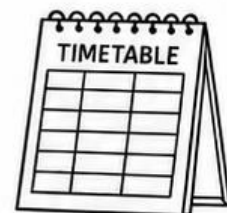
23:40

00:15

12:05

07:30

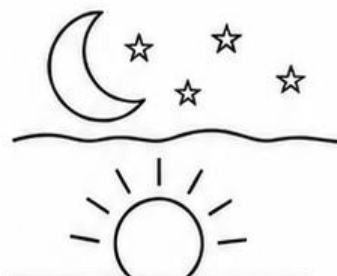
1. **00:15** 2. **07:30** 3. **12:05** 4. **23:40**



D. Midnight and noon

1. Fifteen minutes after midnight = **00:15**

2. Thirty minutes after noon = **12:30**



WORKSHEET 2: READING REAL-WORLD TIMETABLES

PAGE A: HARBOUR FERRY



Name: _____

STOP	RED	BLUE	GREEN	GOLD
Harbourtown	08:10	09:00	10:20	12:15
Bayview	08:28	09:18	10:38	12:33
Coral Bay	08:46	09:36	10:56	12:51
Lighthouse Island	09:05	09:55	11:15	13:10

1. What time does BLUE leave Harbourtown?

2. Which service arrives at Coral Bay at 10:56?

3. How long does RED take from Harbourtown to Lighthouse Island?

4. You reach Bayview at 09:20. How long until the next ferry?

5. Which is the fastest service that reaches Lighthouse Island by 11:20?

6. How long does GOLD take from Coral Bay to Lighthouse Island?

7. You miss BLUE at Harbourtown by 4 minutes. How long until GREEN?

8. How much later does GOLD reach Lighthouse Island than BLUE?



WORKSHEET 2: READING REAL-WORLD TIMETABLES

PAGE A: HARBOUR FERRY



Name: **ANSWERS**

STOP	RED	BLUE	GREEN	GOLD
Harbourtown	08:10	09:00	10:20	12:15
Bayview	08:28	09:18	10:38	12:33
Coral Bay	08:46	09:36	10:56	12:51
Lighthouse Island	09:05	09:55	11:15	13:10

1. What time does BLUE leave Harbourtown?

09:00

5. Which is the fastest service that reaches Lighthouse Island by 11:20?

GREEN

2. Which service arrives at Coral Bay at 10:56?

GREEN

6. How long does GOLD take from Coral Bay to Lighthouse Island?

19 min

3. How long does RED take from Harbourtown to Lighthouse Island?

55 min

7. You miss BLUE at Harbourtown by 4 minutes. How long until GREEN?

1 h 16 min

4. You reach Bayview at 09:20. How long until the next ferry?

1 h 18 min

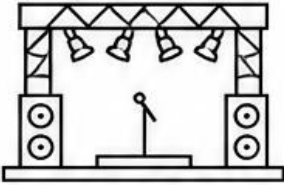
8. How much later does GOLD reach Lighthouse Island than BLUE?

3 h 15 min



WORKSHEET 2: READING REAL-WORLD TIMETABLES

PAGE B: COMMUNITY FESTIVAL



Name: _____



TIME	EVENT	DURATION	ZONE
09:00	Gates Open	25 min	Entry
09:25	Welcome	20 min	Main Stage
10:10	Robotics Demo	35 min	Innovation Hub
10:55	Live Band	40 min	Main Stage
11:50	Lunch Break	50 min	Food Court
12:50	Science Show	45 min	Discovery Lab
13:50	Art Workshop	50 min	Creative Studio
15:00	Sports Final	60 min	Oval
16:05	Closing	25 min	Main Stage

1. What time does the Science Show begin?

2. What time does the Robotics Demo finish?

3. How long is the gap between the Live Band and Lunch Break?

4. How long do you wait from the end of lunch to the Science Show?

5. How long from Gates Open until Closing begins?

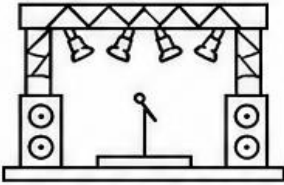
6. How long is the gap between the Science Show and Art Workshop?

7. What is the total duration of Robotics Demo and Science Show?

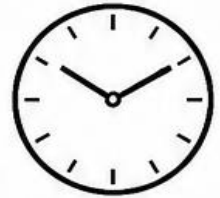
8. Art Workshop runs 10 min late. How long until Sports Final?

WORKSHEET 2: READING REAL-WORLD TIMETABLES

PAGE B: COMMUNITY FESTIVAL



Name: **ANSWERS**



TIME	EVENT	DURATION	ZONE
09:00	Gates Open	25 min	Entry
09:25	Welcome	20 min	Main Stage
10:10	Robotics Demo	35 min	Innovation Hub
10:55	Live Band	40 min	Main Stage
11:50	Lunch Break	50 min	Food Court
12:50	Science Show	45 min	Discovery Lab
13:50	Art Workshop	30 min	Creative Studio
15:00	Sports Final	60 min	Oval
16:05	Closing	25 min	Main Stage

1. What time does the Science Show begin?

12:50

2. What time does the Robotics Demo finish?

10:45

3. How long is the gap between the Live Band and Lunch Break?

15 min

4. How long do you wait from the end of lunch to the Science Show?

10 min

5. How long from Gates Open until Closing begins?

7 h 5 min

6. How long is the gap between the Science Show and Art Workshop?

15 min

7. What is the total duration of Robotics Demo and Science Show?

1 h 20 min

8. Art Workshop runs 10 min late. How long until Sports Final?

5 min



WORKSHEET 3: ELAPSED TIME STRATEGIES

PAGE A: FIND THE DURATION



Name: _____

Find the elapsed time. Show your working.

1. 06:35 to 08:10

2. 09:48 to 11:05

3. 12:25 to 15:00

4. 14:50 to 18:12

5. 21:40 to 23:58

PREVIEW

ACROSS MIDNIGHT

6. 23:35 to 00:20

7. 22:15 to 01:05

8. 18:58 to 00:12

STRATEGY REMINDER

Count on to a friendly time, use a number line, or convert both times to minutes.



WORKSHEET 3: ELAPSED TIME STRATEGIES

PAGE A: FIND THE DURATION



Name: ANSWERS

Find the elapsed time. Show your working.

1. 06:35 to 08:10

1 h 35 min

2. 09:48 to 11:05

1 h 17 min

3. 12:25 to 15:00

2 h 35 min

4. 14:50 to 18:12

3 h 12 min

5. 21:40 to 23:58

2 h 18 min

ACROSS MIDNIGHT

6. 23:35 to 00:20

45 min

7. 22:15 to 01:05

2 h 50 min

8. 18:58 to 00:12

5 h 14 min

STRATEGY REMINDER

Count on to a friendly time, use a number line, or convert both times to minutes.



WORKSHEET 3: ELAPSED TIME STRATEGIES

PAGE B: MISSING START OR FINISH



Name: _____

Find the missing time. Show your working.

1.	START	DURATION	FINISH
	07:45	1 h 35 min	_____
2.	START	DURATION	FINISH
	13:50	2 h 25 min	_____
3.	START	DURATION	FINISH
	22:40	2 h 55 min	_____ next day
4.	START	DURATION	FINISH
	00:15	_____	_____
5.	START	DURATION	FINISH
	_____	1 h 45 min	12:30
6.	START	DURATION	FINISH
	_____	2 h 20 min	18:05
7.	START	DURATION	FINISH
	_____ previous day	1 h 50 min	00:25
8.	START	DURATION	FINISH
	_____ previous day	8 h 30 min	07:10
Check whether the interval crosses midnight.			



WORKSHEET 3: ELAPSED TIME STRATEGIES

PAGE B: MISSING START OR FINISH



Name: _____ **ANSWERS**

Find the missing time. Show your working.

1.	START 07:45	DURATION 1 h 35 min	FINISH 09:20
2.	START 13:50	DURATION 2 h 25 min	FINISH 16:15
3.	START 22:40	DURATION 2 h 55 min	FINISH 01:35 next day
4.	START 00:15	DURATION 1 h 45 min	FINISH 01:00
5.	START 10:45	DURATION 1 h 45 min	FINISH 12:30
6.	START 15:45	DURATION 2 h 20 min	FINISH 18:05
7.	START 22:35 previous day	DURATION 1 h 50 min	FINISH 00:25
8.	START 22:40 previous day	DURATION 8 h 30 min	FINISH 07:10

Check whether the interval crosses midnight.



WORKSHEET 4: CONNECTED JOURNEYS

PAGE A: BUS AND TRAIN CONNECTIONS



Name: _____

Use both timetables to answer the questions.

HILLTOP TO CENTRAL — BUS			
STOP	1	2	3
Hilltop	08:10	08:40	09:10
Riverside	08:24	08:54	09:24
Central	08:38	09:08	09:38

CENTRAL TO AQUARIUM — TRAIN			
STOP	A	B	C
Central	08:50	09:20	09:50
Museum	09:05	09:35	10:05
Aquarium	09:22	09:52	10:22

1. What time does Bus 2 leave Hilltop? _____
2. What time does Bus 2 arrive at Central? _____
3. Which is the next bus after Bus 2 arrives? _____
4. How long is the transfer wait? _____
5. How long does Train B take from Central to Aquarium? _____
6. What is the total journey time from Hilltop to Aquarium? _____
7. You must arrive by 10:00. What is the latest workable bus-and-train connection?

8. Explain why Bus 3 does not meet the deadline.

A safe connection must depart after you arrive.



WORKSHEET 4: CONNECTED JOURNEYS

PAGE A: BUS AND TRAIN CONNECTIONS



Name: _____ **ANSWERS**

Use both timetables to answer the questions.

HILLTOP TO CENTRAL — BUS			
STOP	1	2	3
Hilltop	08:10	08:40	09:10
Riverside	08:24	08:54	09:24
Central	08:38	09:08	09:38

CENTRAL TO AQUARIUM — TRAIN			
STOP	A	B	C
Central	08:50	09:20	09:50
Museum	09:05	09:35	10:05
Aquarium	09:22	09:52	10:22

- What time does Bus 2 leave Hilltop? **08:40**
- What time does Bus 2 arrive at Central? **09:08**
- Which is the next bus after Bus 2 arrives? **Train B at 09:20**
- How long is the transfer wait? **12 min**
- How long does Train B take from Central to Aquarium? **32 min**
- What is the total journey time from Hilltop to Aquarium? **1 h 12 min**
- You must arrive by 10:00. What is the latest workable bus-and-train connection?
Bus 2 and Train B
- Explain why Bus 3 does not meet the deadline.
Bus 3 connects to Train C, which arrives at 10:22 — 22 min late.

A safe connection must depart after you arrive.

WORKSHEET 4: CONNECTED JOURNEYS

PAGE B: COMPARE THE ROUTES

Name: _____

TRAVEL CONDITIONS

- Leave Hilltop no earlier than 08:20.
- Arrive at Aquarium by 10:00.
- Allow at least 8 min for a transfer.

DIRECT COACH

DEPART HILLTOP	ARRIVE AQUARIUM
08:15	09:30
08:55	10:10
09:35	10:50

CONNECTED ROUTE



Bus 2: Hilltop 08:40 → Central 09:08



Transfer at Central: 09:08 → 09:20



Train B: Central 09:20 → Aquarium 09:52

1. Which direct coaches meet both travel conditions?

2. Which connected bus-and-train route meets both conditions?

3. How long is the bus journey?

4. How long is the transfer?

5. How long is the train journey?

6. What is the total connected journey time?

7. How many minutes before the deadline does it arrive?

8. Justify the best choice using the timetable and transfer rule.

Check every condition before choosing a route.

WORKSHEET 4: CONNECTED JOURNEYS

PAGE B: COMPARE THE ROUTES

Name: _____ **ANSWERS**

TRAVEL CONDITIONS

- Leave Hilltop no earlier than 08:20.
- Arrive at Aquarium by 10:00.
- Allow at least 8 min for a transfer.

DIRECT COACH

DEPART HILLTOP	ARRIVE AQUARIUM
08:15	09:30
08:55	10:10
09:35	10:50

CONNECTED ROUTE



Bus 2: Hilltop 08:40 → Central 09:08



Transfer at Central: 09:08 → 09:20



Train B: Central 09:20 → Aquarium 09:52

1. Which direct coaches meet both travel conditions?

None

2. Which connected bus-and-train route meets both conditions?

Bus 2 and Train B

3. How long is the bus journey?

28 min

4. How long is the transfer?

12 min

5. How long is the train journey?

32 min

6. What is the total connected journey time?

1 h 12 min

7. How many minutes before the deadline does it arrive?

8 min

8. Justify the best choice using the timetable and transfer rule.

It is the only route that meets both time conditions, and its 12 min transfer meets the 8 min rule.

Check every condition before choosing a route.



WORKSHEET 5: FESTIVAL SCHEDULING

PAGE A: BUILD A FEASIBLE PLAN



Name: _____

The festival runs from 09:00 to 15:30. Create a schedule that includes every required activity.

REQUIRED ACTIVITIES

• Welcome	20 min	Hall
• Workshop	45 min	Studio
• Sport	60 min	Oval
• Break	15 min	Shade Area
• Lunch	45 min	Lawn
• Performance	50 min	Stage
• Choice Activity	30 min	choose a venue
• Closing	20 min	Hall

CONSTRAINTS

- Lunch must start between 12:00 and 13:00.
- Allow 10 min to move between different venues.
- Activities must not overlap.
- Finish by 15:30.

START	FINISH	ACTIVITY	VENUE	DURATION

How did you check that your plan meets every constraint?

Where is there spare time or a buffer in your plan?



WORKSHEET 5: FESTIVAL SCHEDULING

PAGE A: BUILD A FEASIBLE PLAN

Name: _____ **SUGGESTED ANSWER**



The festival runs from 09:00 to 15:30. Create a schedule that includes every required activity.

REQUIRED ACTIVITIES

• Welcome	20 min	Hall
• Workshop	45 min	Studio
• Sport	60 min	Oval
• Break	15 min	Shade Area
• Lunch	45 min	Lawn
• Performance	50 min	Stage
• Choice Activity	30 min	choose a venue
• Closing	20 min	Hall

CONSTRAINTS

- Lunch must start between 12:00 and 13:00.
- Allow 10 min to move between different venues.
- Activities must not overlap.
- Finish by 15:30.

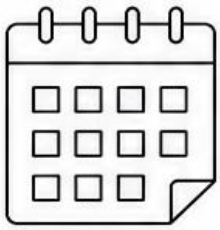
START	FINISH	ACTIVITY	VENUE	DURATION
09:00	09:20	Welcome	Hall	20 min
09:30	10:15	Workshop	Studio	45 min
10:25	11:25	Sport	Oval	60 min
11:35	11:50	Break	Shade Area	15 min
12:00	12:45	Lunch	Lawn	45 min
12:55	13:45	Performance	Stage	50 min
13:55	14:25	Photo Challenge	Courtyard	30 min
14:35	14:55	Closing	Hall	20 min

How did you check that your plan meets every constraint?

I checked all durations, 10 min transitions, no overlaps, lunch timing and the 15:30 finish.

Where is there spare time or a buffer in your plan?

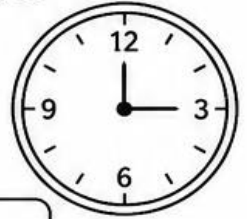
There is a 35 min buffer from 14:55 to 15:30.



WORKSHEET 5: FESTIVAL SCHEDULING

PAGE B: CALCULATE, REFLECT AND REVISE

Name: _____



PLAN FACTS

- Festival window: 09:00 to 15:30
- 8 required activities
- 7 moves between different venues
- Each move takes 10 min
- Lunch must start between 12:00 and 13:00



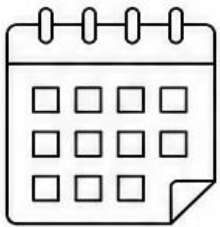
1. What is the total activity time? _____
2. What is the total transition time? _____
3. What is the total planned time, including transitions? _____
4. How long is the full festival window? _____
5. How much spare time remains? _____
6. Explain one useful way to use spare time as a buffer.

7. Choose one change that would require you to revise the plan. Show the revised part of the schedule.

START	FINISH	ACTIVITY	VENUE

8. Explain how your plan avoids overlaps and meets the lunch constraint.

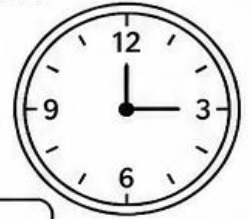
Use 24-hour time and show calculations.



WORKSHEET 5: FESTIVAL SCHEDULING

PAGE B: CALCULATE, REFLECT AND REVISE

Name: SUGGESTED ANSWER



PLAN FACTS

- Festival window: 09:00 to 15:30
- 8 required activities
- 7 moves between different venues
- Each move takes 10 min
- Lunch must start between 12:00 and 13:00



1. What is the total activity time? 4 h 45 min

2. What is the total transition time? 1 h 10 min

3. What is the total planned time, including transitions? 6 h 55 min

4. How long is the full festival window? 6 h 30 min

5. How much spare time remains? 35 min

6. Explain one useful way to use spare time as a buffer.

Keep it as a buffer for delays between transition time or an activity running over.

7. Choose one change that would require you to revise the plan. Show the revised part of the schedule.

Example: Performance is delayed by 15 min.

START	FINISH	ACTIVITY	VENUE
13:10	14:00	Performance	Stage
14:10	14:40	Photo Challenge	Courtyard
14:50	15:10	Closing	Hall

8. Explain how your plan avoids overlaps and meets the lunch constraint.

Each activity finishes before the next starts, with transition time included.

Lunch starts at 12:00.

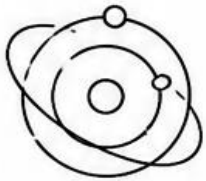


ASSESSMENT: SCIENCE EXPO JOURNEY

PAGE 1 OF 3 — DATA PAGE



Name: _____ Class: _____ Date: _____



SCENARIO

Plan a complete journey from Westfield to the Science Expo and home again.



REQUIREMENTS

- Leave Westfield no earlier than 07:45.
- Arrive at Expo by 09:45.
- Attend the Closing.
- Return to Westfield by 17:30.

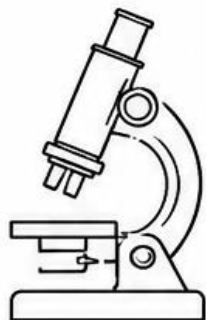


OUTBOUND BUS			
STOP	1	2	3
Westfield	07:50	08:20	08:50
Central	08:18	08:48	09:18

OUTBOUND TRAIN			
STOP	A	B	C
Westfield	08:30	09:00	09:30
Expo	08:57	09:27	09:57

RETURN TRAIN			
STOP	D	E	F
Expo	16:10	16:40	17:10
Central	16:37	17:07	17:37

RETURN BUS			
STOP	4	5	6
Central	16:45	17:15	17:45
Westfield	17:13	17:43	18:13



SCIENCE EXPO SESSIONS		
START	SESSION	DURATION
10:00	Robotics	40 min
10:55	Planetarium	35 min
11:45	Engineering	45 min
12:40	Lunch	45 min
13:40	Energy Lab	50 min
14:50	Maths in Motion	40 min
15:45	Closing	20 min



Use this data for Assessment Pages 2 and 3.



ASSESSMENT: SCIENCE EXPO JOURNEY

PAGE 2 OF 3 — JOURNEY CALCULATIONS



Name: _____ Class: _____ Date: _____

Use the Data Page. Show calculations and write all times in 24-hour time.

1. Which outbound bus should you take? Give its Westfield departure and Central arrival.

2. How long is the outbound transfer at Central?

3. Which outbound train should you take? Give its Central departure and Expo arrival.

4. Calculate the bus travel time.

5. Calculate the train travel time.

6. Calculate the total outbound journey time, from Westfield departure to Expo arrival.

7. How long is the wait from arriving at Expo until Robotics begins?

8. What time does Robotics finish, and how long is the gap until Planetarium begins?

9. Which return train and bus get you back by 17:30? Give all four times.

10. Calculate (a) the total return journey time and (b) the total riding time for both journeys.

(a) _____

(b) _____

Check that each chosen connection leaves after the previous service arrives.

ASSESSMENT: SCIENCE EXPO JOURNEY

PAGE 2 OF 3 — JOURNEY CALCULATIONS

Name: ANSWERS Class: _____ Date: _____

Use the Data Page. Show calculations and write all times in 24-hour time.

1. Which outbound bus should you take? Give its Westfield departure and Central arrival.

Bus 2: Westfield 08:20; Central 08:48

2. How long is the outbound transfer at Central?

12 min

3. Which outbound train should you take? Give its Central departure and Expo arrival.

Train B: Central 09:00; Expo 09:27

4. Calculate the bus travel time.

28 min

5. Calculate the train travel time.

27 min

6. Calculate the total outbound journey time, from Westfield departure to Expo arrival.

1 h 7 min

7. How long is the wait from arriving at Expo until Robotics begins?

33 min

8. What time does Robotics finish, and how long is the gap until Planetarium begins?

Robotics finishes 10:40; gap 15 min

9. Which return train and bus get you back by 17:30? Give all four times.

Train D: Expo 16:10, Central 16:37;

Bus 4: Central 16:45, Westfield 17:13

10. Calculate (a) the total return journey time and (b) the total riding time for both journeys.

(a) 1 h 3 min

(b) 1 h 50 min

Check that each chosen connection leaves after the previous service arrives.



ASSESSMENT: SCIENCE EXPO JOURNEY

PAGE 3 OF 3 — ITINERARY AND REASONING



Name: _____ Class: _____ Date: _____

Use the Data Page and your Page 2 choices. Show calculations and justify decisions.

PART A: COMPLETE ITINERARY

START	FINISH	JOURNEY OR SESSION	NOTES
		1. Outbound bus	
		2. Outbound train	
		3. Robotics	
		4. Planetarium	
		5. Engineering	
		6. Lunch	
		7. Energy Lab	
		8. Maths in Motion	
		9. Closing	
		10. Return train	
		11. Return bus	

PART B: ANALYSE AND JUSTIFY

1. Can you attend every listed Expo session? Explain using the session times.

2. Calculate the total time spent in Expo sessions.

3. Calculate the time at Expo, from arrival until Closing finishes.

4. Calculate the unprogrammed or transition time while at Expo.

5. Justify how your complete itinerary meets all four journey requirements.

A strong justification uses exact times and calculated durations.



ASSESSMENT: SCIENCE EXPO JOURNEY



PAGE 3 OF 3 — ITINERARY AND REASONING

Name: SUGGESTED ANSWER Class: _____ Date: _____

Use the Data Page and your Page 2 choices. Show calculations and justify decisions.

PART A: COMPLETE ITINERARY

START	FINISH	JOURNEY OR SESSION	NOTES
08:20	08:48	1. Outbound bus	Bus 2
09:00	09:27	2. Outbound train	Train B
10:00	10:40	3. Robotics	—
10:55	11:30	4. Planetarium	—
11:45	12:30	5. Engineering	—
12:40	13:25	6. Lunch	—
13:40	14:30	7. Energy Lab	—
14:50	15:30	8. Maths in Motion	—
15:45	16:05	9. Closing	—
16:10	16:37	10. Return train	Train D
16:45	17:13	11. Return bus	Bus 4

PART B: ANALYSE AND JUSTIFY

1. Can you attend every listed Expo session? Explain using the session times.

Yes. Every session finishes before the next begins, so all seven fit.

2. Calculate the total time spent in Expo sessions.

275 min = 4 h 35 min

3. Calculate the time at Expo, from arrival until Closing finishes.

09:27 to 16:05 = 6 h 38 min

4. Calculate the unprogrammed or transition time while at Expo.

6 h 38 min – 4 h 35 min = 2 h 3 min

5. Justify how your complete itinerary meets all four journey requirements.

Leave 08:20 (after 07:45), arrive 09:27 (before 09:45), attend Closing to 16:05, and return 17:13 (before 17:30).

A strong justification uses exact times and calculated durations.

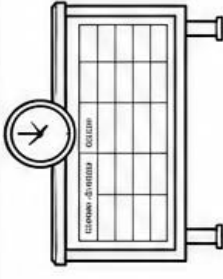


24-Hour Time and Reading Timetables Rubric

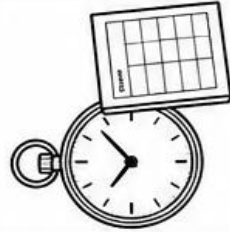
Student Name: _____

Class: _____

Date: _____

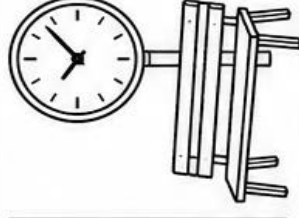


CRITERIA	BEGINNING	DEVELOPING	ACHIEVING	CONFIDENT	EXCEEDING
1. Convert 12-hour and 24-hour time	Needs substantial support to convert times between 12-hour and 24-hour formats; limited accuracy.	Shows partial understanding of converting times; some correct answers with errors.	Converts between 12-hour and 24-hour time accurately in familiar situations.	Converts between 12-hour and 24-hour time accurately across varied and multi-step tasks.	Converts between 12-hour and 24-hour time using efficient strategies and explains complex reasoning precisely.
2. Read and interpret timetables	Needs substantial support to read timetables; limited accuracy in identifying times, services and routes.	Shows partial understanding of timetables; identifies some times, services and routes correctly.	Reads and interprets timetables accurately in familiar situations.	Reads and interprets timetables accurately across varied and multi-step tasks.	Reads and interprets timetables using efficient strategies and explains complex reasoning precisely.
3. Calculate elapsed, start and finish times	Needs substantial support to calculate elapsed, start and finish times; limited accuracy.	Shows partial understanding of time calculations; some correct answers with errors.	Calculates elapsed, start and finish times accurately in familiar situations.	Calculates elapsed, start and finish times accurately across varied and multi-step tasks.	Calculates elapsed, start and finish times using efficient strategies and explains complex reasoning precisely.
4. Plan efficient connections	Needs substantial support to plan connections; limited consideration of timetables and transfer times.	Shows partial understanding of planning connections; some suitable plans with limited efficiency.	Plans efficient connections in familiar situations, considering times and transfer needs.	Plans efficient connections across varied and multi-step tasks, minimising wait times and changes.	Plans highly efficient connections using effective strategies and explains complex reasoning precisely.
5. Explain and justify choices	Needs substantial support to explain and justify choices; reasoning is limited or unclear.	Shows partial understanding when explaining choices; reasons are simple or incomplete.	Explains and justifies choices clearly in familiar situations.	Explains and justifies choices clearly across varied and multi-step tasks with sound reasoning.	Explains and justifies choices with precise, well-structured reasoning and considers complex factors.



Teacher feedback:

Next step:



24-Hour Time and Reading Timetables

PREVIEW



24-Hour Time and Reading Timetables Quiz

