AFRICAN INSTITUTE FOR MATHEMATICAL SCIENCES
SCHOOLS ENRICHMENT CENTRE (AIMSSEC)
AIMING HIGH

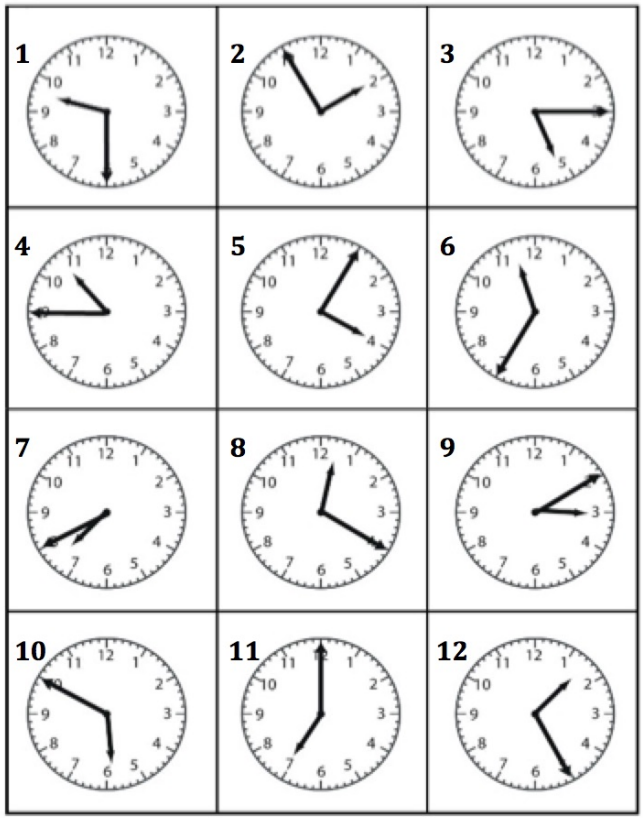
TIME 3

If all these times are between noon and midnight match the times given on the 12 hour clock with the times given on the 24 hour clock. Put them in order.

Times as shown on the 12 hour clock		
O 5.50	P 5.15	Q 11.35
R 12.20	S 4.05	T 10.45
U 1.25	V 7.40	W 3.10
X 1.55	Y 7.00	Z 9.30

Afternoon times as shown on the 24 hour clock		
13 16.05	14 17.50	15 21.30
16 23.35	17 19.40	18 13.25
19 15.10	20 00.20	21 19.00
22 22.45	23 13.55	24 17.15

Match all the times with the times shown on the clock face and the times in words as we speak about them.



A Twenty five to twelve	B Seven o'clock	C Quarter past five
D Twenty past twelve	E Half past nine	F Ten to six
G Quarter to eleven	H Twenty five past one	I Five past four
J Ten past three	K Five to two	L Twenty to eight

Describe a long journey, your own journey or for a sports or music star or team. Explain what happens at different times, how long is spent walking or waiting for buses, trains or flights, and how long the stages of the journey take.

Help

The short hand on the clock face points to the hour and the long hand points to the minutes.
So clock 1. Shows that the time is between 9 o'clock and 10 o'clock and it also shows 30 minutes so we can say that the time is 9.30 (card Z). Also we know that there are 60 minutes in an hour so there are 30 minutes in half an hour and 15 minutes in a quarter of an hour. So we can say 9.30 or half past nine (card E).

At midnight we start a new day and the twelve hours from midnight until noon are the morning hours – **BEFORE NOON** which in Latin are **ANTE MERIDIEM (am)** so for example 9 o'clock in the morning is 9.00 am.

From 12 noon until midnight **AFTER NOON** or **POST MERIDIEM (pm),** the time is given in two ways: the 12 hour clock shows 1.00pm, 2.00pm .... up to 11.00pm and midnight but the same times on the 24 hour clock are 13.00h, 14.00h .... up to 23.00h and midnight.

Clock 1 shows 9.30am in the morning on the 12 hour clock or 9.30 pm in the evening or 21.30h on the 24 hour clock (card 15).

Extension

1. Write down the times you usually do things most days and draw pictures of clocks showing those times.

What time do you usually get up?

What time do you arrive at school?

What times do you have meals?

Add some more times to your list.

2. Think of a journey that you do often and think about the time it takes.

It might be your journey to school if that is a long one, or it might be a journey to another town to go shopping or to visit relatives or friends. If you are not sure of how long the journey takes perhaps you can ask people that you go with.

Then write a short story about the journey including the times, or draw some pictures of the journey including pictures of clocks showing the times.

3. You might plan a journey using timetables (such as bus, train or airline timetables) or use the internet.

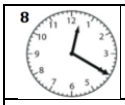
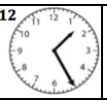
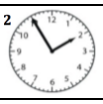
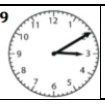
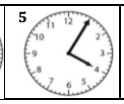
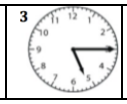
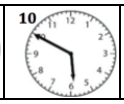
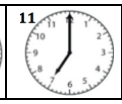
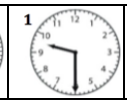
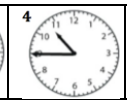
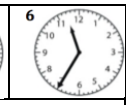
You might also work out and compare the cost and time taken with different forms of transport and routes.

NOTES FOR TEACHERS

These notes apply to 3 learning activities that can be done together or over 3 or more years.

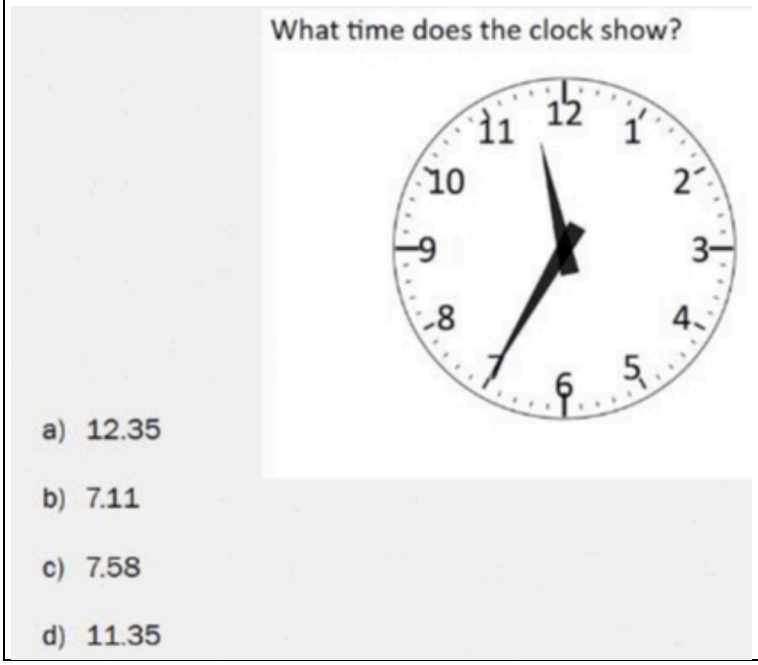
For a professional development workshop guide on teaching Time and more activities see https://aiminghigh.aimssec.ac.za/primary-m1-time/

SOLUTION

											
MORNING											
20 00.20	U 1.25	X 1.55	W 3.10	S 4.05	P 5.15	O 5.50	Y 7.00	V 7.40	Z 9.30	T 1045	Q 11.35
AFTERNOON											
R 12.20	18 13.25	23 13.55	19 15.10	13 16.05	24 17.15	14 17.50	21 19.00	17 19.40	15 21.30	22 22.45	16 23.35
D Twenty past twelve	H Twenty five past one	K Five to two	J Ten past three	I Five past four	C Quarter past five	F Ten to six	B Seven o'clock	L Twenty to eight	E Half past nine	G Quarter to eleven	A Twenty five to twelve

Diagnostic Assessment This should take about 5–10 minutes.

1. Write the question on the board, say to the class:
   "Put up 1 finger if you think the answer is A, 2 fingers for B, 3 fingers for C and 4 fingers for D".
2. Notice how the learners responded. Ask a learner who gave answer A to explain why he or she gave that answer and DO NOT say whether it is right or wrong but simply thank the learner for giving the answer.
3. Then do the same for answers B, C and D. Try to make sure that learners listen to these reasons and try to decide if their own answer was right or wrong.
4. **Ask the class again to vote for the right answer by putting up 1, 2, 3 or 4 fingers. Notice if there is a change and who gave right and wrong answers.** It is important for learners to explain the reason for their answer otherwise many learners will just make a guess.
5. If the concept is needed for the lesson to follow, explain the right answer or give a remedial task.



D. is the correct answer.

Common Misconceptions

A. Here learners may be confused between '25 to 12" and 12.35.

B. Here learners are confused between the hour and minute hand, don't know that 11 corresponds to 55 minutes and cannot read the scale between 55 and 60 minutes.

D. Here learners are confused between the hour and minute hand

https://diagnosticquestions.com

QUIZ 2	QUIZ 3
Which is the time on the clock?	
IN WORDS	ON 24 HOUR CLOCK
a) Eleven seven	a) 24.35
b)Twelve thirty five	b) 23.35
c) Eleven thirty five	c) 22.35
d) Twelve twenty five	d) 23.07

Why do this activity?

The activities enable learners to make progress with their knowledge and understanding of how to tell the time, and how to record it, by doing an activity that they will think of as a 'game'. **The teacher should not have to intervene other than perhaps to encourage or to compliment the learners or to keep some**

individuals 'on task', but should observe the learners while they do the activity and plan what questions to ask in the second half of the lesson. Through these 3 activities learners will build confidence and fluency with the different representations of time and the language used in talking about time. This is essential knowledge, skill and understanding for life in the modern world. The card matching exercises make the work more accessible to learners of all abilities and lend themselves to work in pairs or small groups so that the learners experience explaining their thinking and putting their ideas into words. The 'make up a story' exercises can be written or oral and, as well developing learners' verbal and creative skills, they relate school work to real life and provide scope for interdisciplinary work. There is plenty of scope for the teacher to bring a local timetable into the lesson and to ask questions to give learners practice in reading timetables, working out the duration of time intervals, and estimation how long it take for example to get to the nearby town, railway station or airport.

Intended learning outcomes

- Confident telling the time using analogue and digital clocks;
- Understanding of the 12 and 24 hour clocks;
- Fluency in the mathematical language associated with time;
- Practice in working out lengths of time intervals.

Generic competences

In doing this activity students will have an opportunity to:

- **think mathematically**, reason logically and give explanations;
- **think flexibly**, be creative and innovative and apply knowledge and skills;
- **visualize** and develop the skill of interpreting and creating visual images to represent concepts and situations;
- **communicate** in writing, speaking and listening:
    a. exchange ideas, criticise, and present information and ideas to others
    b. analyze, reason and record ideas effectively.

Suggestions for teaching

If the class have recently done the Time 1 and Time 2 lessons then go straight to the Time 3 lesson (see the next page).

TIME 1

Sheets of the clock cards (page 7) and 12 hour clock times (page 8) can be printed and given to the learners for sorting. Collect these sets of cards at the end of the lesson and keep them in envelopes for future use. An old clock (or toy clock) where you can rotate the hands is useful here and it is helpful if you have a clock in the classroom.

Start with the diagnostic assessment and review what the learners know about telling the time. If necessary you can start by teaching the class about telling the time and then give the card matching exercise for practice but, after that the lesson can proceed as an inquiry based lesson. Normally, and more often than not, inquiry based lessons should start with learner activity but this is not always the case.

Particularly for learners for whom English is not their first language it is easiest to start with telling the time from the clock and giving the time in hours (between 0 and 12) and minutes (between 0 and 59). Introducing the language of quarter past and quarter to and half hours can be left until the next stage or this activity can be re-visited when the class is working on fractions.

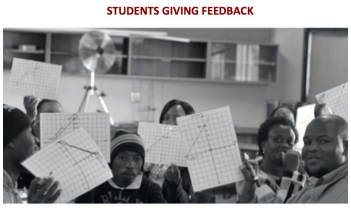
You might start by showing the clock and asking learners to tell you what time it gives. You will probably find that many learners in your class can already tell the time. In which case you might let the learners start matching the cards in pairs having first arranged the class in pairs so that a learner who knows how to tell the time is given the task of explaining it to their partner.

Putting the times in order helps the learners to gain a better understanding of the ideas.

The 'make up a story' task can be oral or written and it gives opportunities for questions about "how long did that take?" or " how many hours and minutes…?"

TIME 2

Sheets of the clock cards (page 7) and the times in words (page 9) can be printed and given to the learners for sorting. Collect these sets of cards at the end of the lesson and keep them in envelopes for future use.
An old clock (or toy clock) where you can rotate the hands is useful here and it is helpful if you have a clock in the classroom.



SHOWBOARDS – laminated A4 sheets of paper – blank one side – square grid other side

You might start by reviewing how to tell the time, showing a clock and asking learners to tell you what time it gives. You might want to review the use of quarters and halves in speaking about the time.

To do formative assessment quickly and effectively to find out who is able to tell the time confidently and who is not, the class could use individual show boards. At this stage many learners in your class should already be able to tell the time, in which case you might let the learners start matching the cards in pairs having first arranged the class so that any learner who is uncertain about how to tell the time works with another learner who is given the task of explaining it to them.

Putting the times in order helps the learners to gain a better understanding of the ideas.

The 'make up a story' task can be oral or written and it gives opportunities for questions about "how long did that take?" or " how many hours and minutes…?"

TIME 3

Sheets of the clock cards (page 7), the times in words (page 8), times on the 12 hour clock (page 9) and times on the 24 hour clock (page 10) can be printed and given to the learners for sorting. Collect these sets of cards at the end of the lesson and keep them in envelopes for future use.
An old clock (or toy clock) where you can rotate the hands is useful here and it is helpful if you have a clock in the classroom.
You might start this lesson by showing a local bus or train timetable and discussing with the class why it saves confusion to give the times using the 24 hour clock. You might explain the terms 'am' (ante meridiem) and 'pm' (post meridiem). You could ask some questions about how long the journeys take and the time intervals between one bus and the next.

Now tell the learners that they have to imagine the time is in the afternoon and match the cards with times on the 12 hour clock with the cards giving times on the 24 hour clock.

Next give out the sets of cards showing the clocks and the times in words and ask the learners to match all four and to put them in order starting with the earliest. Putting the times in order helps the learners to gain a better understanding of the ideas and in particular how to refer to the time between midnight and 1 am and the time between 12 noon and 1 pm. You might want to use the solution sheet on page 10.

The practical application of planning and writing a schedule for a journey for a sports or music star or team, and describing what they will do in the various time intervals between stages of the journey, provides a motivating task that emphasises the relevance of the school work. You can also use the opportunity to explain about time zones and changing clocks as you travel from one time zone to another.

Key questions

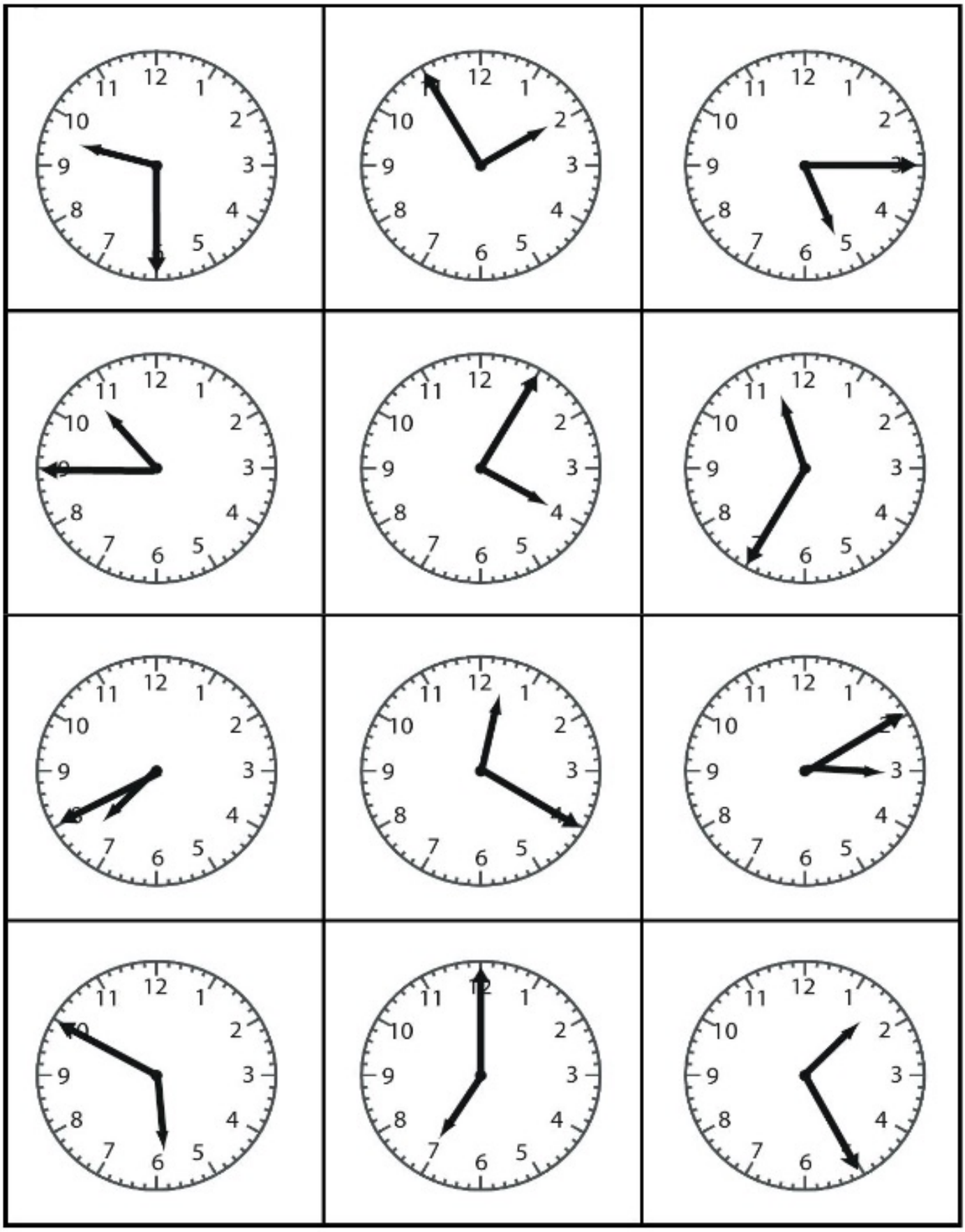
- Looking at that time how would you tell someone else what time it was?
- How long would it be from that time to that time?
- It is (give the time now). If the next bus comes at (give a time), how long will we have to wait?
- The timetable says 17.25. What time is that on the clock?
- How much time have we got from now until 17.25?
- If it takes 40 minutes to get to the railway station and buy a ticket what is the next train that I could catch?

Follow up

NRICH time activities

https://nrich.maths.org/5483 - clapping rhythm (Age 7 to 11)
https://nrich.maths.org/10332 - recognising time intervals (Age 5 to 7)
https://nrich.maths.org/4806 - telling time (Age 7 to 11)

	Lower Primary or Foundation Phase Age 5 to 9	Upper Primary Age 9 to 11	Lower Secondary Age 11 to 14	Upper Secondary Age 15+
South Africa	Grades R and 1 to 3	Grades 4 to 6	Grades 7 to 9	Grades 10 to 12
USA	Kindergarten and G1 to 3	Grades 4 to 6	Grades 7 to 9	Grades 10 to 12
UK	Reception and Years 1 to 3	Years 4 to 6	Years 7 to 9	Years 10 to 13
East Africa	Nursery and Primary 1 to 3	Primary 4 to 6	Secondary 1 to 3	Secondary 4 to 6



Half past nine	Five to two	Quarter past five
Quarter to eleven	Five past four	Twenty-five to twelve
Twenty to eight	Twenty past twelve	Ten past three
Ten to six	Seven o'clock	Twenty-five past one

Times as shown on the 12 hour clock		
O **5.50**	**P** **5.15**	**Q** **11.35**
R **12.20**	**S** **4.05**	**T** **10.45**
U **1.25**	**V** **7.40**	**W** **3.10**
X **1.55**	**Y** **7.00**	**Z** **9.30**

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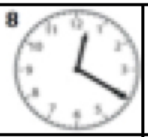	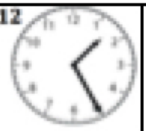		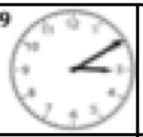			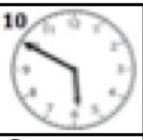	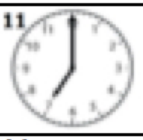	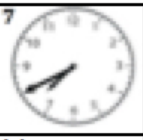			
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