

AFRICAN INSTITUTE FOR MATHEMATICAL SCIENCES SCHOOLS ENRICHMENT CENTRE (AIMSSEC)

AIMING HIGH



Match the times shown on the clocks to the times written words. Put them in order. Pick 3 of the times, perhaps your favourite times of day. Make up a story about what happens at those times.

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.

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 and we can match the picture of the clock number 1 with card E. Now can you match the other cards?

Extension

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.

NOTES FOR TEACHERS

This is the second of three activities on time, on the different ways it is depicted and on the associated language. These notes apply to the 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											
	8 11 12 12 12 12 12 12 12 12 12	12 10 9 8 6 12 12 12 12 12 12 12 12 12 12	2 10 12 12 12 12 12 12 12 12 12 12	9 10 12 12 12 13 12 12 13 12 12 13 12 12 13 12 12 13 12 12 13 12 12 13 12 12 13 14 15 15 15 15 15 15 15 15 15 15	5 10 9 8 7 6 5 7 6 5	3 9 8 7 9 8 7 9 5 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1		11 10 9 8 7 6 5	7 11 12 1 22 9 2 3 4 7 6 5	1 1 1 1 1 1 1 1 1 1 1 1 1 1	4 10 8 6 5 4 4 4 4 4 4 4 4 4 4 4 4 4	6 10 10 12 12 12 12 3 4 4 4 4 4 4 4 4 4 4 4 4 4
						MOR	NING					
Γ	20	U X W S P O Y V Z T Q									Q	
	00.20	1.25	1.55	3.10	4.05	5.15	5.50	7.00	7.40	9.30	1045	11.35
						AFTER	NOON					
Γ	R	18	23	19	13	24	14	21	17	15	22	16
	12.20	13.25	13.55	15.10	16.05	17.15	17.50	19.00	19.40	21.30	22.45	23.35
	D	Н	K	J	Ι	С	F	В	L	E	G	А
	Twenty	Twenty	Five to	Ten past	Five	Quarter	Ten to	Seven	Twenty	Half past	Quarter	Twenty
	past	five past	two	three	past four	past five	six	o'clock	to eight	nine	to	five to
	twelve	one									eleven	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

Why do this activity?

a) 12.35

b) 7.11

c) 7.58

d) 11.35

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;
- 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 according to the audience:
 - o exchange ideas, criticise, and present information and ideas to others
 - \circ $\,$ analyze, reason and record ideas effectively.

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Suggestions for teaching.

TIME 1 If the class have recently done the Time 1 activity then go straight to Time 2 on the next page. *Give out 3 sets of cards:*

the clock cards (page 5), the times in words (page 7) and 12 hour clock times (page 8). 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



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...?"

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	Upper Primary	Lower Secondary	Upper Secondary	
	or Foundation Phase		_		
	Age 5 to 9	Age 9 to 11	Age 11 to 14	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								
0	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						

9_____

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

	ð	11.35	A	Twenty	five to	twelve	16	23.35
	L	1045	9	Quarter	ţ	eleven	22	22.45
	Z	9.30	Ш	Half past	nine		15	21.30
	٨	7.40	L	Twenty	to eight		17	19.40
	٢	7.00	В	Seven	o'clock		21	19.00
	0	5.50	ш	Ten to	six		14	17.50
	д.	5.15	с С	Quarter	past five		24	17.15
5 () () () () () () () ()	s	4.05	_	Five	past four		13	16.05
	M	3.10	ſ	Ten past	three		19	15.10
	×	1.55	×	Five to	two		23	13.50
	5	1.25	т	Twenty	five past	one	18	13.25
	R	12.20	D	Twenty	past	twelve	20	00.20