TOPIC: **TIME**   (Primary five)
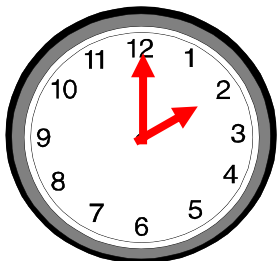
SUBTOPIC THE 12 HOUR CLOCK SYSTEM

In this system, we use a.m and p.m to tell the time. We use a.m to tell the time after midnight and in the morning, then p.m. in the afternoon and evening.

Note. A new day begins at midnight
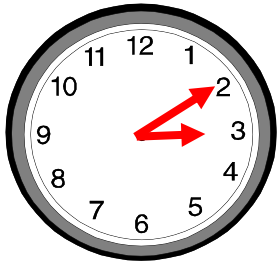
Telling time using a.m. and p.m.

Examples.

1. What morning time is shown on the clock face below?.
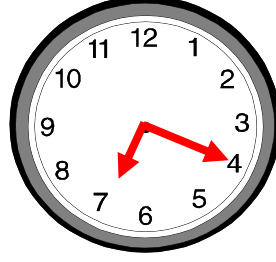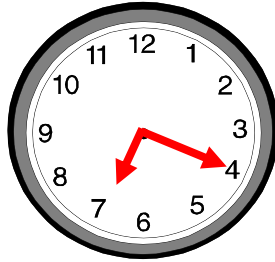

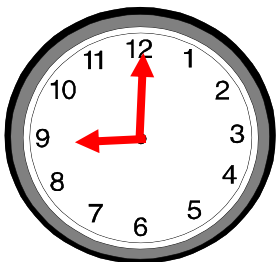It is 2 o'clock in the morning or It is 2:00 a.m.

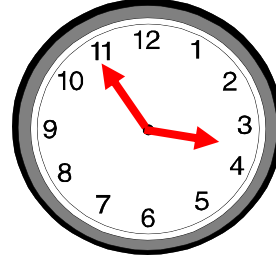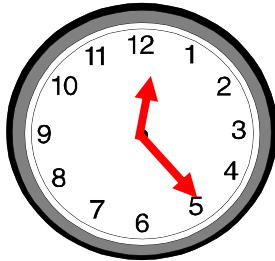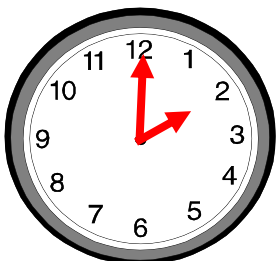2. What afternoon time is shown on the clock face below?.

It is 3:10p.m. or it is 10minutes past 3 in the afternoon

Activity

1. Write the morning time shown on the clock faces below

2. Write the afternoon time shown on the clock faces below

Ref.Mk. Book 5 pg 251, and Macmillan Primary maths pg. 165 – 166

<u>Changing hours to minutes and minutes to hours</u>

Examples

1.Change 4hours to miutes   2.Change 150min to hrs

1hr=60min   60min=1hr

4hrs=(4×60)min   150min=$(\frac{150}{60})$hrs

    =240min   =$2\frac{1}{2}$hrs

Activity

1.Change the following hours into minutes

   a) 2hours   3hours   d)$1\frac{1}{2}$hours   e)$3\frac{1}{2}$

2.Change the following minutes into hours

   a) 120min   b) 150min   c)210min   d) 420min

THE 24 HOUR CLOCK SYSTEM

In this system of telling time, we don't separate the time into am and pm. All the 24 hours of the day are written continuously using four digits ending with the word hours.

12 hour clock	24 hour clock
12:00 midnight	0000hrs
1:00 a.m	01 00 hrs
2:00 a.m	02 00 hrs
3:00 a.m	03 00 hrs
4:00 a.m	04 00 hrs
5:00 a.m	05 00 hrs
6:00 a.m	06 00 hrs
7:00 a.m	07 00 hrs
8:00 a.m	08 00hrs
9:00 a.m	09 00hrs

10:00 a.m	10 00hrs
11:00 a.m	11 00hrs
12:00 noon	12 00hrs
1:00pm	13 00hrs
2:oopm	14 00hrs
3:00pm	15 00hrs
4:00pm	16 00hrs
5:00pm	17 00hrs
6:00pm	18 00hrs
7:00pm	19 00hrs
8:00pm	20 00hrs
9:00pm	21 00hrs
10:00pm	22 00hrs
11:59pm	23 59hrs
12:00midnight	0000hrs

Changing morning time 12 hr clock to 24 hr clock

Examples

Note: When the 12 hr clock time is am the hours in the 24 clock system do not change a part from the morning of midnight Eg.

(1:00am = 0100hours) and (10:00am = 10 00 hours), implying that we just add 0000hours but (12:00am=0000hours), (12:45am=0045hours)

(a)Change 9:40am to 24 hour clock.

     9:40am
    +0000
    0940hours

---

b) Change 11:35am to 24 hours clock system

     11:35am
    +0000
    11 35hours

---

c) Change 12:35am to 24 hours clock system

     12:35am
    -12 00
    00 35hours

Activity

1.Change the following into 24hour clock

 a) 4:32am   b) 6:55am   c) 10:30am   d) 11:48am

2.Change the following into 24hour clock

 a) 12:32am   b) 12:55am   c) 12:30am   d) 12:48am

Changing afternoon time 12 hr clock to 24 hr clock

Note: When changing afternoon time from 12hr clock to 24hr clock, we add 1200hrs apart from 12:00pm which remains as 1200hrs.

Examples

(a)Change 1:30pm to 24 hour clock .

     1:30pm
    +12 00
    13 30hrs

c)Change 12:38pm to 24hr clock

     12 38pm
    +00 00
    12 38hrs

---

b) Change 11:49pm to 24 hour clock .

     11:49
    +12 00
    23 49hrs

d)Change 12:45pm to 24hr clock

     12 45pm
    +00 00
    12 45hrs

Activity

1.Express the following into 24 hours clock system

   (a)3:00pm   b)   9:30pm   c) 2:34pm   d) 4:10pm   e) 11:45pm

2.Express the following into 24 hours clock system

   (a)3:00pm   b)   9:30pm   c) 2:34pm   d) 4:10pm   e) 11:45pm

---

Changing morning time from 24 clock system to 12 hour clock.

Note: For any time below 12 hours(before midday), we subtract 0000hrs when changing to 12hrs clock system, this time then becomes am but for midnight, we add 1200 hours and still the result will be in am.

Examples

1.Change 0243hrs to 12hr clock system.	2. Change 1145hrs to 12hr clock
02 43hrs -00 00 2: 43am	11 45hrs -00 00 11 45am
3.Change 0043hrs to 12hr clock system.	2. Change 0030hrs to 12hr clock
00 43hrs +12 00 12: 43am	00 30hrs +12 00 12 30am

Activity

1.Express the following into 12 hours clock system

   (a)0300hrs b)   0930hrs   c) 0234hrs   d) 1010hrs   e) 1145hrs

2.Express the following into 24 hours clock system

    a) 0050hrs b)   0035hrs   c) 0010hrs   d) 0008hrs   e) 0045hrs

Changing afternoon time from 24 clock system to 12 hour clock.

We subtract 12hours from any time above 1200hrs to change to 12 hour clock and the result will be in pm but the pm of midday does not change(subtract 0000hrs)

Examples

a)Change 1500hrs to 12 clock time.

    1500hrs

   -1200hrs
   ‾‾‾‾‾‾‾‾

    3:00pm

C) Change 1245hrs to 12hr clock system

    1245hrs

   -0000hrs
   ‾‾‾‾‾‾‾‾

   12:45pm

b)Write 2310 hours to a 12hrs clock.

    2310hrs

   -1200hrs
   ‾‾‾‾‾‾‾‾

   11:10pm

d) Change 1205hrs to 12hr clock

    1205hrs

   -0000hrs
   ‾‾‾‾‾‾‾‾

   12:05pm

Activity

1.Express the following into 12 hours clock system

    1330hrs b)   1933hrs   c) 2234hrs   d) 1810hrs   e) 2145hrs

2.Express the following into 24 hours clock system

   b) 1250hrs b)   1235hrs   c) 1210hrs   d) 1208hrs   e) 1245hrs

DURATION OF TIME

Duration means amount of time taken between different intervals.

Finding duration, starting time and ending time

Points to note:

>Duration= Ending time -Starting time

>Ending time= Starting time + Duration

>Starting time= Ending time - Duration

1. Luyiga started walking from her house at 7:15am and reached the town at 9:15am. How long did it take walking?

Duration= Ending time -Starting time

$$\begin{array}{r} 9:15am \\ -7:15am \\ \hline 2:00hrs \end{array}$$

She walked for 2hours

2.A fifty-minute lesson started at 9:40am. At what time did it end?

ET=ST + D

$$\begin{array}{r} ^1 9:40am \\ +0:50 \\ \hline 10:30am \end{array}$$

40min + 50min=90min

90min=1hr30min

2.A forty five minutes lesson ended at 9: 20am.At what time did it start

(60+20)-45min

$$\begin{array}{r} ^8\cancel{9}:20am \quad ^{60} \\ -0:45 \\ \hline 8:35am \end{array}$$

80-45=35min

---

3. A meeting started at 10:40am and ended at 12noon.How long did it take?

(60-40) =20min

$$\begin{array}{r} ^{11}\cancel{12}:00 \quad ^{60} \\ -10:40 \\ \hline 1:20 \end{array}$$

1hour20min

Activity

1.Aforty-minute lesson started at 11:15am. At what time did it end?

2.A mathematics lesson started at 9:10am and ended at 9:50am.How long did it take?

3.A football which took 1hr and 30 min, started at 4:20pm. When did it end?

4.A birth day party started at 4:30pm and lasted $2\frac{1}{4}$ hours. At what time did end?

5.The first half of a football match ended at 5:25pm after being played for 45minutes.At what time did the match start?

6.A meeting started at 9:30am and lasted 50minutes. At what time did it end?

7.A party started at 5:15pm and lasted 100 minutes. At what time did it end?

8.A mathematics examination which took 2hours and 30 minutes, ended at 11: 00am.At what time did it start?

9.It started raining at 9:25am and it stopped at 2:00pm. For how long did it rain?

10.Musa went to sleep at 1930hours and did not wake up until 0830hours the following day. For how long did he sleep?

11.Alorry left Kampala at 11:15pm and reached Kasese at 5: 45am.   How long did the journey take?

12.It started raining at 12:45pm and it stopped at 3:05pm. For how long did it rain?

FINDING DISTANCE, SPEED AND TIME

Points to note

1. Distance=Speed x Time
2. Speed = $\frac{Distance}{Time}$
3. Time $=\frac{Distance}{Speed}$

Finding distance when given speed and time

Examples

1.John took 4hours to cover a certain distance at a speed of 30km/hr. What distance did he cover?

Distance=Speed x Time

$\frac{30km}{hr}$ x 4~~hr~~

=(30 x 4)km

=120km

2.A bus travelling at a speed of 60km/hr, covered a distance from town X to town Y in 1hours. Calculate the distance between two towns.

Distance=Speed x Time

$$= \frac{60km}{hr} \times 1hr$$

=(60 x 1)km

=60km

3.Acyclist travelled for 45minutes at a speed of 60km/hr. What distance did he cover?

Distance= Speed x Time

$$Distance = \frac{\overset{1}{60km}}{hr} \times \frac{45}{\underset{1}{60}} hr$$

Distance=(1x45) km

Distance=45km

Activity

1.A cyclist took 2hours to cover a certain distance at a speed of 50km/hr. What distance did he cover?

2.A bus travelling at a speed of 80km per hour, covered a distance from town A to town B in $2\frac{1}{2}$hours. Calculate the distance between two towns

3.Acyclist travelled for 3hrs at a speed of 120km/hr. What distance did he cover?

4.A motorist travelled for 2hours at a speed of 90km per hour. What distance did he cover?

5.A taxi left town A for B at 8:30am driving at a speed of 80km per hour. The driver reached town B at 11:30am.

a) Calculate the time taken by the driver to reach town B.

b) Find the distance between town A and town B.

Finding time when given distance and speed

Examples

1. Calculate the time taken by a lorry to travel a distance of 120km at a speed of 60km/hr.

$$\text{Time} = \frac{Distance}{Speed}$$

$$\text{Time} = \left(\frac{120^2}{60_1}\right)\text{hrs}$$

$$\text{Time} = 2\text{hours}$$

2. How long can a bus travelling at a speed of 80km per hour take to cover a distance of 240km?

$$.\text{Time} = \frac{Distance}{Speed}$$

$$\text{Time} = \left(\frac{240^3}{80_1}\right)\text{hrs}$$

$$\text{Time} = 3\text{hours}$$

3. A lorry covered a distance of 90km at a speed of 60km/hr. Calculate the time the lorry took to cover that journey.

$$\text{Time} = \frac{Distance}{Speed} \qquad \text{Time} = \frac{3}{2}\text{hrs}$$

$$\text{Time} = \left(\frac{90^3}{60_2}\right)\text{hrs} \qquad \text{Time} = 1\frac{1}{2}\text{hrs}$$

Activity

1. Calculate the time taken by a lorry to travel a distance of 240km at a speed of 60km/hr.

2. How long can a bus travelling at a speed of 60km per hour take to cover a distance of 300km?

3.A lorry covered a distance of 150km at a speed of 60km/hr. Calculate the time the lorry took to cover that journey.

4.How long will a car take to cover a distance of 120km at a speed of 40km/hr

5.A motorist covered a distance of 90km at a speed of 120km/hr. How long did he take to cover that journey?

Finding speed when given time and speed

Speed = $\frac{Distance}{Time}$

Examples

1.Godon took 2hours to cover a distance of 36km on his bicycle. At what speed was he riding?

$$Speed = \frac{Distance}{Time}$$

$$Speed = (\frac{36}{2})km/hr$$

$$Speed = 18km/hr$$

2.A bus covered a distance of 80km in 40minutes. Calculate its speed in km/hr.

Speed = D÷T

Speed =80km÷ $\frac{40}{60}$ hr

Speed = ($\overset{2}{80} \times \frac{60}{\underset{1}{40}}$) km/hr

Speed =(2 ×60)km/hr.

Speed=120km/hr.

3.A motorist covered a distance of 150km in $2\frac{1}{2}$ hours. Calculate his speed.

Speed = D÷T

Speed =150km÷ $\frac{5}{2}$ hr

Speed = ($\overset{30}{150} \times \frac{2}{\underset{1}{5}}$) km/hr

Speed = (30×2)km/hr

Speed = 60km/hr

1.A cyclist took 3hours to cover a distance of 150km . At what speed was he travelling?

2.Anita took 6 hours on a journey of 180km Calculate her speed.

3.A car covered a distance of 210 km in $1\frac{1}{2}$hours. Calculate its speed in km/hr

4.Peter started a journey of 120km at 8:30am and ended at 10:00am.Find his speed in km/hr.

5.A taxi left town at 9:30am and reached town B at 12:30pm.The distance between A and B is 150km

a) Calculate the time taken by the driver to reach town B.

b) Workout the speed used by the taxi.

INTERPRETING TIME TABLES

When interpreting time tables, it is important to identify the arrival time and departure time at a given place.

The table below shows a distance – time table for a bus travelling from Masindi to kitgum.

TOWN	DISTANCE	ARRIVAL	DEPARTURE
MASINDI	0km		9:00am
KIGUMBA	39KM	9:40am	10:00am
KAMUDINI	115KM	11:10am	11:25am
LIRA	191KM	12:30pm	1:00pm
KITGUM	125KM	3:15pm	4:55pm

(a)At what time did the bus arrive at Kamudini

b) What was the departure time of the bus from Lira?

c) What is the distance between Kigumba and Lira?

d) How long does the bus take to travel from Masindi to Kitgum?

2.The timetable below shows the arrival and departure time for a taxi travelling from town A to town F

TOWN	ARRIVALTIME	DEPARTURE TIME
A		0845hours
B	0930hours	0935hours
C	1000hours	1010hours
D	1045hours	1055hours
E	1140hours	1150hours
F	1215hours	

a) At what time does the taxi take to travel from town B to E?

b) For how long does the taxi stay at town D?

C)Express the taxi's arrival time to town F in 24hour clock.

d)Find the total time taken by the taxi for the whole journey.

e)If the distance from A to F is 210km, Find the average speed of the taxi for the whole journey.

2.The timetable below shows how a bus travelled from Iganga to Kampala

TOWN	ARRIVAL	DEPARTURE
Iganga		6:00am
Kakira	6:30am	6:45am
Jinja	7:20am	7:50am
Mbiiko	8:25am	8:30am
Lugazi	11:40am	12:00noon
Mukono	1.26pm	2:09pm
Kampala	4:10pm	

a) At what time did the bus leave Iganga?

b) Express the bus' arrival time to Mukono in 24hour clock.

c) For how long did the bus stay at Lugazi?

d) Find the time taken by the bus to travel from Iganga to Kampala.

4. The timetable below shows how a bus travels from Mbale to Kampala.

Mbale	Departure	9:00am
Tororo	Arrival	9:45am
	Departure	10:00am
Iganga	Arrival	11:15am
	Departure	11:30am
Jinja	Arrival	12:00noon
	Departure	12:20pm
Kampala	Arrival	1:30pm

a) How long does the bus take to travel from Mbale to Kampala?

b) Find the total time taken by the bus for all the stop overs.

c) Express the bus' arrival time to Tororo in 24hour clock.

d) How long does the bus take to travel from Tororo to Jinja.

e) If Kampala is 252km from Mbale, find the average speed of the bus for the whole journey?

4.The time table below shows a journey made by a bus a bus from Kampala to Kabulasoke.

Distance in km	Station	Departure	Arrival
0	Kampala	8:00am	
20	Mpigi	9:45am	9:00am
30	Gomba	11:20am	11:00am
50	Kinoni	12:10pm	1:00pm
75	Kabulasoke		3:30pm

a) What is the distance from Mpigi to Kinoni?

b) Express the arrival time of the bus to Kabulasoke in 24hour clock.

c)How far is Kabulasoke from Gomba?

d)At what speed did the bus travel between Mpigi and Gomba?

e) Calculate the bus' average speed for the whole journey.

Macmillan Primary 5 PG 168 – 169 ,MK pupils book 7

Other timetables(class timetables and work timetables)
1.The timetable below shows how a pupil spent her time last Saturday.
Study it carefully and use it to answer the questions that follow.

TIME	ACTIVITY
7:00am-10:30am	Digging
10:45am-12:45pm	Washing
1:00pm-2:45pm	Playing
5:00pm-7:30pm	Reading

a) How long did he take playing?
b) How long did he take reading?
c) Which activity took more time than others?
2.Below is a class time for a primary six class.

From	8:30am	9:10am	9:50am	10:30am		11:00am	11:40am	12:20pm		1:00pm	2:00pm	2:40pm	3:20pm	
To	9:10am	9:50am	10:30am	11:00am		11:40am	12:20pm	1:00pm		2:00pm	2:40pm	3:20pm	4:30pm	
MON	ENG	MTC	P.E			ENG	ENG	Library			RE	SST		
TUE	MTC	SST	RE		BREAK	ENG	MUSIC	Computer	LUCNCH		SST	SCI		GAMES
WED	SCI	SCI	MUSIC			SST	MTC	SST			MUSIC	MTC		
THUR	MTC	SST	MTC			RE	SCI	SCI			SCI	ENG		
FRI	SCI	SCI	SCI			MTC	MTC	ENG			ENG	MTC		

a)At what time do the lessons begin in the morning?
b)How many mathematics lesson are taught the whole week?
c)How long does break time take?
e)How many computer lessons are shown on the timetable?
f) How long does games activity take?