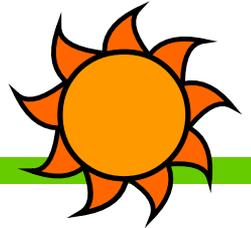


Time, time devices

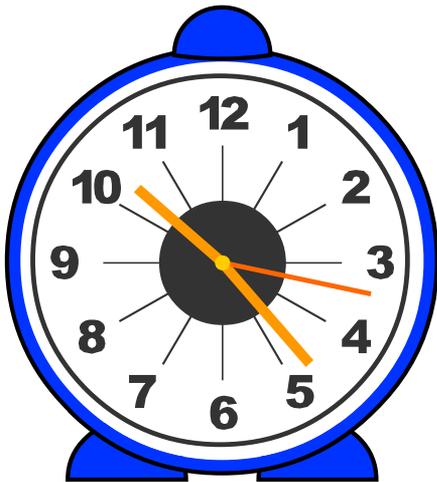
From: *A Maths Dictionary for Kids* by Jenny Eather at www.amathsdictionaryforkids.com

Time is the continuum from past to present to future.
It is also the interval between two events
or the duration of a single event.



Measuring Time

Time is measured with clocks and other timing devices.



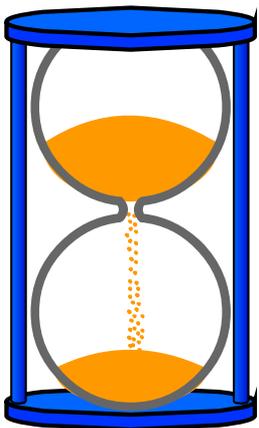
12-hour clocks



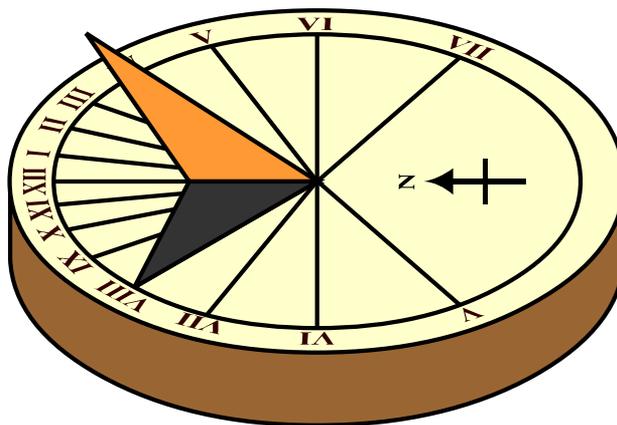
watches



digital clocks



sand timers



sundial



stopwatches

Global Timekeeping

Time is so important to human activity that timekeeping is coordinated at an international level using over 200 atomic clocks. International Atomic Time (TAI) is the most accurate time.

Coordinated Universal Time (UTC) is used to synchronize timekeeping systems around the earth.



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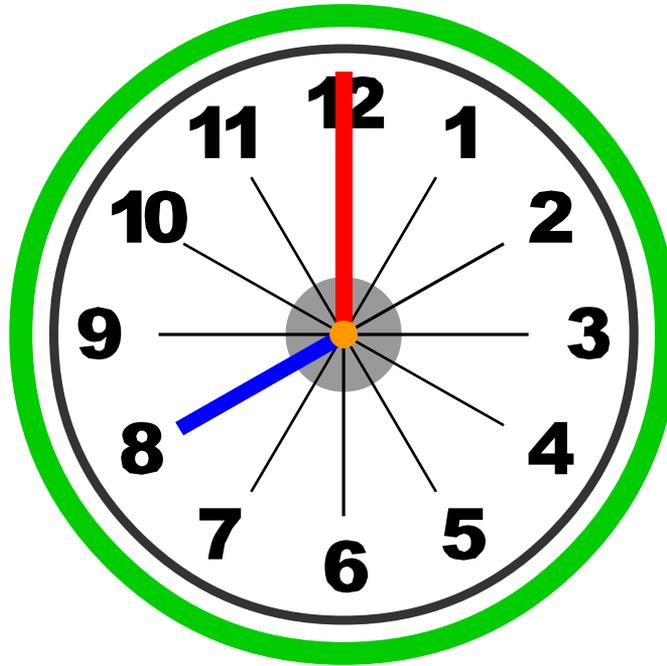
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Telling time - o'clock

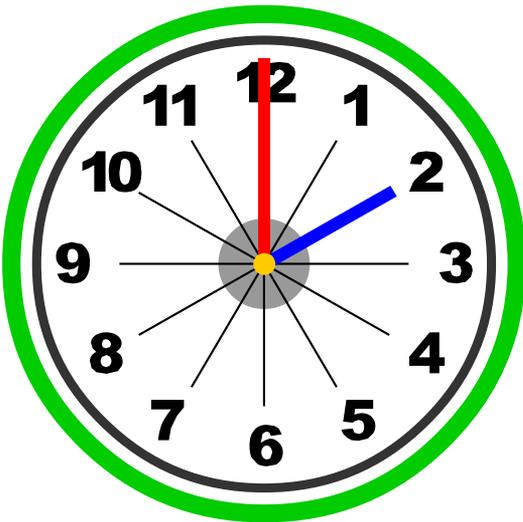
From: A Maths Dictionary for Kids by Jenny Eather at www.amathsdictionaryforkids.com

Hour Hand
on hour

Minute Hand
on 12 - o'clock

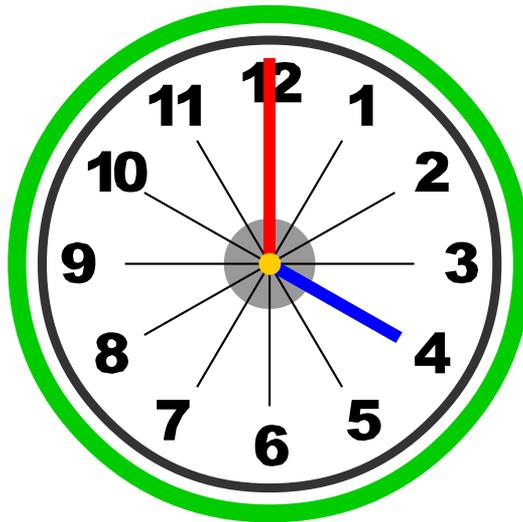


8 o'clock



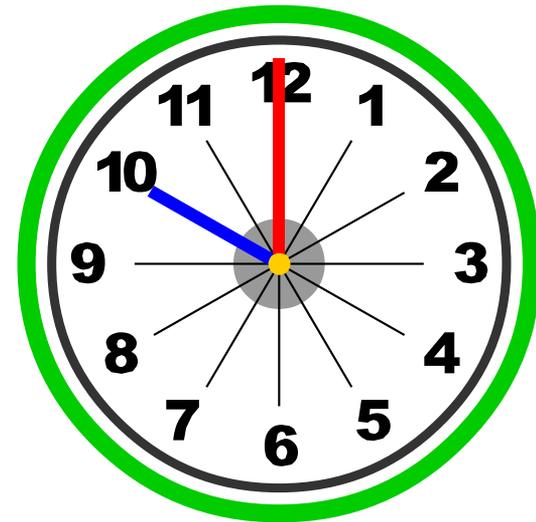
2 o'clock

2:00



4 o'clock

4:00



10 o'clock

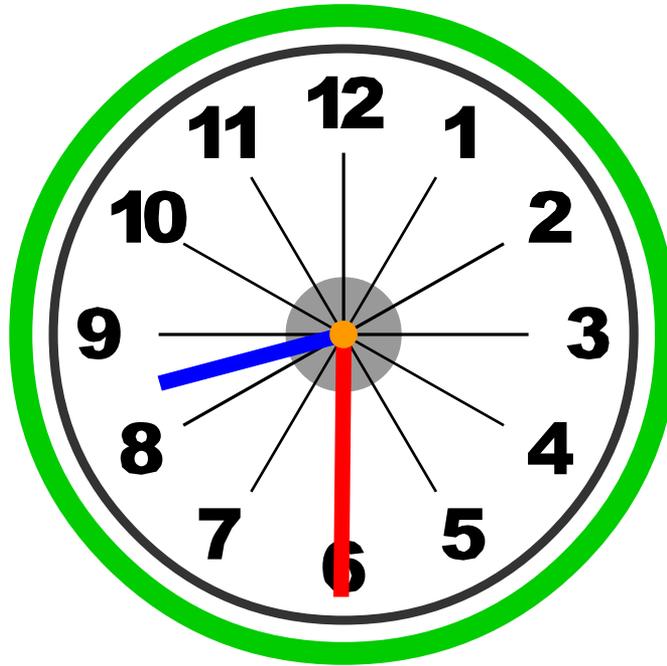
10:00

Telling time - half past

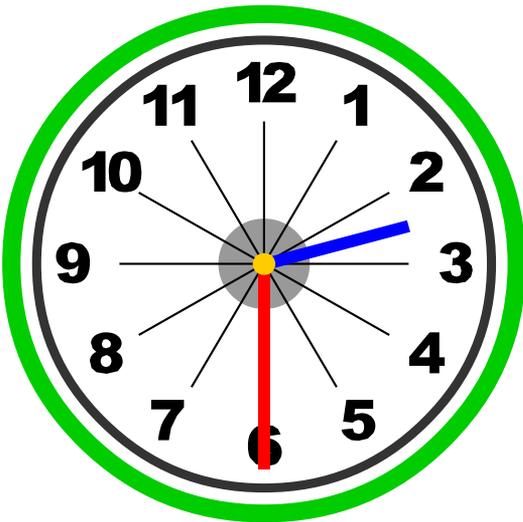
From: A Maths Dictionary for Kids by Jenny Eather at www.amathsdictionaryforkids.com

Hour Hand
half way past hour

Minute Hand
on 6 - half past

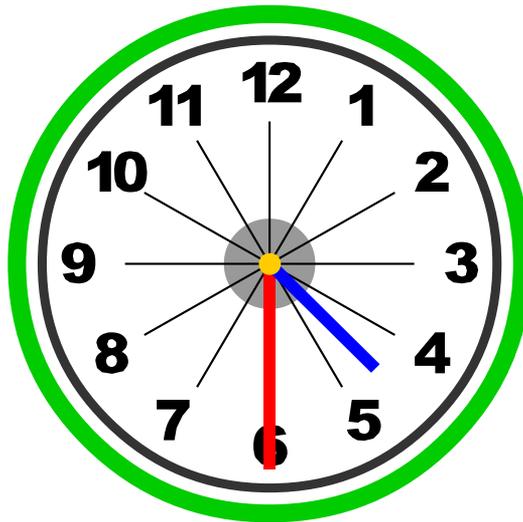


half past 8



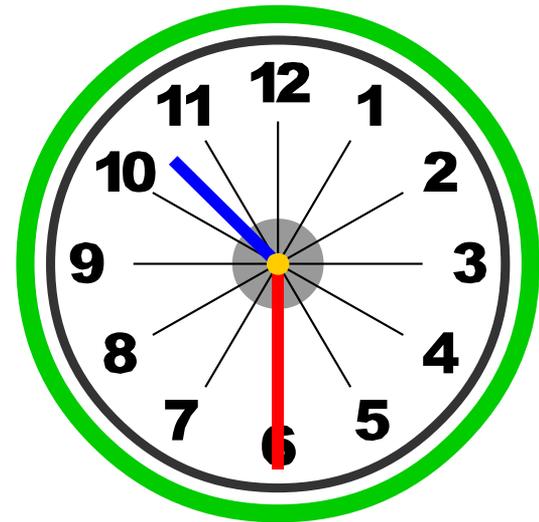
half past 2

2:30



half past 4

4:30



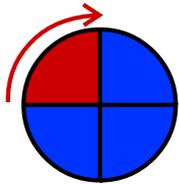
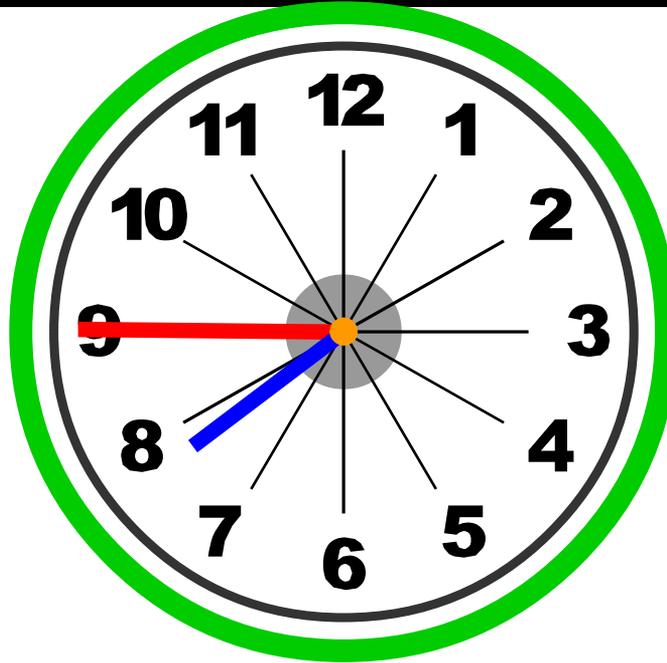
half past 10

10:30

Telling time - quarter hours

From: A Maths Dictionary for Kids by Jenny Eather at www.amathsdictionaryforkids.com

Hour Hand
before hour

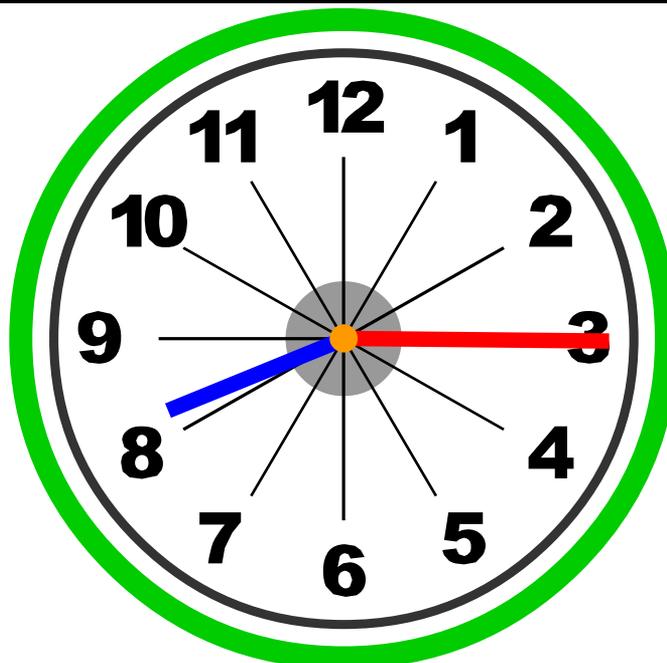


Minute Hand
on 9 - quarter to

quarter to 8

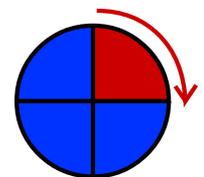
7:45

Hour Hand
after hour



quarter past 8

8:15



Minute Hand
on 3 - quarter past

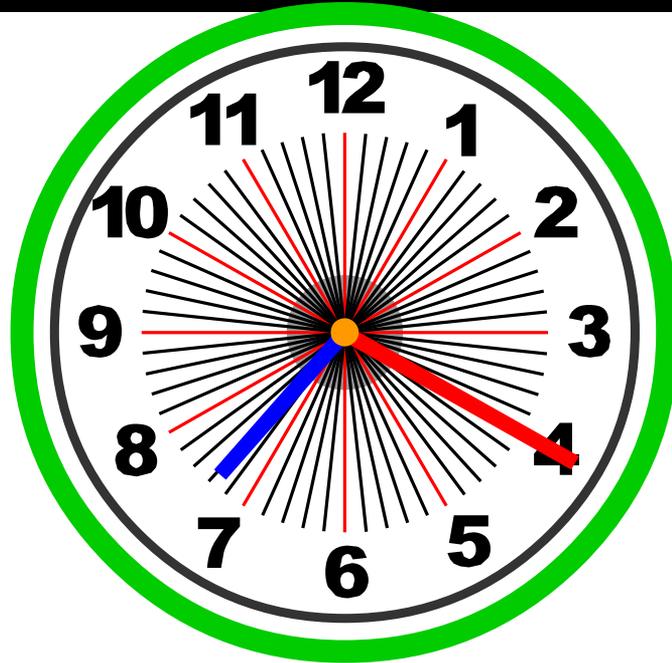
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Telling time - nearest 5 minutes

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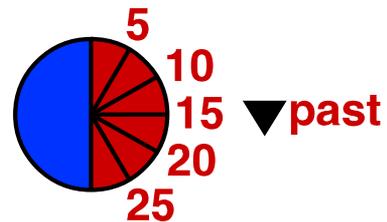
Hour Hand
past hour



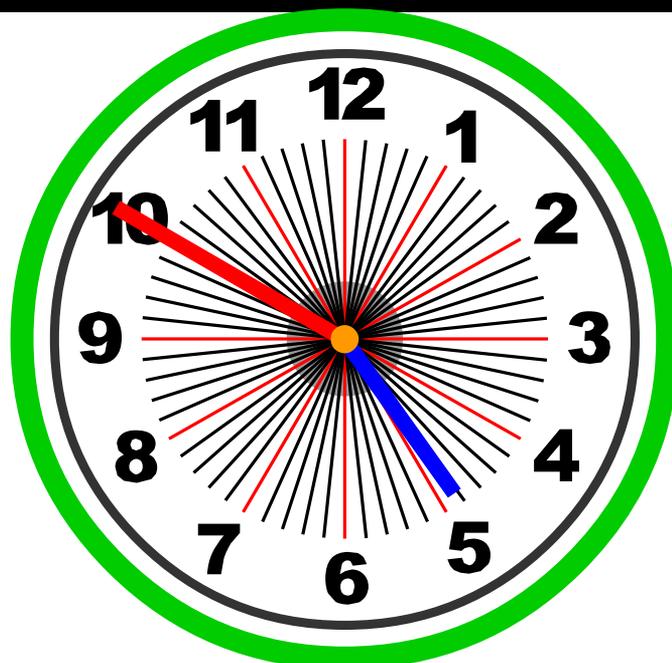
20 minutes past 7

Minute Hand
on minutes past

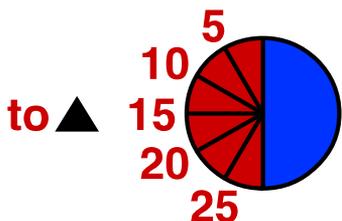
7:20



Hour Hand
before hour



10 minutes to 5



4:50

Minute Hand
on minutes to

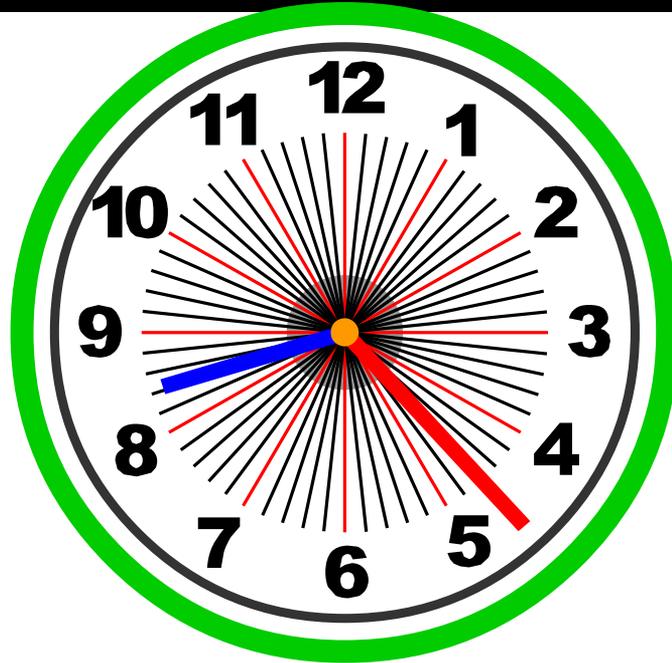
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Telling time - nearest minute

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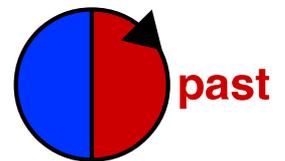
Hour Hand
past hour



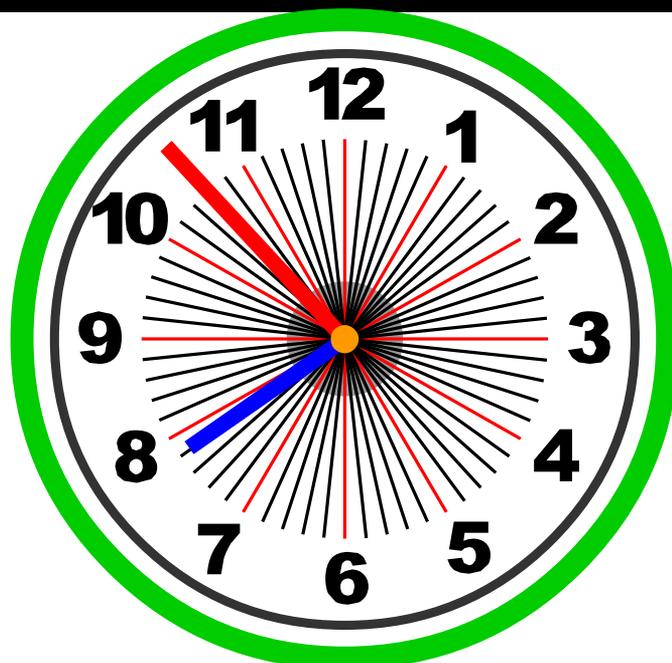
23 minutes past 8

Minute Hand
on minutes past

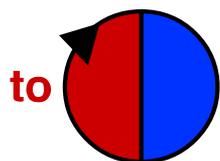
8:23



Hour Hand
before hour



7 minutes to 8



7:53

Minute Hand
on minutes to

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Digital clocks

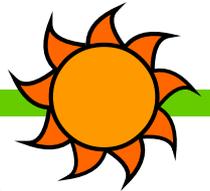
From: *A Maths Dictionary for Kids* by Jenny Eather at www.amathsdictionaryforkids.com

A digital clock uses digits (numbers) to show the time.

Digital clocks can be made cheaply and are included in a wide range of devices such as phones, computers, media players, televisions, microwave ovens and other household appliances.

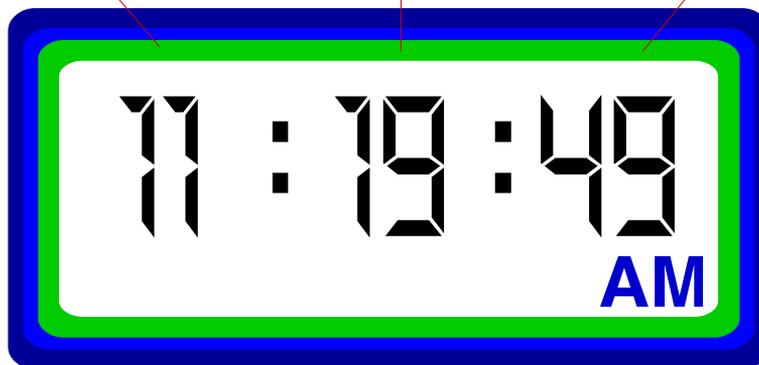


Example



The digits show the time with the hours, minutes and seconds often separated by a colon.

hours **minutes** **seconds**



Many digital clocks show twenty-four hour time intervals to avoid using a.m. and p.m.

USUALLY:

- the hours are shown on the left
- the minutes are shown on the right
- the seconds are further to the right if shown.



AM **PM**

Latin

ante meridiem
post meridiem

Time

before midday
after midday

24-hour time

00:00 - 11:59
12:01 - 11:59

Abbreviations

am a.m. AM A.M.
pm p.m. PM P.M.

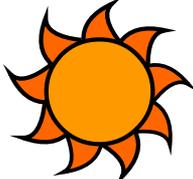
Times of the day

From: A Maths Dictionary for Kids by Jenny Eather at www.amathsdictionaryforkids.com

A day is the time it takes for the earth to revolve once.

1 day = 24 hours



night		00:00	0:00	midnight	Sleeping	
		01:00	1:00	a.m.	Sleeping	
		02:00	2:00	a.m.	Sleeping	
		03:00	3:00	a.m.	Sleeping	
		04:00	4:00	a.m.	Sleeping	
		05:00	5:00	a.m.	Sleeping	
	sunrise	06:00	6:00	a.m.	Waking	
		07:00	7:00	a.m.	Breakfast time	
		08:00	8:00	a.m.	Go to school	
		09:00	9:00	a.m.	Class	
		10:00	10:00	a.m.	Class.	
		11:00	11:00	a.m.	Morning tea	
day		12:00	12:00	noon	Class	
		13:00	1:00	p.m.	Lunchtime	
		14:00	2:00	p.m.	Class	
		15:00	3:00	p.m.	Go home	
		16:00	4:00	p.m.	Afternoon tea	
		17:00	5:00	p.m.	Play	
	sunset	18:00	6:00	p.m.	Homework	
		19:00	7:00	p.m.	Dinner time	
		20:00	8:00	p.m.	Bedtime	
		21:00	9:00	p.m.	Sleeping	
		22:00	10:00	p.m.	Sleeping	
		23:00	11:00	p.m.	Sleeping	
night		24:00	12:00	midnight	Sleeping	

Latin	Time	24-hour time	Abbreviations
ante meridiem	before midday	00:00 - 11:59	am a.m. AM A.M.
post meridiem	after midday	12:01 - 11:59	pm p.m. PM P.M.

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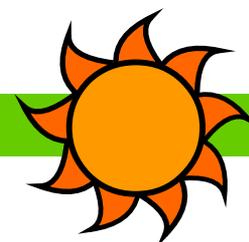
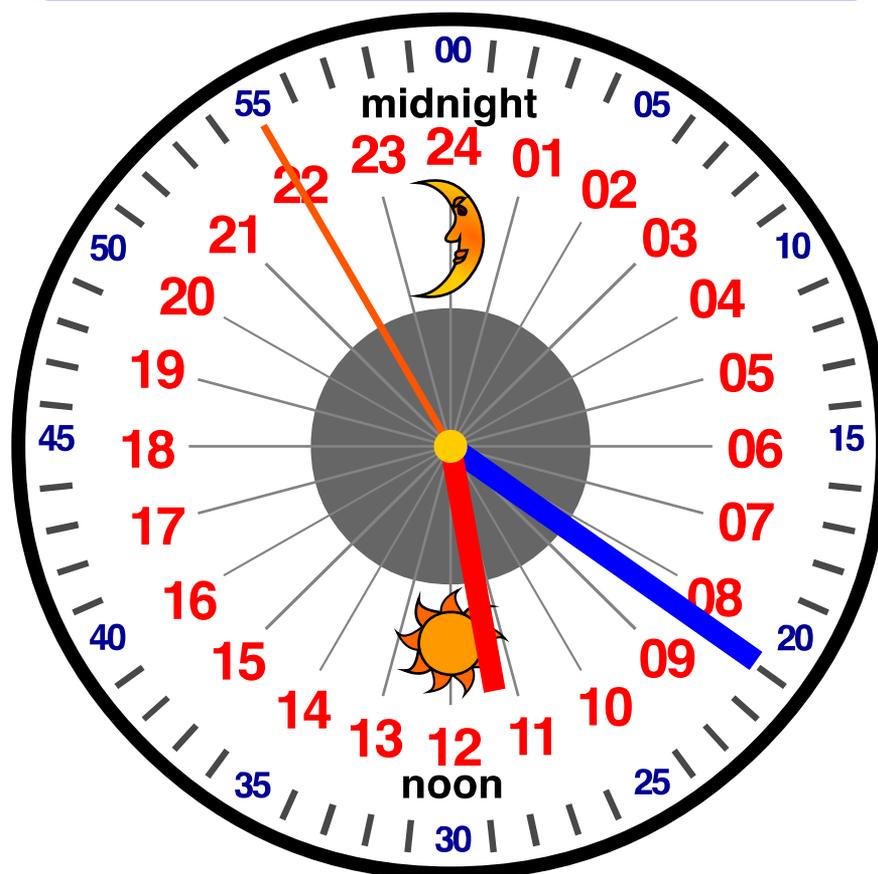
24-hour time

From: A Maths Dictionary for Kids by Jenny Eather at www.amathsdictionaryforkids.com



24-hour clocks

Hours
Minutes
Seconds



24:00 midnight	Sleeping	12:00 noon	Class
01:00	Sleeping	13:00	Lunchtime
02:00	Sleeping	14:00	Class
03:00	Sleeping	15:00	Go home
04:00	Sleeping	16:00	Afternoon tea
05:00	Sleeping	17:00	Play
06:00	Waking	18:00	Homework
07:00	Breakfast time	19:00	Dinner time
08:00	Go to school	20:00	Bedtime
09:00	Class	21:00	Sleeping
10:00	Class.	22:00	Sleeping
11:00	Morning tea	23:00	Sleeping
12:00 noon	Class	24:00 midnight	Sleeping



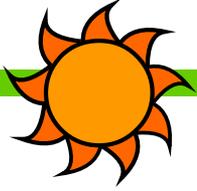
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Days of the week

From: A Maths Dictionary for Kids by Jenny Eather at www.amathsdictionaryforkids.com

A day is the time it takes for the earth to revolve once.



7 days = 1 week



Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

 weekdays or school days

 weekend



Each new day starts at midnight.

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Months of the year

From: *A Maths Dictionary for Kids* by Jenny Eather at www.amathsdictionaryforkids.com

A month is approximately the time it takes the moon to orbit the earth.



12 months = 1 year



January

February

March

April

May

June

July

August

September

October

November

December

Days in the month

An old English rhyme about how many days in each month.

Thirty days hath September,
April, June, and November;
All the rest have thirty-one,
Save February, with twenty-eight days clear,
And twenty-nine each leap year.



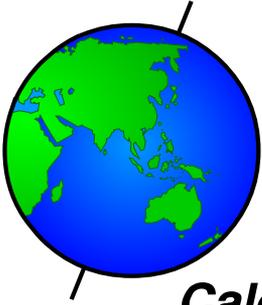
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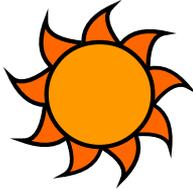
Seasons of the year

From: *A Maths Dictionary for Kids* by Jenny Eather at www.amathsdictionaryforkids.com

A season is a period of the year based on changes in hours of daylight, temperature, weather and changes in nature. The northern hemisphere and the southern hemisphere have opposite seasons.

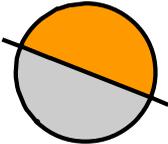


Seasons occur because of the 23.5° tilt of the earth as it orbits the sun. Some parts of the earth are more exposed to the sun than others, depending on the time of year.



Calendars may use **meteorological seasons** based on temperature and other changes or **astronomical seasons** based on the earth's position in its orbit around the sun.

The meteorological seasons are:



Northern Hemisphere

Summer

June, July, August

Autumn

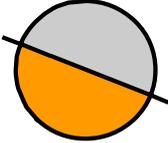
September, October, November

Winter

December, January, February

Spring

March, April, May



Southern Hemisphere

Summer

December, January, February

Autumn

March, April, May

Winter

June, July, August

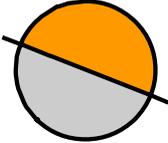
Spring

September, October, November



The astronomical seasons are:

Using equinoxes and solstices, approximately:



Northern Hemisphere

Summer

begins 21 June

Autumn

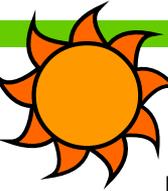
begins 22 September

Winter

begins 21 December

Spring

begins 20 March



Tropical regions often have just two seasons, the dry season and the wet season and some south Asian nations and indigenous cultures have more than four seasons.



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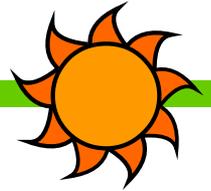
Calendar and date

From: A Maths Dictionary for Kids by Jenny Eather at www.amathsdictionaryforkids.com

A calendar is a table showing the year broken up into months, weeks and days. Many calendars show one month per page.



Calendar month



April 2014						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			



Writing the date



The date shows a given day, month and year.
The date may be written in many different ways.

WORDS and NUMBERS

LONG

10th April 2014

Thursday, April 10, 2014

SHORT

10 Apr 14

Apr 10, 14

NUMBERS only

LONG

10/04/2014

04.10.2014

SHORT

10/4/14

4.10.14

Time facts

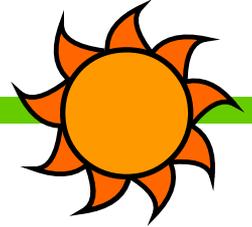
From: *A Maths Dictionary for Kids* by Jenny Eather at www.amathsdictionaryforkids.com

Time is the continuum from past to present to future.
It is also the interval between two events
or the duration of a single event.

Time is measured with clocks
and other timing devices.



Time Measurement Units



- 1000 milliseconds = 1 second
- 60 seconds = 1 minute
- 60 minutes = 1 hour
- 24 hours = 1 day
- 7 days = 1 week
- 2 weeks = 1 fortnight
- 4 weeks = 1 month
- 12 months = 1 year
- 52 weeks = 1 year
- 365 days = 1 year
- 366 days = 1 leap year
- 10 years = 1 decade
- 100 years = 1 century
- 1000 years = 1 millennium



Global Timekeeping

Time is so important to human activity that timekeeping is coordinated at an international level using atomic clocks which are accurate to the nearest second over millions of years.

The Global Positioning System (GPS) is also used to synchronize timekeeping systems around the earth.

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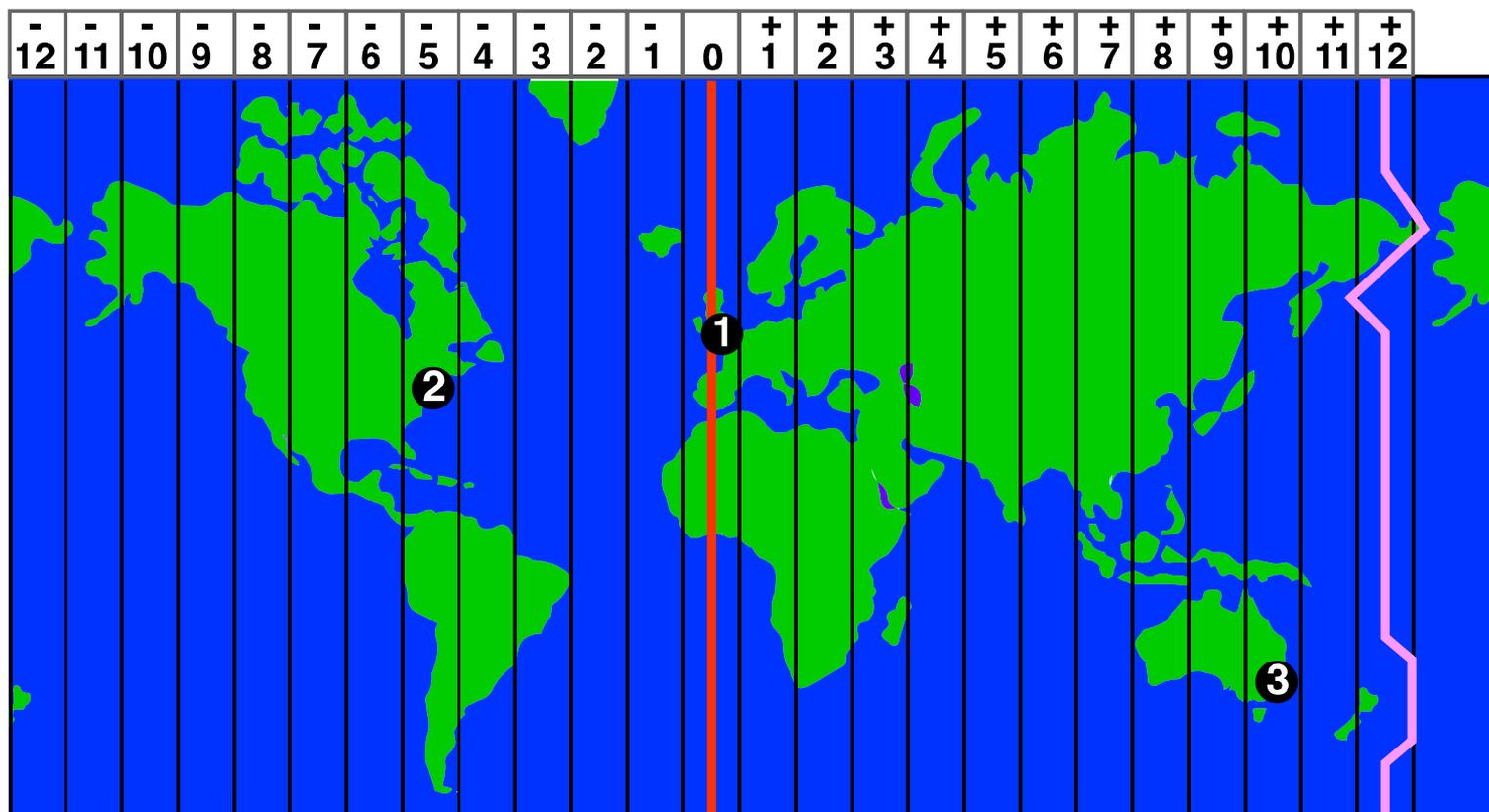
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Time zones

From: *A Maths Dictionary for Kids* by Jenny Eather at www.amathsdictionaryforkids.com

So countries around the world can have similar times during the day, different places on the Earth need to have different clock times.

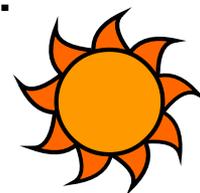
Starting from the Greenwich or Prime Meridian (0° longitude), the world has been divided into 24 time zones based on Coordinated Universal Time (UTC).



Greenwich Meridian **International Dateline**

This is a very simple map. Many land time zone lines vary so that each country can have a manageable time system.

The use of daylight saving time in many countries also changes how many hours the time in one place differs from the time in another place.



① London 12:00 noon ② New York 7:00 a.m. ③ Sydney 10:00 p.m.



Australia is divided into three separate time zones:

- Australian Eastern Standard Time (AEST) = UTC +10,
- Australian Central Standard Time (ACST) = UTC + 9½,
- Australian Western Standard Time (AWST) = UTC + 8.

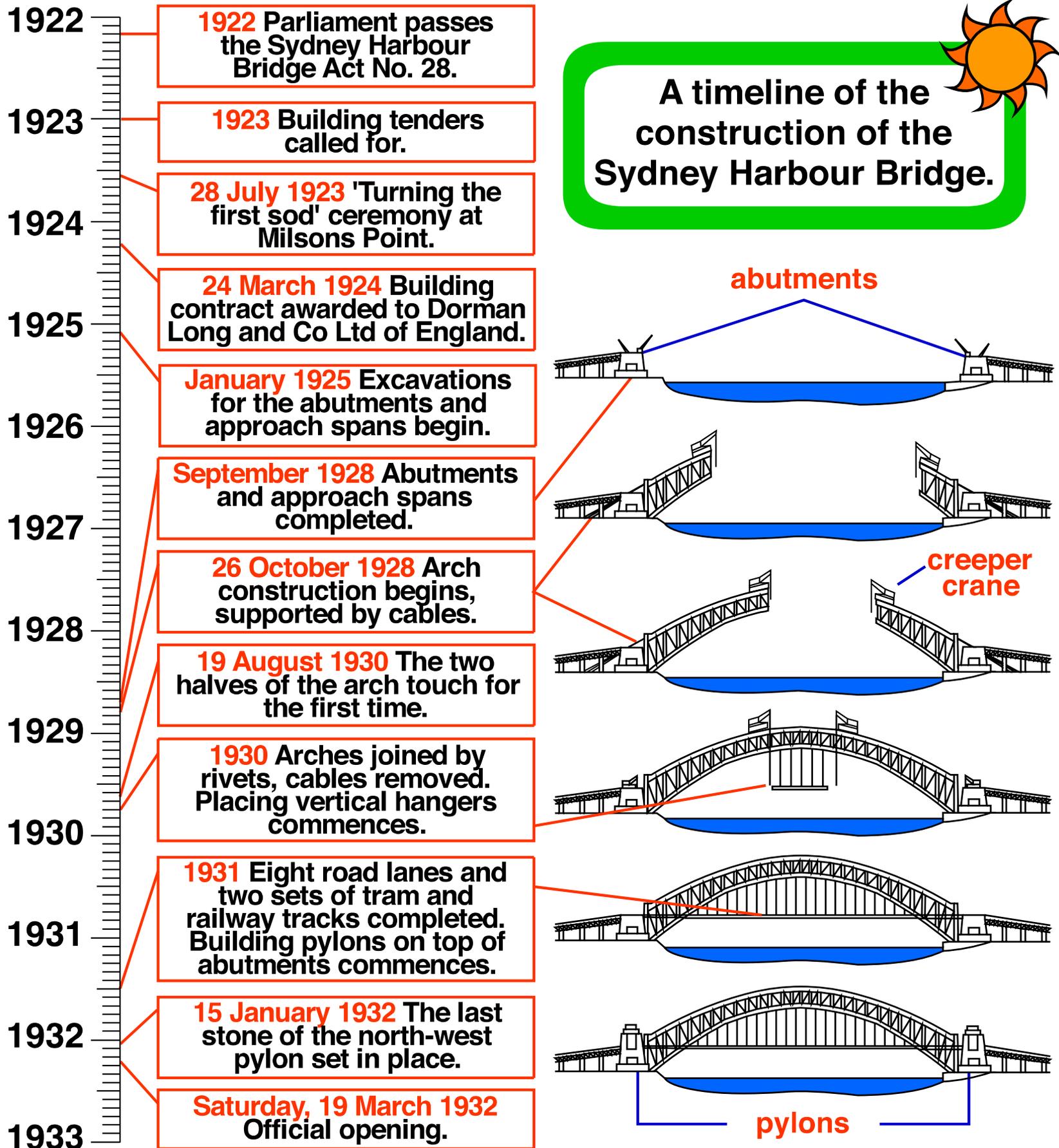
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Timelines

From: *A Maths Dictionary for Kids* by Jenny Eather at www.amathsdictionaryforkids.com

A timeline displays a list of events in chronological order.



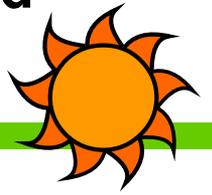
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Timetables

From: *A Maths Dictionary for Kids* by Jenny Eather at www.amathsdictionaryforkids.com

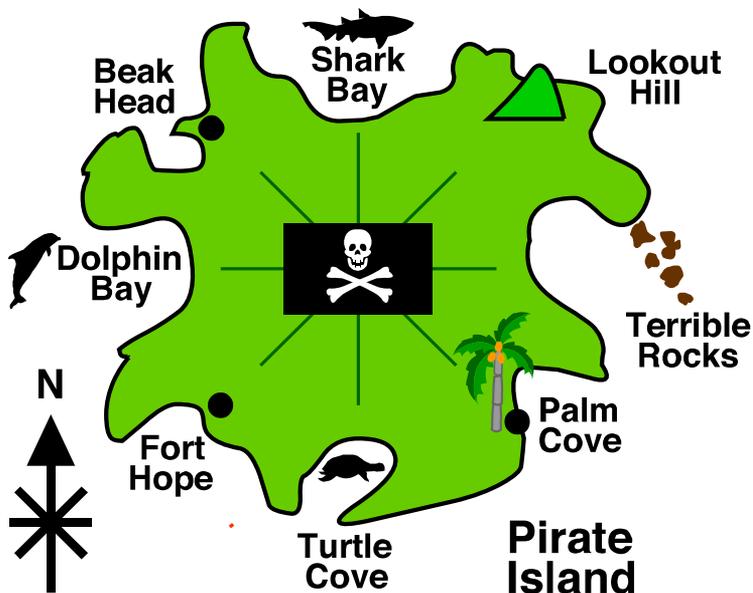
A timetable is a chart showing events organised according to a time schedule.



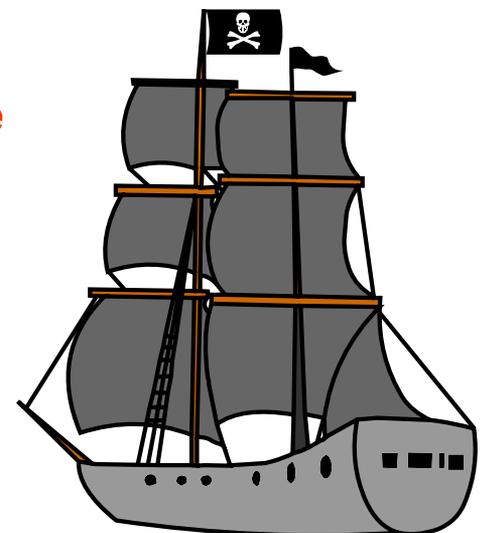
Example: Pirate School

Pirate School - Weekly Timetable

	M	T	W	Th	F
9:00	Arrr! Arrr! Arrr! practice	Yo-ho-ho! practice	Shiver me timbers! practice	Crow's nest climbing	Landlubber spotting
10:00	Parrot care and handling	Cutlass sharpening	Cannon loading	Pirate hat making	Eye patch design
11:00	All hands on deck.				
11:15	Burying treasure	Sail hoisting	Jolly Roger design	Navigation nasties	Spyglass skills
11:45	Bilge pumping duty	Cat o' nine tails swinging	Shanty singing	Beard trimming	Pirate legend telling
12:30	All hands on deck.				
1:00	Plank walking avoidance strategies	Hornpipes for beginners	Keelhauling avoidance strategies	Deck swabbing duties	Pieces of eight counting
2:00	Sword fighting championship	Wooden leg carving	Treasure map making	Blunderbuss maintenance	Rum ration management
3:00	All hands abandon ship.				



Timetables are useful for looking up the starting time, finishing time and duration of events.



Pirate Training Ship

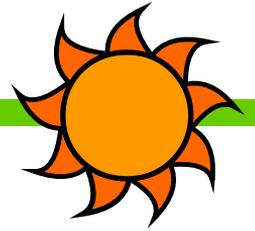
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Time conversions

From: A Maths Dictionary for Kids by Jenny Eather at www.amathsdictionaryforkids.com

Time is the continuum from past to present to future.
It is also the interval between two events
or the duration of a single event.



Convert - larger to smaller

larger to smaller ... multiply

Examples: years to months ... multiply by 12
days to hours ... multiply by 24
hours to minutes ... multiply by 60



Convert - smaller to larger

smaller to larger ... divide

Examples: months to years ... divide by 12
hours to days ... divide by 24
minutes to hours ... divide by 60

NOTE:

Often the remainder is still written as the smaller unit.

Examples: 2 yrs 5 mths
2 days 5 hrs
11 hrs 46 mins



Units

1000 milliseconds = 1 second	12 months = 1 year
60 seconds = 1 minute	52 weeks = 1 year
60 minutes = 1 hour	365 days = 1 year
24 hours = 1 day	366 days = 1 leap year
7 days = 1 week	10 years = 1 decade
2 weeks = 1 fortnight	100 years = 1 century
4 weeks = 1 month	1000 years = 1 millennium