BIG TIME!

Different units of measurement are used to express time; although for the international system time should be indicated using the second, in everyday life we also use other ways. Minutes and hours are the most frequent, as well as days, weeks and months.
For some people moving from one unit of measurement to another can be problematic, and errors in this conversion may affect the organization of a trip or the planning of a task. Let's see together how to convert time!

Overview "BIG TIME"

How to convert time?

Context
Everyday life

Cognitive processes
Managing situations
Processing information

Target group (incl. necessary prior skills and competences)

Adults and young adults;

knowledge of basic concepts of mathematics.

Content
Quantity and number

Dispositions
Flexibility
Math anxiety

Outcomes and results

Learners will be able to work with time conversions

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Main information

Content	Quantity and number; Multiplication and division; Decimal numbers
Target group	Adults and young adults; Learners have knowledge of basic concepts of mathematics;
Learning intention	Numeracy for personal and private purposes
Duration	2UE
Material and resources	Picture cards, exercises
Group size	Range from 4 to 18 learners
Problem statement	Different measurements are used to express time: seconds, minutes, hours, days, weeks, months…. for some people moving from one unit of measurement to another could be problematic, and errors in this conversion may, for example, affect the organization and the planning of a trip. There are some rules to convert time and this activity is focus on these.
Working questions	- How is time expressed? - Which unit of measurement to express time do you use the most? - Do you know how to convert time measurements? - Have you ever had difficulty switching from one unit of measurement to another?
Learning outcomes and results	Learners will be able to work with time conversions

Working plan

Time (lessons)	Description of content/activities	Material	Methodical and didactic information[1]
45’	**1.Discover** The teacher introduces the topic based on the “*working questions”*. Based on the knowledge of the learners this phase can be conducted differently. If the learners turn out to have a good knowledge on the topic, they can explain the part related to the conversion, clearly with the assistance and support of the teacher. Otherwise, this activity can be managed through a frontal lesson.	Diagrams, charts, picture cards	Explicit teaching Questioning
60’	**2. Time conversion exercises** Learners are assigned exercises regarding the conversion of time into the different units of measurement. Some exercises are also based on real situations (e.g. duration of shows at the cinema/theatre, train journeys or other means of transport). *[This activity can be linked to another where students are required to plan a trip (means of transport, activities, etc.) giving them material in which the relative timing is indicated with different measurement units.]*	exercises	Hands on learning

[1] for description and explanation of kinds of tasks, HITs and other background information please consult the teacher’s/user’s guide

45’	**[Potentially 2.1 time operations on Excel]** If there is the possibility, at the discretion of the teacher, this topic can also be treated by inserting a bit of computer science. Learners are taught how to use spreadsheets to manage time operations. An activity on which to test them is, for example, the calculation of the total hours worked in a month or a certain period by simply inserting the entries and exits from work.	Computers	Explicit learning Collaborations Hands on learning
30’	**3.Discussion** The activity concludes with a moment of discussion in which learners express their impressions about the topic covered.		Feedback

Appendix

https://www.youmath.it/lezioni/fisica/unita-di-misura/equivalenze/2874-equivalenze-misure-tempo.html#:~:text=Secondi%2C%20minuti%20ed%20ore%20rientrano,%3D%2060%20minuti%20%3D%203600%20secondi.

https://npronline.tech/npr-matematica/grandezze-e-misure/grandezze-e-misure-esercizi-conversione-misure-di-tempo-parte-1/

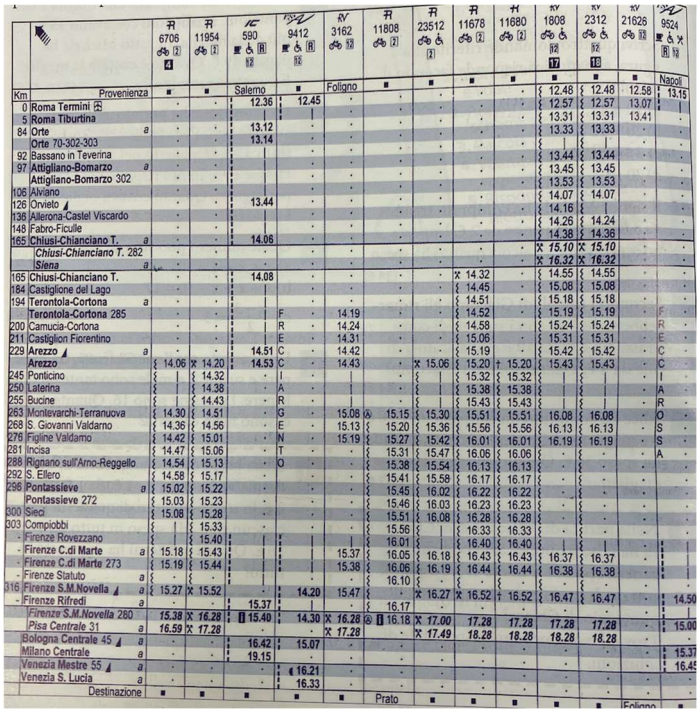
Tabella conversione misure di tempo

	Secondi	Minuti	Ore	Giorni	Settimane	Anni solari	Anni civili	Anni bisestili
1 secondo (1 s)	1	0,01667	$2{,}778\times10^{-4}$	$1{,}157\times10^{-5}$	$1{,}653\times10^{-6}$	$3{,}169\times10^{-8}$	$3{,}171\times10^{-8}$	$3{,}162\times10^{-8}$
1 minuto (1 min)	60	1	0,01667	$6{,}944\times10^{-4}$	$9{,}92\times10^{-5}$	$1{,}901\times10^{-6}$	$1{,}902\times10^{-6}$	$1{,}897\times10^{-6}$
1 ora (1 h)	3600	60	1	0,0417	$5{,}952\times10^{-3}$	$1{,}1407\times10^{-4}$	$1{,}1415\times10^{-4}$	$1{,}1384\times10^{-4}$
1 giorno (solare medio)	86 400	1440	24	1	0,143	$2{,}737\times10^{-3}$	$2{,}739\times10^{-3}$	$2{,}732\times10^{-3}$
1 settimana	604 800	10 080	168	7	1	0,01916	0,01917	0,01912
1 anno solare	31 556 925	525 948,75	8765,8125	365,242	52,177	1	1,00066	0,9979
1 anno civile	31 536 000	525 600	8760	365	52,143	0,9993	1	0,9973
1 anno bisestile	31 622 400	527 040	8784	366	52,286	1,00207	1,00274	1

Some examples of exercise:

Considerando la durata del film, se vai allo spettacolo delle 19:40 al Cinema Nazionale, a che ora ti aspetti di uscire dal cinema?

Quanti minuti sono necessari al treno TN33065 per percorrere il tratto Treviglio- Brescia?



Km	Provenienza	6706	11954	590	9412	3162	11808	23512	11678	11680	1808	2312	21628	9524
				Salerno		Foligno								Napoli
0	Roma Termini			12.36	12.45						12.48	12.48	12.58	13.15
5	Roma Tiburtina										12.57	12.57	13.07	
84	Orte a			13.12							13.31	13.31	13.41	
	Orte 70-302-303			13.14							13.33	13.33		
92	Bassano in Teverina										13.44	13.44		
97	Attigliano-Bomarzo a										13.45	13.45		
	Attigliano-Bomarzo 302										13.53	13.53		
106	Alviano										14.07	14.07		
126	Orvieto			13.44							14.16			
136	Allerona-Castel Viscardo										14.26	14.24		
148	Fabro-Ficulle										14.38	14.36		
165	Chiusi-Chianciano T. a			14.06							*15.10*	*15.10*		
	Chiusi-Chianciano T. 282										*16.32*	*16.32*		
	Siena a													
165	Chiusi-Chianciano T.			14.08					14.32		14.55	14.55		
184	Castiglione del Lago								14.45		15.08	15.08		
194	Terontola-Cortona a								14.51		15.18	15.18		
	Terontola-Cortona 285				F	14.19			14.52		15.19	15.19		F
200	Camucia-Cortona				R	14.24			14.58		15.24	15.24		R
211	Castiglion Fiorentino				E	14.31			15.06		15.31	15.31		E
229	Arezzo a			14.51	C	14.42			15.19		15.42	15.42		C
	Arezzo	14.06	14.20	14.53	C	14.43		15.06	15.20	15.20	15.43	15.43		C
245	Ponticino		14.32		I				15.32	15.32				I
250	Laterina		14.38		A				15.38	15.38				A
255	Bucine		14.43		R				15.43	15.43				R
263	Montevarchi-Terranuova	14.30	14.51		O	15.08	15.15	15.30	15.51	15.51	16.08	16.08		O
268	S. Giovanni Valdarno	14.36	14.56		E	15.13	15.20	15.36	15.56	15.56	16.13	16.13		S
278	Figline Valdarno	14.42	15.01		N	15.19	15.27	15.42	16.01	16.01	16.19	16.19		S
281	Incisa	14.47	15.06		T		15.31	15.47	16.06	16.06				A
288	Rignano sull'Arno-Reggello	14.54	15.13		O		15.38	15.54	16.13	16.13				
292	S. Ellero	14.58	15.17				15.41	15.58	16.17	16.17				
296	Pontassieve a	15.02	15.22				15.45	16.02	16.22	16.22				
	Pontassieve 272	15.03	15.23				15.46	16.03	16.23	16.23				
300	Sieci	15.08	15.28				15.51	16.08	16.28	16.28				
303	Compiobbi		15.33				15.56		16.33	16.33				
-	Firenze Rovezzano		15.40				16.01		16.40	16.40				
-	Firenze C.di Marte a	15.18	15.43			15.37	16.05	16.18	16.43	16.43	16.37	16.37		
-	Firenze C.di Marte 273	15.19	15.44			15.38	16.06	16.19	16.44	16.44	16.38	16.38		
-	Firenze Statuto a						16.10							
316	Firenze S.M.Novella a	15.27	15.52		14.20	15.47		16.27	16.52	16.52	16.47	16.47		14.50
-	Firenze Rifredi a			15.37			16.17							
	Firenze S.M.Novella 260	*15.38*	*16.28*	15.40	14.30	*16.28*	16.18	*17.00*	*17.28*	*17.28*	*17.28*	*17.28*		15.00
	Pisa Centrale 31 a	*16.59*	*17.28*			*17.28*		*17.49*	*18.28*	*18.28*	*18.28*	*18.28*		
	Bologna Centrale 45 a			16.42	15.07									
	Milano Centrale a			19.15										15.37
	Venezia Mestre 55 a				16.21									16.45
	Venezia S. Lucia a				16.33									
	Destinazione						Prato						Foligno	

Se prendi il treno che parte da Roma Termini alle 12:36 , quanto tempo (in ore) dura il viaggio fino a Firenze Santa Maria Novella??

This material was produced in the Erasmusplus project Numeracy in Practice, projectnumber 2021-1-NL01-KA220-ADU-000 026 292. In this project, 11 partners in 11 countries worked together in designing, evaluating and improving the materials. All materials can be found on the website (www.cenf.eu).