

Situation: Two clocks

Our society and our everyday life need us to be punctual: Pick up the kids at quarter to two from school, give them 50 minutes to play before training starts at 16:25. A working day of 8 hours, starting between 07:15 and quarter to eight. On Saturday, an invitation for dinner at friends' place around 7 in the evening – takes you 15 minutes by bus to get there...

Too good that there are clocks all around us that should help us to get along with all these appointments. But isn't it annoying that an hour is not 100 minutes and that there are those two kinds of clocks indicating time all differently. Reading times is already a challenge, but calculating with it seems to be a herculean task...

Overview "Two clocks"

How to understand time information on different kinds of clocks

Context
Everyday life
Work-related

Cognitive processes
Managing situations
Analysing situations
Problem solving

Content
Quantity and number
Data and change
Using digital skills

Target group (incl. necessary prior skills and competences)

Adults and young adults with basic numeracy competences willing to understand analog and digital time indications.

Dispositions
Self-confidence
Collaboration
Math difficulties

Outcomes and results

Learners understand digital and analog time indications



Main information	
Content	Natural numbers Fractions (quarter, three-quarter, half) Analog and digital time indications Calculating with time
Target group	Adults and young adults with basic numeracy competences willing to understand analog and digital time indications.
Learning intention	What is the intention of adults to face this problem? <ul style="list-style-type: none"> – Numeracy for personal and private purposes – Numeracy for professional issues
Duration	Approx. 2-3 lessons
Material and resources	Pictures of time indications on both digital and analog clocks at stations (appendix 1) Digital and analog clocks Worksheet to plan a trip (appendix 2)
Group size	Range from 5 to 10 learners
Problem statement	Time indications on digital and analog clocks can pose a problem to learners and produce a lot of stress when they are supposed to use public transport, for example.
Working questions	<ul style="list-style-type: none"> – Do the learners have problems with time management when using public transport? – How do they normally manage to be on time? – Do they understand time indications on digital and analog clocks? Which kind of indication do they prefer and why? – Are the learners able to link the time information on digital and analog clocks?
Learning outcomes and results	The students give meaning to and are able to deal with time indications on both digital and analog clocks.
Reference to National Qualification Frame	Optional (country's decision)

Working plan

Time (lessons)	Description of content/activities	Material	Methodical and didactic information ¹
20 min	<p>Activation: Put the learners in a daily life situation by engaging them in a conversation about public transport. Possible questions:</p> <ul style="list-style-type: none"> • Do you use the bus or train? • How do you know what time the bus comes? • Is it difficult for you to be at the station on time? Why? <p>Then show pictures of time indications at train or bus stations to the learners.</p>	Pictures of time indications at a station – see appendix 1	<p>Questioning Collaborative learning</p> <p>If you want to work on bus or train plans with your learners as well, please consult the learning example “my family’s time management”.</p>
30 min	<p>Activity 1: Analyzing pictures Explain to the learners that at a station, analog and digital time occur simultaneously. Have a conversation with the learners about using the clock in the context of using public transport.</p> <ul style="list-style-type: none"> • Do you know the situation shown by the pictures? • What are you paying attention to when trying to catch a bus or train? • Do you prefer the analog or the digital clock? Why? • What kind of clock do you use at home? • What time does the analog clock show? • What does the time indicated on the blue sign at the station platform mean? • ... 	Pictures from above	<p>Questioning</p> <p>Analyzing situations</p> <p>Managing situations</p> <p>In case the learners have basic problems with understanding time (60 minutes per hour, 2 times 12 hours a day, ...) it can be useful to deal with these difficulties within the concept of time after or</p>
30 min	Optional: Revising the concept of time together with the learners, activating their prior knowledge in order to make sure that they understand the relationship between	Different clocks (analog and digital) for authentic illustration	

¹ for description and explanation of kinds of tasks, HITs and other background information please consult the teachers’ guide

	hours and minutes as well as 12-hour and 24-hour time formats.		within this learning phase.
15 min	<p>Activity 2: Relating analog and digital clocks</p> <p>Ask the learners to pick time indications from the pictures used before and collaboratively assign the respective analog or digital time. Put emphasis on the 12-hours and 24-hours time format in this activity.</p>	Pictures from above	Collaborative learning
30 min	<p>Transfer activities</p> <p>In small subgroups the learners figure out a trip by public transport (bus or train) in the surrounding of the learning institution. Collaboratively, they plan their trip answering questions like:</p> <ul style="list-style-type: none"> • When does the train/bus leave? • How much time does it take us to get to the station? • What time do we have to leave the institution? • How long will the trip take? • How is the analog clock when the train we choose leaves? • ... <p>Together with the learners also identify other situations within their private and professional life in which time and time indications play an important role. Let them think of the clocks they use within their daily life routines (which alarm clock do they use, what kind of clock is there in the kitchen, do they use their smartphones or other digital devices, etc.)</p>	Worksheet with possible questions (if necessary) – see appendix 2	

Suggestions for the teacher

The example presented here should be considered as exemplary and inspirational material presenting a guideline with a high range of possibilities of adapting those suggestions to a specific group of learners or an individual learner with his or her very personal requirements.

In concrete terms, the example “Two clocks” could be adapted these ways:

- **Individualization and differentiation:** Depending on the prior knowledge of the learners, it can be necessary to have an eye on the basic concepts of time with (part of) the learners. It is crucial to make sure that the learners understand the relationship between minutes and hours as well as the 12-hours and 24-hours time format.
- **Further or additional material:** This learning example can be combined with the example “My family’s time management” to emerge deeper in the comprehensive learning field of time and time management.
- **Learning setting:** Let the students work in small groups in which they have time and room to formulate their own hypotheses and find out their individual solutions.
- **Context:** If the context of travel is not of interest to the learners, you can easily switch to other situations in which time plays a role. For example, when having to get to work or for an appointment on time, when watching the news on TV, when bringing the kids to their free time activities, ...

Our educational activities aim at numeracy skills being not only memorized, but first of all being practiced and functionally used by the learners in daily life or/and vocational situations. It is therefore recommended to implement the idea of HITS² (higher impacts of teaching skills) as far and often as possible: ...

- ... work with concrete and authentic material that learners will recognize from everyday life situations. If there’s enough time, the learning group can do a field examination at the nearest bus or train station and possibly take their own pictures of time indications there.
- ... ask the learners questions and let them raise questions themselves. It can be crucial to discuss numeracy themes, contexts, and numbers.
- ... think of possible ways of transfer: Together with the learners elaborate other daily life situations where time and time management play an important role.

² For general information and explanation on HITS please see teachers’ guide



Appendix

Appendix 1: Pictures of time indications at a bus or train station (examples)



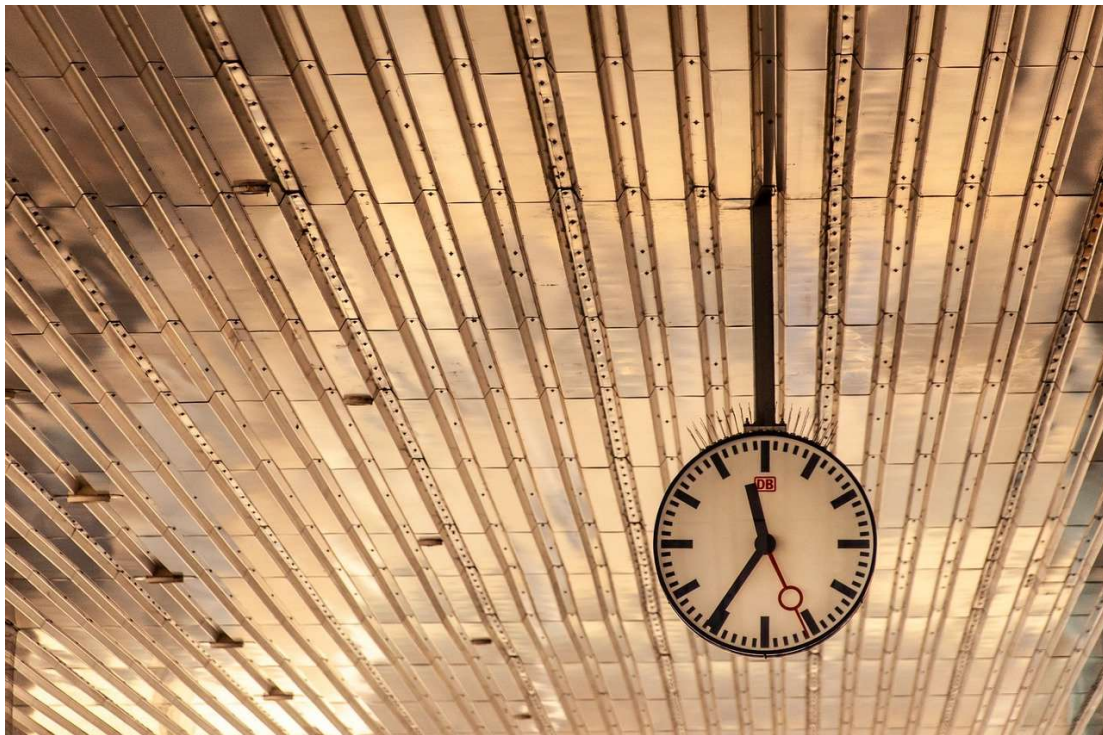
Source: ACT GmbH LED-Displays - Fahrplan-Anzeigetafel Bahnhof Klagenfurt SMD-Videowand (act-thielmann.at) [28.12.2023]



Source: Bahn- und Zugfahrpläne Österreich (bahnfahrplan.at) [28.12.2023]



Source: www.facebook.com/unsereOEBB/photos/ [28.12.2023]



Source : www.pixabay.at [28.12.2023]



Source : www.pixabay.at [28.12.2023]



Source : www.pixabay.at [28.12.2023]

Ziel <i>Destination</i>	Gleis <i>Platform/Voie</i>	Status
Mannheim-Friedrich Gernsheim	11 17	Train is cancelled
Köln Hbf	7	Train is cancelled
Berlin Hbf	9	Train is cancelled
Passau Hbf	6	Train is cancelled
Siegen	16	
Saarbrücken Hbf	20	
Fulda	8	Train is cancelled
Bruxelles-Midi	19	Aujourd'hui du qua
Hanau Hbf	5	lai 5 - Heute auf G

Source : www.pixabay.at [28.12.2023]



Appendix 1: Worksheet to plan a trip



www.pixabay.com

Where to start?

Use an app (Scotty, Google Maps or others) to plan your trip. Prepare the following information:

- Which public transportation do you use?
- Which station do you start?
- Where do you travel to?

Choose your connection.

Which bus or train do you choose? The following considerations can help you with your decision:

- What time is it now?
- How long does it take you to get to the departure station? What time do you have to leave?
- What time do the next buses and trains leave?

Have a safe trip!

Before you leave, check the following points:

- How long will the trip take?
- How is the analog clock when the train you choose leaves?
- How is the analog clock when the train arrives?

