Tachograph

Lesson plan for teachers

STEP AHEAD II

Tachograph

The aim of the lesson:

Get acquainted with the functionality of tachograph.

Activity No.1   Part of the lesson: **EVOCATION**

Aim of the activity: Find out what students know about tachograph, using minds maps and unfinished sentences.

Step 1	Brief description of the activity	Mind map – teacher writes in the center of the board the key word - Tachograph. Students one by one approach the board and draw the arrows from the center circle, adding and writing down the words that „Tachograph" evokes to them. The mind map gives the teacher an overview of the current knowledge and ideas of the students related to the topic.
	Instruction (what you need to tell the students)	On the board, there is a word „Tachograph". What other words come to your mind in relation to this? Please, come to the board and write them around, using the arrows.
Step 2	Brief description of the activity	After 5 minutes follows the discussion Students sort the terms together with the teacher. The teacher ends the discussion with a brief summary of terms. The discussion is followed by the method of unfinished sentences – the purpose is to repeat the terms related to the tachograph.

		Tachograph is ..... Tachograph is used .....
	Instruction (what you need to tell the students)	Now write down in your notepads or notebooks and than finish following two sentences: Tachograph is ..... Tachograph is used .....
Step 3	Brief description of the activity	Watch the following video on tachograph and ask questions, eg. What can you see on the video? What is tachograph used for? https://www.youtube.com/watch?v=JX2NF_7BZkA
	Instruction (what you need to tell the students)	Watch the video. • What is presented in the video? • What is tachograph used for?
Tools for the activity (everything you need to take to the classroom)		Board, paper, pen, notebook / internet computer forteacher, projector (video projection)
Estimated time (max. 40 min.)		15 min.
Notes		https://www.youtube.com/watch?v=JX2NF_7BZkA

Activity No. 2   Part of the lesson: **APPRECIATION**

The aim of the activity: Understanding the functioning and advantages of tachograph

Step 1	Brief description of the activity	The text from Attachment 1 – „Tachograph" is distributed to the students. They work individually with text, reading it and marking, using the INSERT method: Students choose concrete information, using the tags in concrete passages of the text: √ what I already know + what was new for me ? what I want to know - what was in contrast to what I originally thought Later. in the step 2, they´ ll write their structured notes down in the INSERT table (Attachement 2)
	Instruction (what you need to tell the students)	Read the text about tachograph. In the text, identify information that you have already known, new information, confusing/unclear information, or information that is different to what you thought. Use the following tags here: √ what I already know + what was new for me ? what I want to know - what was in contrast to what I originally thought

Step 2	Brief description of the activity	Finally, the students write down their notes in a structured way in the INSERT table to sort out the key information obtained from the text (Attachment 2). Together you can summarize and discuss what was written down and clarify remaining issues, if needed.
	Instruction (what you need to tell the students)	When you have read the text, fill in the table from Attachment 2. In the columns, write down what you have marked in the text.
Tools for the activity (everything you need to take to the classroom)		Pen, paper, text from Attachment 1 and table from Attachment 2 for each student.
Estimated time (max. 40 min.)		15 min.
Notes		On a whiteboard, flipchart, or any other visible place in the classroom, have INSERT tags written down with a description: √ what I already know + what was new for me ? what I want to know - what was in contrast to what I originally thought

Activity No. 3   Part of the lesson: **REFLECTION**

The aim of the activity: Affirmation of the knowledge acquired about tachograph, relfecting on it using three – phase talk method and lift pitch method.

Step 1	Brief description of the activity	Three – phase talk method: Students create groups with 3 people in each with the following roles: • one person asking questions about tachograph • second person answering the questions • third person writes down the notes - recording the answers that are told Time 3 +1 minutes and than exchange of roles follows until each person had each role.
	Instruction (what you need to tell the students)	Divide into the groups of three people in each. In each trio, choose the interviewee, the questioner, and the writer. After a while, you will exchange roles with each other so that each of you is gradually asked, even the questioner and the writer. Your task is asking the questions about tachograph, answering them and writing the notes to confirm that you have understood the subject and at the same time getting feedback to what you learnt. If you need to, you can use the text that you read in the previous activity.
Step 2	Brief description of the activity	Lift pitch method: Two students are selected who simulate the situation, one is a customer, the other is a seller, and they are in the lift. In 30 seconds, the dealer should persuade the customer to take part in digital tachograph training, argumenting on why it is good. By doing this activity students understand the meaning and importance of complying with the rules of the international road driver.
	Instruction (what you need to tell the students)	You have 30 sec. to convince the customer to participate in digital tachograph training. Present your dialogue to the class.
Tools for the activity (everything you need to take to the classroom)		Paper, pen

Estimated time (max. 40 min.)	10 - 15 min
Notes	

Annex 1

Source and more information can be found at:

https://fleetgo.com/tachograph/what-is-a-digital-tachograph/

What are Tachographs?

A digital tachograph is a radio-sized device fitted on goods and passenger vehicles. The tachograph digitally records various types of driver and vehicle data such as journey distance, speed, driving time and driver's activity. The data is stored in the vehicle unit memory and on driver cards. The leading European tachograph brands are VDO (Siemens), Stoneridge, Intellic and Actia.

When is a Digital Tachograph Mandatory?

The installation of a digital tachograph has been mandatory for new vehicles brought into service from May 1st, 2006, as well as for the replacement of an analogue tachograph that has broken down on vehicles transporting passengers over 9 seats and on vehicles over 3.5 tonnes registered since January 1st, 2003 if technically feasible.

How does a Digital Tachograph Work?

Digital tachographs consist of the vehicle unit, motion sensor and tachograph cards. The vehicle unit is the mother brain of the tachograph, it has a processor, a clock, two card slots, a display, a printer, a download connector and a controller for manual entries.

The vehicle unit is located in the driver's area of the cabin. The motion or speed sensor is located on the gearbox. The sender unit produces electronic pulses as the gearbox output shaft turns. The encrypted signals are sent to the vehicle unit where they are recorded.

What does a Digital Tachograph record?

A digital tachograph collects and stores the following data:

- Date Vehicle registration number
- Vehicle speed
- Single or co-driver
- Number of times a driver card is inserted each day
- Distance travelled by the driver, captured via odometer
- Driver activity (driving, rest, breaks, other activities, availability)
- Date and time of activity change
- Events (over speeding, driving without a driver card, tampering, fraud attempts) and errors
- Enforcement checks
- Details of tachograph calibrations

.DDD Files

Data is stored as a .ddd file that can be imported into tachograph analysis software. In Spain and France the .ddd files have different formats. In Spain the digital tachograph files format is .tgd and in France there are 2 types of digital tachograph file formats: the vehicle information is stored in the V1B format and the driver data is stored in the C1B format.

Remote Tacho Download

The Remote Tacho Download solution has been designed in order to unburden fleet managers by automating the download of digital tachograph files. Instead of manually downloading tachograph and driver data from the vehicle, our solution enables the fleet manager to see all digital tachograph files in one single platform. Data is sent via our control unit directly into the platform. All files are check on completeness and integrity so you always know if your archive meets the EU-regulations.

Learn more about <u>The Remote Tacho Download!</u>

Types of Tachograph Cards

Data can be locked in the tachograph unit by using a company card. This ensures that the data cannot be retrieved by another company if the vehicle changes ownership. All data can still be retrieved by use of a control card or a workshop card. There are four types of tachograph cards. The driver card, the control card, the workshop card and the company card. Driver cards are used by drivers to record driving, rest and activity information. Control cards are used by law enforcement agencies to retrieve data from the tachograph. A control card is able to override any company lock put in place by operators. Workshop cards are used by authorised and official tachograph technicians to calibrate, install or repair tachographs. Company cards are used by operators to retrieve data from the tachograph regarding their employees and vehicles. Companies can also lock information using their company card or authorise third parties, including telematic providers, to collect data.

Tachograph Modes

The tachograph allows 4 different modes: driving, other activities, rest and availability. The 'driving mode' is activated automatically when the vehicle is in motion. The digital tachograph usually chooses the 'other work' mode automatically upon coming to a standstill. The 'rest' and 'availability' modes can be manually selected by the driver whilst stationary. The tachograph symbols display the current tachograph mode. The activity information is stored in the tachograph unit's internal memory and simultaneously onto the digital driver card chip whilst it is inserted into the head of the tachograph. When either memory bank is full, the oldest data is automatically overwritten with the current data. This is one of the reasons why companies use digital tachograph download solutions which allow them to store tachograph data as long as they want to.

Other sources:

https://dtc.jrc.ec.europa.eu/
https://en.wikipedia.org/wiki/Tachograph

Annex 2

„INSERT" table, TACHOGRAPH

√ what I already know	+ what was new for me	? what I want to know	- what was in contrast to what I originally thought

Annex 2

NOTES:

The opinions presented in this document are the views of the STEP AHEAD II project partnership and do not have to express the opinions of the EU.