

ACTIVATING TEACHING METHODS BASED ON E-A-R METHODOLOGY

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Activating teaching methods used within E – A – R methodology (evocation – appreciation – reflection)

- **Free typing**

Try to write down everything you know about Write all that comes to your mind, use all the time you get, don't stop writing even if you think you already wrote everything – if so, write what would you be interested in with relation to the topic and what would you like to know... just keep writing.

You've got 3 minutes to do it.

Free typing is usually used in the beginning of the lesson / in EVOCATION phase, with the aim to evoke already existing knowledge/providing introduction to the topic, while students retrieve what they know about it..

REMEMBER: basically there is no topic that students wouldn't have any information about at all, there is always at least someone who knows something...teacher's task is to help students retrieve their knowledge and, later on, build on it

Example: Try to write down everything you know about „*electric batteries*“...

- **K – W – L (Know, Want to know, Learnt)**

Step 1: Work in pairs/individually/groups. On a piece of paper, draw a table with 3 columns. Into a first column, write what you already know about the topic/eg., Those who want to, can read what they wrote. Teacher or students can add their notes also on a board, where all the information written can be summarized.

Step 2: into the second column write what would you like to know...For now, leave the third column empty.

I KNOW	I WANT TO KNOW	I LEARNT

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You've got the list of information written in the first two columns. Those who want to, can read what they wrote. If you hear any information that is missing in your table, you can add it to yours.

Step 3: Now, read the text or watch the video...

After reading, please fill in the third column „I LEARNT“ with an information that was new for you.

Check whether all your questions in the table in „ I WANT TO KNOW“ column were answered. If they weren't, you can find the information to answer them on internet, in a textbook, nearby workshop, by professional etc (at school or at home) and add them.

K = „I KNOW“

W = „I WANT TO/WOULD LIKE TO KNOW“

L = „I LEARNT“

K – W – L is an effective method for structuring the knowledge

It has 3 phases

- a) K= students seek what they know about the topic
- b) W = students specify what they want to know/learn and form the questions
- c) L = students define what they learnt and want to remember

As a support tool, you use the 3 columned - table and the text to work with

This method can be used for individual work, work in pairs or groups, you can fill in the table also in a plenary and gradually add information into it. It can be written down by teacher, student or group leader. Each group can work on the same or on the different parts of the text. The findings from all groups can be written and summarized in one table.

By itself it covers all three stages of a lesson – EVOCATION, APPRECIATION AND REFLECTION

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- **Unfinished sentences**

Finish the sentences:

- *Trucks have become safer with safety technologies such as ...*
 - *Trucks become more fuel efficient if ...*
 - *Potential strategies for curtailing greenhouse gases are:*
 - *If I should decide what type of car using alternative fuels I should buy, I would go for because...*
- Etc.*

Activity can be used for reflection, at the end of the lesson, in the 3rd phase, or sometimes as a part of 2nd phase – appreciation.

- **Brainstorming**

What comes to your mind when you hear the word „emissions“?

Tell everything that comes to your mind, without any limitations...

Together we will write down the notes on a flipchart...

Brainstorming can be used in many different ways, spoken or written form, as individual, pair or group work...similarly to free typing, it can make an effective opening of a lesson, helping to find out, what students already know about the topic and increase their interest and motivation for learning. To be really effective, it shouldn't take more than 8 – 10 min.max, including summary.

- **INSERT**

You will work individually, using the text on Emissions:

Mark one concrete information per text paragraph that you consider important

Mark selected information with specific mark. If working with your notebook, you can use different colours for specific marks.

✓ I knew

+ new information

? I want to/need to clarify this

- In contradiction with what I thought

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effective method for working with the text, helps structuring the information, making the learning process easier

only one concrete information per concrete text paragraph should be selected and marked – students in this way learn to select what is important

using following (or other) marks:

- ✓ I knew
- + new information
- ? Need to clarify
- Contradictory to what I thought

similar to K – W – L, with the possibility to write down the notes to the table with 4 columns (✓ + ? -) ...

✓ I knew	+ new information	? Need to clarify	- Contradictory to what I thought

It is effective for group work but also very much for individual work with the text

Results can be summarised in plenary or students can discuss in pairs. You can use less marks for the work with the text, depending on the level of students.

- **Three phase talk**

Students in the groups of 3 share following roles:

A: the one who is asking (doesn't explain anything, supports the person B to find out the answers, asking opened questions)

B: the one who answers (who is asked)

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C: notes writer/recording what is said (writing down key facts)

They set up and ask questions, answer them and write down the notes, while each team member changes in all 3 roles /positions. The questions concern the theme presented on a lesson.

TIME: 4 + 1 min. / change of the roles

- **Mind Map**

Work in groups. From the text concerning „distribution and work planning“ create a mind map.

You'll get flip paper and marker for each group.

Students can write, draw, use pictures, trying to explain the correlations among them as if they wanted to teach the topic to someone else, who doesn't know anything about it

It teaches not only the terminology/statements/concepts but also relations between them. Mind map can be used in the second phase of the lesson/appreciation, in order to deepen the understanding of the topic or in the reflection part, at the end, when students can reflect on what they learnt.

- **Reverse brainstorming**

Or how to reverse something...functionality, process, ...

What would need to be done to increase emissions by a) personal cars, b) trucks, c) busses? Go into details in your thinking.. (technically – components, processes, regulations...?)

By the end of reverse brainstorming you can turn collected ideas into positive brainstorming and summarize...can be used as a reflection part/at the end of the lesson

Think of and develop your own questions by reverse brainstorming. It is recommended to be used in a final part of the lesson (3rd phase), in reflection, or in the 2nd, appreciation.

- **T – graph/sorting the concepts**

Work in groups. Think what PLUSSES and what MINUSES has a typical European tractor trailer truck

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+ (FACTS FOR/IN FAVOUR)	- (FACTS AGAINST)

Sorting the concepts using T – graph can be used as a second step of phase 1 of the lesson – evocation, as a part of appreciation, and possibly also in the third part, when reflection is expected.

- **Moving/shifting flips**

On a flip paper write down how:

GROUP 1: Distribution and work planning is arranged in....

GROUP 2: Tachograph functions

GROUP 3: API operates

After finishing writing down, each groups passes their paper to the next group, who adds their notes/comments.

Shifting flips is a good method to use in appreciation phase, when the deeper understanding of knowledge needs to be supported or in a final phase, reflection, when students can think about what they learnt and reflect on it while putting their notes on a paper, shifting it to the others.

- **Multiple entry diary**

Read a text and write down with your own words requested information to the table. Try to generalise your ideas...

	VECTO	DIESEL CARS	ZERO EMISSION VEHICLES
positives			
negatives			
Prognoses to the future			

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Multiple entry diary is a handy method to use when working with a texts that allows structuring the knowledge according to categories combined with other criteria. It can be used in appreciation phase, when deepening of the knowledge is expected.

- **Mysterious questions based on associative thinking**

The question should sound a bit unusual, drawing the interest of students, evoking associations, with the possibility to generate as many ideas as possible, encouraging the learning process, as the ideas that will be told will be remembered by students...In using this method, the process of generating ideas/possible answers by students is much more important than the answer as such...

*Example of good associative question: What does a human body, leaf of a plant and Tesla car have in common?
The answer: They could not exist without a cell...*

(on the lesson you will be introducing the topic of electric batteries cells)

Mysterious questions, based on associative thinking, can make a nice and interesting introduction to the topic you want to teach, and are recommended to be used in the first phase of the lesson – evocation part.

- **SWOT analysis**

Read the text Analyse it in pairs and write the information you gained in the table with 4 categories:

- *Strenghts/Plusses*
- *Weaknesses/Minuses*
- *Opportunities*
- *Threats*

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Strengths	Weaknesses
Opportunities	Threats

SWOT analyses can be used in the second phase of the lesson – appreciation when deepening the knowledge or as first step of reflection phase, after which some other methods can be added for concluding the reflection process.

• Debates

Debates are nice to use in relation to the topics, that need a discussion or where contradictory approaches are common. Students can be divided into small groups and each group may represent one opinion which they need to prepare arguments for.

Eg. The employer - car company wants to change the production from the cars using petrol to the electric and hybrid ones.

Group 1 are the employees who used to produce only petrol cars, who will loose their jobs if change will come

Group 2 are town council members, who....

Group 3 are climate activists supporting complete stopping of production

.... develop the arguments for each group..trying to come to a conclusion...

• Lift pitch

You´ve got 30 seconds to persuade someone to...eg. buy a car using:

- *CNG/LNG*
- *LPG*
- *biomass*
- *helium*

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Lift pitch is a good method for the end of the appreciation/2nd phase of the lesson or for the third phase, reflection. In addition to helping reflect on a topic, it can support students' communication skills. In lift pitch, you can give students 3 minutes for preparation of arguments, but than 30 seconds rule for arguing should be kept.

- **Problem – based teaching**

Assign a problem that students need to solve, eg. electric battery started to make strange noises during the drive...what can be the problem??? etc..

- **Questionstorming**

similar to brainstorming, but students don't come up with the solutions/answers but ask questions about a problem...eg...

- **Peer to peer**

learning from each other – explaining the others the topic....“you learn the most effectively when you teach others“ principle...

- **Snow ball**

layering the information – starting with the basic one – eg. different parts of the text read in pairs, than in groups of 4, getting a more complex text

Groups of 8, putting the different parts of the text together,

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