

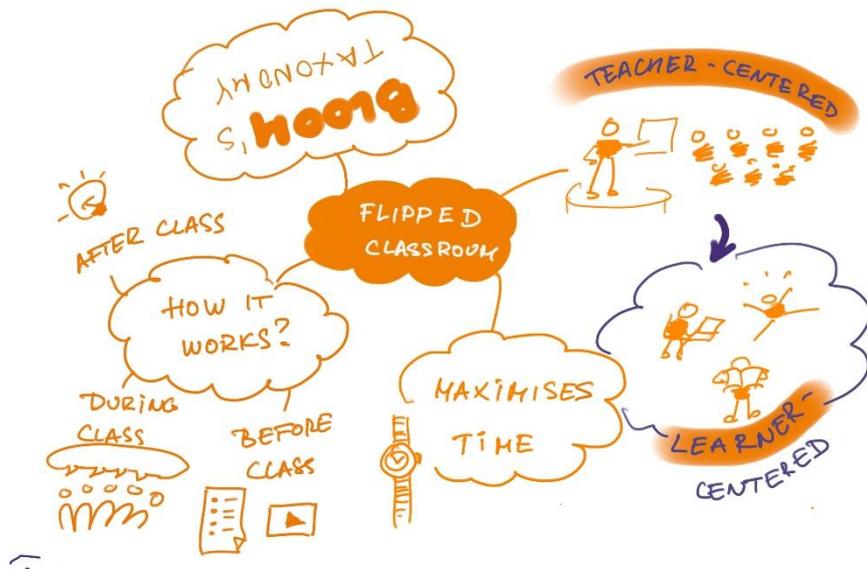
Name of the method	Mind Mapping Learning styles: reading & writing, visual, kinesthetic
Origin or ownership of the method	Its origins are lost in time but its standardized form was given by British psychology author Tony Buzan (in the 1960s) after looking into some geniuses' notes. He noticed that all of them shared at least one common feature: the radial display of ideas linked to a central topic. He also discovered that they used keywords, pictures, doodles, associations or diagrams instead of sentences. He encouraged the use of mind maps in the teaching/learning processes arguing that this is the natural way our brain works: by making use of association and imagination and usually preferring to scan a page radially.
How the method corresponds to the common guiding principles of GRT	<p>The GRT project aims at:</p> <ul style="list-style-type: none"> • supporting teachers in establishing creative and innovative learning environments • improving students' involvement in classes; thus, it tackles the school drop-out phenomenon <p>A mind map is a creativity boosting tool. It encourages brainstorming and stimulates students to give vent to their imagination. In addition, a mind map engages students in their learning processes and teaches them how to learn. A mind map is a tool used to stimulate and challenge students. When they are mind mapping they use a wide range of intellectual skills, involving both sides of the brain. Students are asked to recall, understand, analyze, synthesize, and generate new ideas. The brain thinks by imagination and association, which a mind map constructively uses. When associations are created, connections are made. Imagination and Association trigger images that will help students to remember things. Images can be more powerful and precise than words, enhancing creative thinking and memory.</p>
Preparation needed for implementation of the method	Considering the scientific content through the method. Discussions with the students if needed.
Materials needed	Off-line setting: <ul style="list-style-type: none"> • White paper or a white board • Black (or colorful) markers Online setting: <ul style="list-style-type: none"> • Tablet • Simple drawing software

Additional staff support needed or combinations with other scientific topics (optional)	Not applicable
Method description	<p>A mind map is https://www.mindmeister.com/ Mind maps are used to visualize, classify and organize ideas. Mind maps are perfect for classroom handouts helping students to take notes, review knowledge, prepare a presentation, an essay/ a report, organize projects, make decisions and solve problems. Mind maps can be used at any stage of the lessons encouraging brainstorming and generating discussions. Mind maps help students learn and understand concepts by showing not only the big picture of a concept with its details in context but also connections between the ideas. They are especially useful for visual learners, such as dyslexic students, who may feel demotivated when being given information in linear format.</p> <p>Uses of mind maps</p> <ul style="list-style-type: none"> ● Brainstorming (individually or in groups) ● Presenting information ● Organizing information graphically ● Note-taking ● Problem-solving ● Studying and memorization ● Planning ● Researching information from multiple sources ● Organizing/Learning vocabulary/grammar ● Writing essays
Detailed instructions	<p>Students:</p> <ul style="list-style-type: none"> ● Choose a word/ phrase that best represents the topic. ● Write the word that represents the topic. Circle that keyword. ● Create branches from that keyword and write new words (sub-topics) that they associate with the topic. ● Create sub-branches that stem from the main branches to further expand on ideas and concepts. These sub-branches also comprise words that develop the topic. Students can use different colors and images. They can personalize their mind map with their own symbols and designs. <p>Mind maps can be drawn on paper or created by using mind mapping software.</p> <p>Mind mapping instructional video:</p>

	 <p>https://youtu.be/_08bkmHudYM</p>
<p>Experiments, conducted in the different schools, involved in the project</p>	<p>The method was tested with 19 students in Romania from Școala Gimnazială "Elena Cuza" and scoala EuroEd.</p> <p>The feedback received was as follows: When asked how they felt during the modified lessons, the students answered: comfortable (12), relaxed (4), stressed (1), bored (1).</p> <p>When asked whether the method helped them better understand the material, 17 out of 19 answer YES.</p> <p>When asked whether they feel more motivated to learn the subject as a result of the lesson, 15 out of 19 answer YES.</p> <p>When asked whether they would like to have more lessons like this in the future, all answered YES.</p> <p>When asked whether the modified lessons were distracting only 4 out of 19 answered positively.</p> <p>The overall evaluation of this approach to adaptation of lesson plans is highly positive and the tool is a recommended one.</p> <p>Another test was done in Greece by Maria Stalia with 35 6th graders. Check out the adaptation and testing report of My city in numbers (English - Social studies). The students participated very enthusiastically in all the tasks and enjoyed learning through brainstorming, discovery, collaboration and artwork. Students claimed they would prefer to have more lessons of this kind. The students did an entry and exit Quizziz (following a mix of recommendation from future classroom and storytelling methodology) and their results were impressive.</p>



An example of a mindmap on flipped classroom:



Lessons that have been adapted with the tool:

- Elena Bulai+N. Iorga School RO_Mathematics_Mindmapping
- Grozavu Florentin_Eminescu_Geography_Mindmapping
- Marieta Condrea_Alecsandri School RO_Biology_Mindmapping
- Mihaela Ionescu_Alecsandri School RO_Mathematics_Mindmapping
- Maria Stalia 27th primary school of Thessaloniki Greece

Evaluation tools

Questions, which a teacher can use in order to monitor his/her progress with this tool and establish its usefulness and feasibility:

Is it hard to establish a routine of using the proposed method?

Have you noticed improved results after you introduced mind mapping in your work? By improved results we mean more aware



	<p><i>students, who have a better and clearer idea of: the process they need to go through in order achieve certain results or obtain certain information; the details around a central scientific topic, which they are studying?</i></p> <p><i>Have you observed changes in the students' interest towards the subject and their engagement with classwork and homework? If yes, what were they?</i></p> <p><i>Have you observed an increased interest and desire to organize their own manner of thinking and working via mind mapping?</i></p>
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