METHODOLOGIES

FLIPPED CLASSROOM

A flipped classroom is a reversed teaching model that delivers instruction at home through interactive, teacher-created videos and moves "homework" to the classroom. Moving lectures outside of the classroom allows teachers to spend more 1:1 time with each student. Students have the opportunity to ask questions and work through problems with the guidance of their teachers and the support of their peers – creating a collaborative learning environment."

Benefits of the Flipped Classroom:

- Students can move through the materials at their own pace. They can revisit materials they have not mastered.

- Students learn through activity in the classroom instead of listening to a largely passive lecture.

- This frees up the lecturers time for more 1:1 time with students who need the most help. Peer tutoring facilitated.

- Can be implemented so that the instructor has a good idea who is prepared for class, along with which students are struggling and what concepts or tools they are struggling with.

- Students who have mastered the material can be paired up with students who are struggling. Difficult materials can be reviewed.

PROJECT BASED LEARNING (PBL)

Project Based Learning is a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging and complex question, problem, or challenge. Projects are focused on student learning goals and include Essential Project Design Elements:

- **Key Knowledge, Understanding, and Success Skills** - The project is focused on student learning goals, including standards-based content and skills such as critical thinking/problem solving, communication, collaboration, and self-management.

- **Challenging Problem or Question** - The project is framed by a meaningful problem to solve or a question to answer, at the appropriate level of challenge.

- **Sustained Inquiry** - Students engage in a rigorous, extended process of asking questions, finding resources, and applying information.

- **Authenticity** - The project features real-world context, tasks and tools, quality standards, or impact – or speaks to students' personal concerns, interests, and issues in their lives.

- **Student Voice & Choice** - Students make some decisions about the project, including how they work and what they create.

- **Reflection** - Students and teachers reflect on learning, the effectiveness of their inquiry and project activities, the quality of student work, obstacles and how to overcome them.

- **Critique & Revision** - Students give, receive, and use feedback to improve their process and products.
- **Public Product** - Students make their project work public by explaining, displaying and/or presenting it to people beyond the classroom.

COOPERATIVE LEARNING

Cooperative learning is an educational approach which aims to organize classroom activities into academic and social learning experiences. There is much more to cooperative learning than merely arranging students into groups, and it has been described as "structuring positive interdependence." Students must work in groups to complete tasks collectively toward academic goals.

Unlike individual learning, which can be competitive in nature, students learning cooperatively can capitalize on one another's resources and skills (asking one another for information, evaluating one another's ideas, monitoring one another's work, etc.).

Furthermore, the teacher's role changes from giving information to facilitating students' learning. Everyone succeeds when the group succeeds.

Five essential elements are identified for the successful incorporation of cooperative learning in the classroom:
- positive interdependence
- individual and group accountability
- promotive interaction (face to face)
- teaching the students the required interpersonal and small group skills
- group processing.

GAMIFICATION

The **gamification of learning** is an educational approach to motivate students to learn by using video game design and game elements in learning environments. The goal is to maximize enjoyment and engagement through capturing the interest of learners and inspiring them to continue learning.

Gamification, broadly defined, is the process of defining the elements which comprise games that make those games fun and motivate players to continue playing, and using those same elements in a non-game context to influence behaviour. Games applied in learning can be considered as serious games, where the learning experience is centred around serious stories. The serious story is "impressive in quality" and "part of a thoughtful process" to achieve learning goals.

The **gamification of learning** is an educational approach to motivate students to learn by using video game design and game elements in learning environments.The goal is to maximize enjoyment and engagement through capturing the interest of learners and inspiring them to continue learning. Gamification, broadly defined, is the process of defining the elements which comprise games that make those games fun and motivate

players to continue playing, and using those same elements in a non-game context to influence behaviour. Games applied in learning can be considered as serious games, where the learning experience is centred around serious stories. The serious story is "impressive in quality" and "part of a thoughtful process" to achieve learning goals.

CRITICAL THINKING-BASED LEARNING

The ability to evaluate and analyse a situation by applying critical reasoning is a crucial skill in everyday life, as well as in education. It is one of the basic competences which requires to accept and check various hypothesis, analyze different opinions, accept justified solutions, give arguments.
Today's education is impossible to imagine without critical thinking-based learning and teaching. Every teacher should look for possible ways to apply this method in every lesson.

What exactly is **critical thinking-based learning**?
• learning to think independently, personally and individually. Every person has to be able to think based on their peronal experience, thus gaining new knowlegde, thinking through the existing knowledge, drawing conclusions.
• learning through asking questions and analysing problems. Students have to learn to express their opinion, ideas, justify them, ask questions and analyse the ideas presented by other people.

Critical thinking-based learning encourages students to doubt widely accepted ideas, to pose questions and look for the answers to those questions. It also helps students to create their own original ideas, evaluate the context and the thinking process.
Teaching critical thinking skills should not require extra time of the lesson. All the teachers need are curious and open-minded students, who are ready to start thinking independently.

PROBLEM-BASED LEARNING

Problem-based learning is a method in which students learn about the subject through the experience of solving an open-ended problem with no one right answer. This method is usually applied in small collaborative groups of students where they become active investigators of the problem. After a tutor presents an unfamiliar problem, task or situation, students have to figure out how they are going to solve it. Working in groups and trying to solve the problem helps the students to find out their knowledge in the topic area and identify the gaps on their knowledge. This method encourages students to apply knowledge to new situations rather than test their knowledge during different tests.

Problem-based learning includes:
• working in groups, discussing the problem, clarifying the facts, defining the what the problem is, brainstorming ideas on presented problem, identifying what they need to learn, what they do not know;
• independent reasearch of the learning material;
• sharing the material, peer teaching, working together in order to solve the problem;
• proposing the solution to the problem and reflecting on the learning process.

Problem-based learning can:
-         develop critical thinking and creative skills;
-         increase motivation;

SKILLS-BASED LEARNING

Both knowledge and skills are essential things in today's education. One cannot exist without the other, but in our modern fast moving world students require to know how to apply the knowledge they have gained during the lessons. And teaching skills at school becomes a very important part of education.
It is proved that students find it more effective to remember the things when they have an opportunity to use skills to access, process and express the knowledge they have gained in the lessons. It is always better to actively participate in the lesson, trying to find out the answers or put the theory in practice rather than just listen to a lecture.

We should follow a simple pattern of **Tell-Show-Do-Check** while using this method in the lessons:

Tell – tell or exlpain the students what they are going to do;
Show –demonstrate how certain things should be done;
Do – let the students try to do thing on their own;
Check – always keep an eye on how students do the task and correct if necessary;

Skills-based learning can help students to succeed in education and develop life skills. Interaction and teamwork are the skills which will benefit the most from this learning method.
The teachers should not forget to focus on how the topic can help the children to develop and learn certain skills.