

Triseum Pilot: Future Classroom Scenario

Title of the scenario:

Law of Limits

Names of author(s)

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Relevant Trends/s

Write the trend(s) or trends the Scenario is intended to respond to.

e.g. <http://www.allourideas.org/trendiez/results>

→ **Game Based Learning**

Games are effective partly because the learning takes place within a meaningful context. The subject matter is directly related to the environment in which students/players learn. As such, the knowledge gained is not only relevant but applied and practiced within that context (Richard Van Eck, 2006)

Game based learning involves the use of computer and video games specifically aimed to produce learning outcomes. It is designed to balance subject matter and gameplay, and later assesses the ability of the learner to retain and apply the acquired knowledge to real-world scenarios.

→ **Edutainment: playful learning. Learning while having fun.**

Games that are fun to play significantly improve learning performance. When students have fun, the learning pressure dissipates, allowing them to freely define and modify their strategies according to a specific goal.

→ **Peer Learning: students learn from peers and give each other feedback.**

→ **Student Centered Learning: students and their needs are at the centre of the learning process.**

→ **Visual Search & Learning: images and multimedia are more powerful than verbal stimuli.**

→ **Flipped classroom**

Learning Objectives and Assessment

What are the main objectives? What skills will the learner develop and demonstrate within the scenario? (e.g. 21st Century Skills). How will the progress in achievement be assessed, ensuring the learner has access to information on their progress so they can improve?

Main Objectives :

- Increasing activity of students in learning mathematics
- Changing the behavior
- Achieving new skills
- Learning new knowledge

Developing learners' soft skills: the students develop their soft skills through project-based work, including presentation, planning, and teamwork. Giving students independence and ownership over their learning: enhancing students' engagement with the task, and helping to foster their sense of personal responsibility.

By playing educational games, students cultivate basic skills needed in STEM professions (problem solving, analytical and critical thinking, creativity, spirit of research, exploration, self-motivation, etc) and get nearer to a successful STEM career.

Students demonstrate mathematical knowledge in classroom that they have studied through Triseum Variant Limit to other students, they discuss with them prior knowledge, they create graphs of functions for asking questions based on the game, and they collaborate each other for making explanations.

The teacher takes notes and he/she uses both, the rubric of assessment skills and the inquiry learning process. Finally, interviews with the whole class are taken as a method of measuring attitudes through games. [Assessment Form](#)

Learner's Role

What sort of activities will the learner be involved in?

Students are divided in two basic groups. The first group is working (out of school hours) in Puzzles and Zones of the Triseum's Variant Limits This first group has to take the mentor role for the second group due to the lack of experience of the second group in Triseum based learning and knowledge in limits of functions. The first group demonstrates and presents the mathematical knowledge through the print screen of the Triseum game. Both groups collaborate, discuss and take an active role in the educational approach in learning the law of limits in functions through their classmates. The progression is supported by the teacher in the classroom, who gives directions for resuming the basic results and conclusions in limits of law. In this scenario students play the Triseum's game Variant: Limits; they explore; investigate how to learn mathematical knowledge; they search for further exercises and theory; they give explanations; they resume the results and finally they take the role of mentor for their classmates. ([Photographs of students as mentors to their classmates](#))

Tools and Resources

What resources, particularly technologies, will be required?

- Download the software Variant Limits of Triseum <https://triseum.com/variant-limits/>
- Download the software geogebra (www.geogebra.org)
- Projector
- [eBook as educational recourse](#) (example in Greek)
- More exercises in limits law

Learning space

Where will the learning take place e.g. school classroom, local library, museum, outdoors, in an online space?

- School classroom as space for peer learning educational process
- Computer laboratory or computer devices for working out of school.

Future Classroom Scenario Narrative

Describe the main ideas of the scenario.

The main mathematical topic of this scenario is the basic limit laws of addition, multiplication, and division to determine the behavior of functions ([Zone 2](#)). The approach of “learning by others” focusing on an effective classroom, where students develop numerous of 21st century skills is used. Students take the role of mentors to demonstrate and share mathematical knowledge that they have studied via Triseum’s Variant: Limits. The teacher controls the steps of progression, influencing learning by posing challenging and interesting questions. The teacher poses questions that not only stimulate students’ innate curiosity, but also encourages them to investigate further. This way, teacher challenges students to think deeply about the mathematical knowledge, encourage them to explain their exploration, motivate them to come up with their solution and ask why they have chosen that solution. Worksheets with exercises in law of limits are used for practice. Educational software Geogebra is used to transform the graphical representation into Algebrain and to write conclusions and results.

Learning Activities

Link to the Learning Activities created with Learning Designer (<http://learningdesigner.org>)

<https://v.gd/yeWmHh>

References

- Algebra Readiness, Cycle 1, *The Effective Mathematics Classroom*
- Richard Van Eck (2006). ‘*Digital Game-Based Learning: It’s Not Just the Digital Natives Who Are Restless*’. This article will be published in EDUCAUSE Review, vol. 41, no. 2 (March/April 2006) Available from:
- https://www.researchgate.net/publication/242513283_Digital_Game_Based_LEARNING_It%27s_Not_Just_the_Digital_Natives_Who_Are_Restless [accessed May 10 2018].

This Future Classroom Scenario has been developed as part of the Triseum Pilot project. Find more Future Classroom Scenarios in the Future Classroom Lab website (<http://fcl.eun.org/directory>) and learn how to create your own scenarios by using the Future Classroom Toolkit (<http://fcl.eun.org/toolkit>).



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