Triseum Pilot: Future Classroom Scenario

Title of the scenario:

Approaching the concept of Limits of Functions

Names of author(s)

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Relevant Trend/s

Write the trend(s) or trends the Scenario is intended to respond to.
e.g. http://www.allourideas.org/trendiez/results

E-learning in mathematics is becoming more and more popular, and it opens the door to a world of mathematics that is fun and exciting.

Game Based Learning

Digital Literacy:

Creating a digital literacy curriculum can be based on students' developmental stages, and educators should be cognizant of both the risks (such as distractions) and myriad learning opportunities that technology integration and utilization in the classroom may provide.

Flipped classroom

A flipped classroom is an instructional strategy and a type of blended learning that reverses the traditional learning environment by delivering instructional content, outside of the classroom. In a flipped classroom, students watch online lectures, collaborate and carry out research at home while engaging in concepts in the classroom via playing games.

Learning by doing mathematics in Games

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?

The objectives and the methodology of this scenario **follow the inspiration of the Future Classroom Lab spaces.**

Investigate

- Inquiry-based learning to enhance students' critical thinking skills.
- Students become active researchers: research across varied media (text-based, video, audio, images, numbers, etc.)
- Learning by exploring: students can construct models, test ideas and evaluate the results themselves.

Create

- ❖ Giving students independence and ownership over their learning: enhancing students' engagement with the task, and helping to foster their sense of personal responsibility.
- ❖ Learning by creating: the learners are actively involved in producing and creating their own content. This allows learners to exercise their imaginations, and to innovate.

Present

- ❖ Learning to share and communicate: just as important as carrying out interesting work is the sharing of the results.

Interact

- ❖ Rearranging physical space for their own learning

Exchange

- ❖ Learning by playing: playing is common to all children. Digital games and simulations can be used to introduce more engaging learning.

Develop

- ❖ Allowing for an informal environment: the informal learning space at the school can be a more home-like environment, allowing for a more relaxed and non-monitored space.

Learning objectives covered:

Given the graph of a function, the learner will be able to approximate the limit of the function as x approaches a given value.

Learner's Role

What sort of activities will the learner be involved in?

- ➔ Students as players of mathematical games for learning mathematics.
- ➔ Students play games, explore, investigate and make conclusions as active participants rather than passive listeners.
- ➔ Teachers observe the process through to game analytics that allow instructors to monitor student activity and provide insight.

Tools and Resources

What resources, particularly technologies, will be required?

Download the software Variant Limits of Triseum https://triseum.com/variant-limits/

E-learning resources included the quizzes.

- Online Course 1 by https://www.khanacademy.org/
- https://www.khanacademy.org/math/ap-calculus-ab/ab-limits-continuity/ab-limits-numerically/v/approximating-limit-from-table
- https://www.khanacademy.org/math/ap-calculus-ab/ab-limits-continuity/ab-one-sided-limits/v/one-sided-limits-from-graphs

Learning space

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

Outdoor of school classroom (in their own space)

Future Classroom Scenario Narrative

Describe the main ideas of the scenario.

This scenario referrers to Zone 1 of Triseum Variant Limits and it uses the methodology of flipped classroom for students to learn the concept of limits in functions. Additional e-learning resources (video) support the step of Puzzles in the Game. Educational Quizzes in mathematics are being used for self-evaluation. In the classroom, students demonstrate their knowledge and their progression in order to improve their scores.

Learning Activities

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

https://v.gd/Wpedn0

References:

- Learning Zones Future Classroom Lab, European SchoolNet 2016

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).