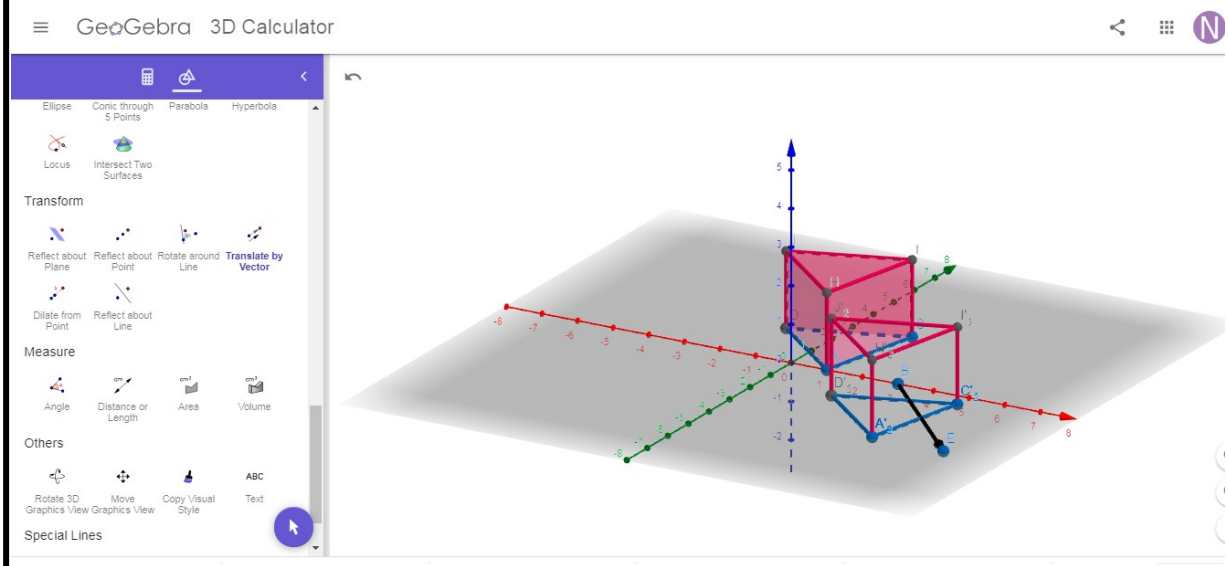
Natalija Budinski	Grade/Age: 15 Topic/Subject area: Translation Duration: 45 minutes Number of the students: 20 Single work/Team work: Individual work	**TEACHER** **Erasmus+ Logifaces** **2019-1-HU01-KA201-0612722019-1**

Description:
Students create different Logifaces using Geogebra. Then they use option of translation and create symmetrical object. That is the way they learn features of translation in 3D space, but also features of vectors. Translation is a geometric transformation that moves every point of an object by the same distance in a given direction.

Solutions/Guidelines/Expectations:
Students have to know basics of Geogebra. Students have to know basics of Geogebra. In Figure we can see use of Geogebra, 3D option, in order to explore translation. We can see Logiface type 222 translated for the given vector.



Prior knowledge:
Students need to know basic of geometry. They need to know what is translation in order to apply it to Logifaces in the Geogebra environment.

Recommendation:
Recommended tool is online Geogebra calculator https://www.geogebra.org/

Connection to other subjects/topics/areas: Technology		
Evaluation	**Please select**	**Comments, suggestions (required if you selected 'improvements suggested')**
Suits age group	14-18	
Estimated time	45 minutes	
Engagement and motivation		
Subject-based learning value	Students learn mathematical concepts trough practical activities.	
Connections to European Key Competence and Skill development		
Student success		
Adequate to a diversity of students		
Inspires creativity	There are various forms of Logifaces so students have different tasks. Also it is up to students to how they will solve the task. Different Logifaces and different vectors gives different solutions.	
Inspires cooperation	Students can compare results, and see what they got using different forms of Logifaces	
(Additional criteria can be added here)		
Task interpretation		
Creativity and material use		
Time utilization		
Motivation grade		
Intertextual learning value		
Creativity and practice connection		
Would you recommend the		

exercise to other teachers?		
Additional tools: Geogebra		