

17.The road to the movement



Title	The road to the movement
Content/ Subject areas	Subjects: Math, Physics, Engineering, Robotics, IT.
Target group	Primary School, 8-10 year old, 15-20 students
Learning objectives / competences	<ol style="list-style-type: none"> 1. To construct the models of the vehicles using educational sets of WeDo2.0 according the instructions and own ideas. 2. To act in programming environment and check models in moving on the different surfaces. 3. To do the tasks and make conclusions. Competences: Mathematical competence Basic competence in science, technology, engineering Creativity Digital competence Learning to learn Cooperation
Description of overall activity	Students construct the models of the vehicles (Lego models) and program them. Students make prognoses and afterwards test the models in different actions, make measurements, compare the prognoses with results, correct the errors and make conclusions.
Description of the process and teaching/ learning strategies used	<ol style="list-style-type: none"> 1. At first students follow instructions and make up models of vehicles using educational sets of robotics WeDo 2.0. Students act both - individually and in pairs. After constructing the models the program is added and models are tested in moving on the different surfaces (linoleum, wooden board floor etc.).Students make prognoses about the speed according to the surface and after testing they make conclusions. Then the models are loaded with weight (some Lego details) and students fix the connections among the speed and the weight, make conclusions (<i>See Worksheet</i>). 2. The second task is to make own model without the instructions provided. The strength of the models are tested in the Sumo fight field against 1-2 models made by other students.. After the Sumo fight students have to ride the models on the balance board. Students verbally raise the hypothesis of model's movement across the balance board and the number of attempts. Students perform the task and in case of failure come up with another solution. If necessary, students correct the errors, carry out improvements to the model and repeat the task.
Evaluation/ types of assessment	For the first task students make self- assessment comparing their prognoses with results gained. Peer-evaluation is conducted through discussion comparing results of different groups and why results are

different. For the second task students make self-assessment on the progress and the reasons for the model performance. In whole group students provide friendly recommendations to other students about mistakes and necessary improvements.

At the end of the activity students individually and in a group assess whether they managed to carry out all the tasks, did they have the ability to make conclusions, did they know how to solve and figure out solutions in case of failure.

Materials and tools	LEGO Education WeDo 2.0, tablet, Lego Sumo field.
Timing and learning environment	4-5 hours Computer room, classroom, school hallway
Conclusion	Students were interested to do all of the tasks but not all of the students were brave enough to make mistakes and show their models. It was interesting to watch students when their models didn't succeed on the balance board and they had to look for the solution for the task. Students were delighted and satisfied after the completing the task. Students got new experience and knowledge.
Contacts	Liga Krumina, Secondary School of Aluksne district likrumina@inbox.lv
Additional information	https://sway.com/PZDHhrSBBY9ITgF0

