CPS: Movement and speed Teacher: Students:year 2 secondary (or year 5 & 6 primary)

Tools : Lego weDO Kit

Carpets of different materials

The difficulty will be acording to Students age

Tasks to develop these competences towards the learning outcomes

1. Explore the different modles of Lego WeDo KIT
2.The construction of Lego models.
3. The testing of the models in action
4. NGSS Standards Defining the problem: What does it depend on whether a car goes faster or slower?. 5. Generate and compare multiple possible solutions to a problem: different types of vehicles
That the vehicles run on different types of soils
6. Students explore : How to build a vehicle that goes faster. What are the essential elements 7. Students set up their own conclusions

Metodology: Learning by doing , active learning . playfull learning, digital literacy

Learning goals - expected leaning outcomes

1. integrate the activities in studens curricular, BLOCK 1. INITIATION TO SCIENTIFIC ACTIVITY

2. To acquire scientific knowledge through practice

3. To implement in teaching the philosofy of NGSS Standards

4. To learn to defining the problem

5. to generate and compare multiple possible solutions to a problem

6. To be able to generate creative solutions

7. To draw their own conclusions and do a report with it.

Learning outputs – through all stages (assessmen

- How to buld a vehicle with Lego We Do , CODING
- How to buld a faster vehicle
- Publication of a scientific report on the speed of a vehicle and the key elements . Students in teams write a scientific report with the support of evidences
- Peer ssessment by rubric (Google Forms).
- Self-assessment of the process, difficulties encountered and results obtained in the "Learning" section.

Skills and competences necessary to reach the expected outcomes

- Transversal Skills
- 1.Informational literacy (AI) .2.Collaboration / Communication (C) .3.Creativity / Innovation (I) .4.Digital literacy (AD) .5.Self learning (AU)
- .Key competences
- 1.Competence in linguistic communication (CCL).
- 2.Mathematical competence and basic skills in science and technology (CMCCT).
- 3. Digital competence (CD) .
- 4.Learning to learn (CAA) .
- 5.Social and civic competences (CSC).
- 6. Sense of initiative and entrepreneurial spirit (CSIEE).
- 7. Awareness and cultural expressions (CCEC).

Transversal Skills

- Creativity
- Programming
- Do a scientific report

Description of the CPS

Personal skills

Creative solution

Content/ Subject areas: STEAM Subjects: Math, Physics, Engineering, Robotics, IT.

Learning objectives / competences:

1. To construct the models of the vehicles using educational sets of WeDo 2.0 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 , set up conclusions and do and scientific report in teams

Competences: Mathematical competence and basic competence in science and technology Creativity Digital competence Learning to learn

Description of overall activity

1.The construction of Lego models

2. CODING

3.The testing of the models in action

4. Calculate the different vehicles speed and set up the conclusions and Students in teams write a scientific report with the support of evidence

5.The realization of the tasks and conclusion

6. Students in teams write a scientific report with the support of evidences

Title: Movement and speed	
Teacher:	**Subjects:** Math, Physics, Engineering, Robotics, IT.
School:	**Class: 2 year of Secondary Year 5/6 primary (dificilty will be acording to the age)**

Phases of the project:

Explore & Understanding

Students using the Ipad and LEGO We Do make vehicle models according instructions using educational sets of robotics WeDo 2.0. Students act both - individually and in pairs. While they learn the activity they are learnIng CODING . Students construct the models with the help of the program and models are tested in moving on the different surfaces linoleum, wooden board floor…

Representing & formulating

The students practice with model and with different types of floor /carpets

Planning & executing

Students make conclusion about the speed according to the surface used

The models are loaded with weight (some Lego details) and students fix the connections among the speed and the weight, make conclusions

Monitoting & reflecting

The second task is to make own model without the instructions provided. The model is tested in the same floor/carpet against another model (2 students in pairs build their models and they do a competition)

Students make the tasks, highlights the hypothesis about the failures, correct the errors and make conclusions

Students Publication of a scientific report on the speed of a vehicle and the key elements and support it with evidences.

Rubrica

Project rubrica				
Student; Project:	1	2	3	4
Discovering my habilities as team member.				
Discovering the collaborative interaction to solve the problem along the tasks and goals				
To defining the problem				
Compare and evaluate competing arguments on design creative solutions				
Identifying and describing the tasks to be completed				
Building creative solutions				
My role enhancing plans and executing				
Monitoring, create & prepairing the shared knowledge				
Monitoring results of actions and evaluating succes on Solving problems				
Wrting and scientifik report based on evidences				

Group assesment

Pair assesment, evaluation by experts , teachers observation notes