KIDS BUILD THEIR KNOWLEDGE AND SKILLS ABOUT THE WORLD THROUGH STEAM

Topic: **Height and Acceleration**

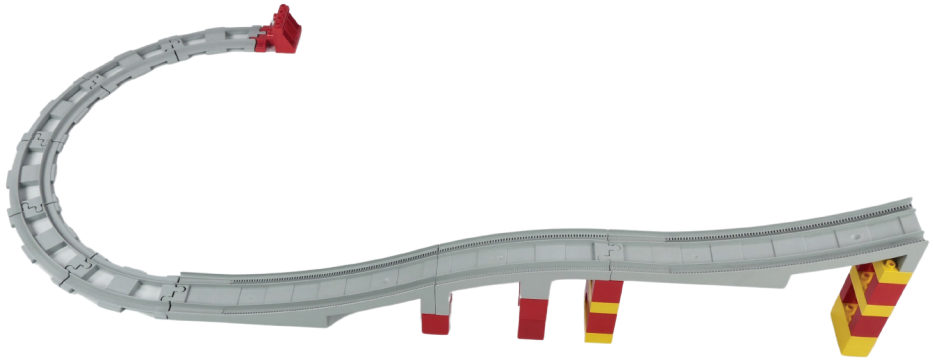
Resources: instruction card 422, one of 423 or 424 and the necessary construction material; six curved rails; one buffer stop; bricks with the numerals 1 and 2; activity card H-2-1; a pencil.

H-2

Funded by the European Union

Activities:

1. The teacher distributes the instruction cards and construction materials to the teams.
2. The teacher gives each team the job of a) building the model car; and b) a two-level ramp that, on reaching the flat, continues as a large circular track that ends in a buffer stop. The children work on these constructions; and the teacher watches to see how they cope with them and helps if necessary.
3. The teacher discusses with the children from which height of the ramp the car will travel the greater distance. It is hypothesized that this will be the higher.
4. The teacher sets the teams an experiment to undertake. They do this by following these instructions:
   - Each team are to place their car at the highest point of the ramp. Then they will let it run down by itself and continue round the curve until it stops.
   - They mark the point at which it stops with numeral brick 1.
   - Next, they are to place the car at the top of the lower level and let it run down again.
   - They mark the point at which it stops with numeral brick 2.
5. The teacher distributes H-2-1 activity cards for recording the results of the experiment. Firstly, the teams must



find their car on the card because they will color the rectangles that refer to it. Each team is to indicate the distance traveled in the first case and second cases by coloring in the corresponding number of track ‘rectangles’, with the help of the teacher if needed.

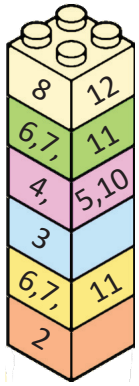
6. The teacher asks the teams to compare the distances travelled and indicate in which situation the car traveled the further. The children, with their teacher, find that this happens when the car starts from the higher level of the ramp.

7. The teacher asks the teams to look at the distances again and find out in which of the cases the car traveled the shorter distance. The children, with the teacher, find that this happens when the car starts from the lower level of the ramp.

8. The children, with the teacher, conclude that the distance traveled is greater when the car descends from a greater height. The teacher explains that this is because it accelerates more. To confirm this, the teacher asks the children look at their cards. They see that the longer path corresponds to the highest level of the ramp and the shorter to the lower level of the ramp.

9. The teacher says that the teams will now exchange their model cars and repeat the experiment. They are to record the results on the activity card.

10. Teams exchange model cars, repeat the experiment with this other type of car and record the results on their card.

11. The teacher asks the teams to compare the results of the first and second experiment and discusses them with the children.

12. The children, with the teacher’s help, confirm their initial conclusion and establish that the relationship is not affected by the type of car