

### The scenario

<b>Subject</b>	<b>Mechanics / Solid Mechanics</b>
<b>Length</b>	3:27
<b>Main objectives</b>	Analyse the properties of the rotating motion of a rigid body, the moment of inertia.
<b>Detailed objectives</b>	
<b>Structure and description of experiments:</b>	
<b>1. Introduction</b>	Description: The motivation for the experiment will be the investigation of the movement of bodies on an inclined plane and the impact after leaving the inclined plane.
<b>2. Main subject</b>	Description: Analyse the movement of bodies on an inclined plane, understand the concept of moment of inertia.
<b>Part 1</b>	
<b>(0:40)</b>	<b>Tools:</b> solids in the shape of a cylinder, sphere, disc, scale, meter  <b>Description:</b> At the beginning, we weigh the body of different shapes - cylinder, sphere and disk .
<b>Experiment 1 (2:08),</b>	Let the ball-shaped body roll on an inclined plane and observe the movement after leaving the inclined plane. Subsequently, from the same position, we launch a 35x heavier ball and observe and analyse the movement compared to the previous movement of a smaller ball.
<b>Experiment 2 (2:22),</b>	Let the cylindrical body roll on the inclined plane and observe the movement after leaving the inclined plane. Subsequently, from the same position, we launch a 2.5x heavier cylinder and observe and analyse the movement compared to the previous movement of the cylinder of smaller weight.
<b>Experiment 3 (2:04),</b>	Let the disc-shaped body roll on an inclined plane and observe the movement after leaving the inclined plane. Subsequently, from the same position, we launch a 5.7x heavier disc and observe and analyse the movement compared to the previous movement of the cylinder of smaller weight.
<b>Experiment 4 (2:53)</b>	We repeat the experiment by simultaneously releasing both cylinders from the top of the inclined plane and watching their movement, then we simultaneously launch the cylinder and disk, the ball and cylinder, and finally the ball and disk .  <b>Questions:</b> Does movement on an inclined plane depend on the weight of bodies of a given shape? Does the impact distance of bodies of the same shape from the wall depend on the weight of the bodies?

	<p>(Will a ball 35 times heavier fall closer/farther than a ball of lesser weight?)</p> <p><b>Conclusions:</b> The movement on an inclined plane and the distance from the wall upon impact do not depend on the weight of the body of the given shape. The differences in speed when moving on an inclined plane and the distance from the wall at impact are related to the shape of the body and a quantity we call the moment of inertia.</p>
<p><b>3. Summary, evaluation and notes</b></p>	<p>During the implementation of the experiment, it is possible to stop the video and ask the students for their opinion on how the body will move and at what distance from the wall a several times heavier/lighter body will fall.</p> <p><b>Level:</b> primary school (ISCED 3 / 1st grade)</p>