

### The scenario

<b>Subject</b>	<b>Mechanics / Moments of inertia: tube, sphere and cylinder</b>
<b>Length</b>	3:07
<b>Main goals</b>	Introduce moment of inertia
<b>Detailed goals</b>	To understand that the rotational motion depends not on the mass and radius of the object but also on the specific arrangement of the mass inside the body.
<b>Structure and description of experiments:</b>	
<b>1. Introduction</b>	Is mass only all that one need to know the acceleration of rotating body?
<b>2. Main subject</b>	Moments of inertia: tube, sphere and cylinder
<b>Experiments</b>	First we show that three bodies have the same outer radius and the same mass, all made of steel. The question may be stated: which of these bodies will roll fastest and which slowest on the same inclined plane? The one with smallest moment of inertia (ball, $0.4 mR^2$ ), then cylinder ( $0.5 mR^2$ ), then hollow tube ( $mR^2$ ).
<b>3. Summary, evaluation and remarks</b>	The object with greater moment of inertia will accelerate slower.  <b>Level:</b> secondary school