The scenario

Subject	Mechanics / Moments of inertia
Length	2:30
Main goals	Introduce moment of inertia
Detailed goals	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.
Structure and description of experiments:	
1. Introduction	Is mass only all that one need to know the acceleration of rotating body?
2. Main subject	Moments of inertia
Experiments	First we show that two cylindrical objects have the same outer radius and the same mass. We can see that part of each of the bodies is made of shiny aluminium (density 2.7 g/cm3) and the second part of dark grey lead (11 g/cm3). In one case lead is in the center, in the other – it forms outer surface. The question may be stated: which of these two will roll faster on the same inclined plane? The one with lead at the center has smaller moment of inertia, so it accelerates faster with the same torque (same masses, same radii).
3. Summary, evaluation and remarks	The object with greater moment of inertia will accelerate slower. **Level:** secondary school

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