

### The scenario

<b>Subject</b>	<b>Mechanics / Rolling uphill – Resal’s double cone</b>
<b>Length</b>	2:48
<b>Main goals</b>	Get familiar with center of mass
<b>Detailed goals</b>	To understand that using eyes only can lead to false statements and that center of mass always tends to occupy lower possible level in uniform gravitational field.
<b>Structure and description of experiments:</b>	
<b>1. Introduction</b>	Sometimes physics look like magic – in fact, some magical tricks uses only physics laws.
<b>2. Main subject</b>	Rolling uphill – Resal’s double cone
<b>Experiments</b>	<p>There is a inclined plane of special form – it consists of two rails, both of them inclined up and outside the center line. If there is a cylinder put on them, it Rolls down. But if we use double cone, it rolls upwards!</p> <p>The question is, why it rolls upwards like it was defying gravity. This question is stated incorrectly. There is no such motion. If we check the height of the axis of this device in both position we will find that this one „downhill” is higher than the other one „uphill”. It is because of the shape of this body. Closer the rails are, higher the center of mass is. It Rolls down but for our eyes it appears to be rolling the other way.</p>
<b>3. Summary, evaluation and remarks</b>	<p>This is a paradox – it seems to be something magical but it isn’t. It can be explained very simply.</p> <p><b>Level:</b> secondary school</p>