

The scenario

Subject	Thermal properties of matter / Solid expansion ball and ring (Gravesande's ring)
Length	3:43
Main goals	Get to know about thermal expansion of metals
Detailed goals	To understand that typical metallic body will increase its dimensions when heated and decrease when cooled.
Structure and description of experiments:	
1. Introduction	Each material body will change its dimensions when its temperature is changed. Some materials will increase, some will decrease its diameter, some will show so small difference that cannot be measured with simple devices. Metals usually expands with temperature rise.
2. Main subject	Solid expansion ball and ring (Gravesande's ring)
Experiments	A brass ball and brass ring have diameters so tuned that in room temperature the balls goes freely through the ring. When the ball lies heated, it no longer goes through the ring. When cooled, it fits through the hole once more.
3. Summary, evaluation and remarks	There are many examples of use of this effect and many examples of situations, in which we must pay attention about this effect, as for example railroads, long bridges or high voltage wires. Level: primary school