

Leaning Cylinder: To Topple or Not to Topple?



Purpose: To show that a system supported from below is not stable if its center of gravity does not lie over a point within its support base.

Location: room 136, shelf M6

Begin by placing the empty, leaning cylinder on the desk. Notice that it is stable. Why? Place the lid on the cylinder and it falls. Why? Next, put the metal ball in the cylinder first, followed by the plastic ball on top, and put the lid on again. What happens? Why? Finally, put the plastic ball in the cylinder first, followed by the steel ball. Does it remain stable? Why? What will happen if the lid is placed on the cylinder now? Try it and ask the students to explain what happens.