

A Slinky spring is held by one end and allowed to hang freely in a line directly under the point of support. If it is released from rest, what will the Slinky do? Will the entire Slinky accelerate down? Will the bottom end of the Slinky begin to accelerate downward, accelerate upward, or remain at the same position?

The Slinky spring begins to fall downward immediately after it is released, simultaneously shrinking due to the internal forces, which are no longer balanced by the force of the hand holding the Slinky and the force of gravity.

The motion of the collapsing Slinky has been recorded on high-speed film, and is presented in slow motion so that the details of the collapse mechanism can be studied.



*Figure 1*

When this spring is held at the top and allowed to hang, the weight of the spring stretches it out. If we release the spring, its weight will still be pulling on it during the fall. What will happen to the length of the spring during the fall?

The spring immediately contracts when it is dropped.

### *Equipment*

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One Slinky.