

Answer #30

The answer is (c): neither the keys nor the matchbook will pull the other over Gwen's finger. The string will coil around her finger and become caught before it is able to fall, as seen in an mpeg video obtained by clicking your mouse on the photograph below.



When the matchbook is released, it begins to fall, rotating about Gwen's finger on the string. As the keys fall, the string becomes shorter, leading the matchbook to rotate faster and eventually loop around her finger enough times that friction prevents the keys from pulling the string to the floor.

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