



Steel Ball Dropped in a Viscous Fluid

Five steel balls of different sizes are dropped into corn syrup. The balls reach a constant velocity shortly after entering the fluid. The velocity is constrained due to the drag balancing the force of gravity in the fluid. This demonstrates the relationship between the size of the ball and the maximum velocity it can obtain.

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A double cone is placed on the bars of an inclined plane. Instead of rolling down the plane the cone rolls up. Although the plane slants upward, the bars diverge so that the rotational axis of the cone, which passes through the center of mass, actually moves downward.



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A 100uF capacitor is charged to 3kV (450 joules) and then discharged through a thin iron wire, causing it to explode.



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A small amount of water is placed inside an airtight copper tube, with the end sealed by a rubber stopper. The tube is heated using a blowtorch, causing the water inside to boil. As the water changes from a liquid to a gas the pressure inside the tube increases. Eventually ...



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An iron bar is used to try to pick up some paperclips or thumbtacks. It is not able to do this because it is not magnetized. The rod is placed in a long solenoid and DC power applied. The rod becomes magnetized and is able to pick up some of the ...

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Small fluctuations in tokamak plasmas lead to turbulence, and turbulent eddies can very effectively transport heat from the hot core across confining magnetic field lines out to the cooler plasma edge.



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Beethoven Cello Sonata. Detail of cello tuning. Musicians Finehouse and Katz perform this delightful duet at the piano and cello respectively. Bravo. Framingham Library, January, 2014.

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