First: open a NEW browser window, copy this URL into it and watch this video

<http://techtv.mit.edu/collections/physicsdemos/videos/10043-plate-sliding-under-a-soda-can>

Why does he pour so much water into the pop can?

A) If he poured less water the can would stick to plate and slide off the stool. That would be a lousy demonstration of inertia.

B) More mass of the can/water system means it has more inertia. If it has too much inertia then it will just stick to the plate under it and fly off. It is has too little inertia, it doesn't have enough to stick to the plate. So there is an exact amount of water that must be poured into the can for this trick to work.

C) It doesn't really matter how much water is poured into the can because what really matters is the friction interaction between the bottom of the can and the plate. This depends on the friction coefficient and not on the inertia. It is the inertia of the plate UNDER the can that matters. If the plate's inertia is too low, then the speed that it takes off when hit will be too slow dragging the can with it as it flies off the stool.

D) The can must have enough inertia to keep it from flipping over in this demonstration. If the empty can was smashed down and put on top of the plate, it would stay on top of the stool when the plate is hit, because the tendency of the smashed can is to stay at rest, and there would be very little force on it to drag it with the rapidly accelerated plate.

**Correct answer(s):** D