

THE DEMONSTRATION CORNER

Demonstration Cart or “Happy Wagon”

by Stuart Quick, Department of Physical & Environmental Sciences
University of Toronto @ Scarborough

Some teachers might find it awkward and inconvenient to set up demonstrations on lab stands and take them down again in the time at their disposal. Lab stands tend to be weak affairs that wobble with even small loads. Or teachers may find setting up more than one demonstration at a time impractical.

I have used a demonstration cart which I call my “happy wagon” for some years. The body of the cart is one of the larger lab trolleys fitted with good-sized wheels. I have a square piece of plywood about three-quarters of an inch thick and some four feet square mounted in an upright position so one side of it faces the class. It is attached in such a way that it can be removed quickly. The side facing the class is mostly covered by a thin sheet of galvanized steel. Dead centre in the steel and board is a hole with a reinforcement on the reverse side so I can slip the axle of a bicycle wheel through it, holding the wheel perpendicular and enabling it to spin with little friction.

The use of the steel enables me to attach all manner of stuff on the board with magnetic fasteners – thin magnetic indicators (arrows) of different colours, holders for masses on springs, simple pendulum, etc, etc. For one of my opening lectures on the “unity” of physics I have the wheel spinning, the mass on the spring bouncing up and down and the pendulum swinging back and forth all at the same time.

The board is also useful as a backdrop to show the spot of your laser pointer, and to provide a contrast for other demonstrations, such as the waves on a string apparatus. I can even imagine for this coming term talking about buoyancy with balloons I have attached to the thing. Of course, the trolley gives you the space for transporting the stuff and for storing it too. Our Science Outreach kids like the wheel. I have the wagon parked outside my office door in the summer and I often see the wheel spinning after a bunch of them have passed by.

Column Editor: Ernie McFarland, Physics Department, University of Guelph, Guelph, Ontario, N1G 2W1
Email: elm@physics.uoguelph.ca

Submissions describing demonstrations will be gladly received by the column editor.
