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# Steel Wool and Water Tension

## What is Needed

Steel wool  
Dishwashing detergent  
Dish  
water

## What to Do

Float a piece of steel wool  
in a dish of water.  
Now pour a few drops of  
liquid dishwashing detergent  
into the water.

## What is Happening

In a dish of water,  
each molecule of water  
is surrounded by other  
molecules.  
Cohesive force holds them  
together.

On the surface, however,  
the molecules are packed  
together more densely because  
they are acted upon only by the molecules in the water beneath the surface.  
There are no water molecules on the top side pulling in the opposite direction.  
This downward pull creates a surface tension  
that is strong enough to support the steel wool as long as the water surface is not  
broken.

Despite the fact that steel is over seven times heavier than water,  
the steel does not sink due to the surface tension of the water.  
Adding the detergent to the water, however,  
reduces the water's surface tension and the steel wool sinks.

Purdue University Physics Dept. Physics on the Road Hands - On Lida Wu Illustrate