



# Water Resistance

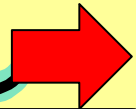
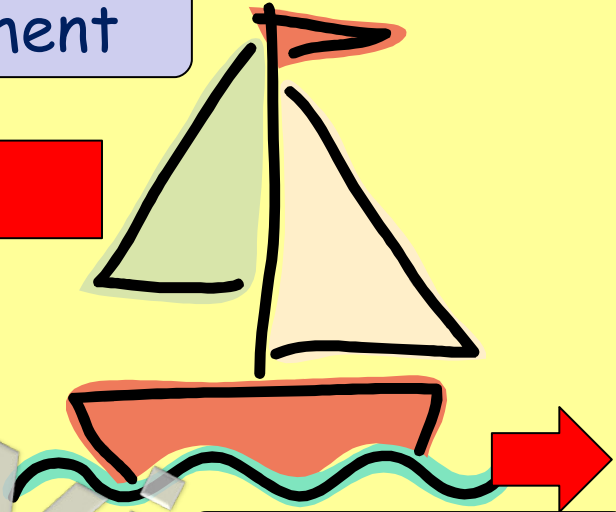
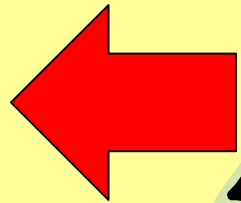
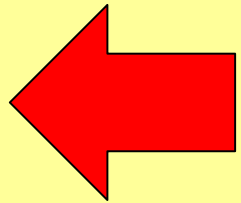


**Water resistance** is the force that pushes against a moving object as it passes through water. Water resistance slows the object down.



Movement

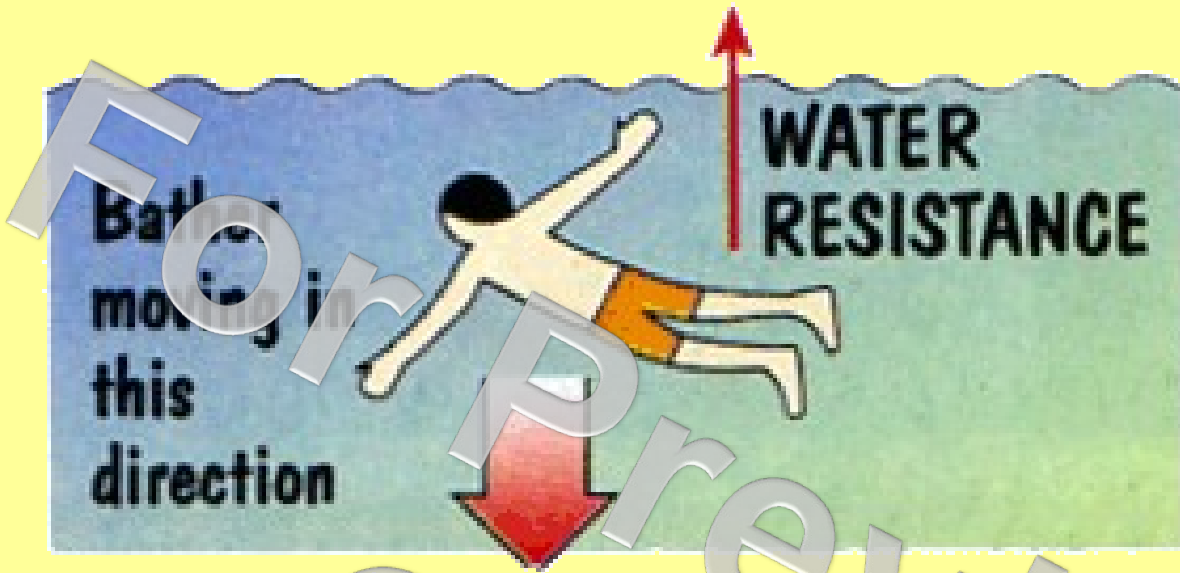
Movement



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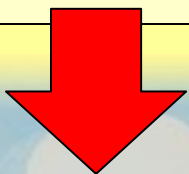
The amount of water resistance pushing against the dolphin and the sailing boat is small. They are both streamlined in shape. This means they can 'cut through' the water more easily.



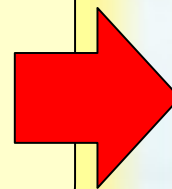
The swimmer is not streamlined. The amount of water resistance pushing against him is great. The bather will sink to the bottom of the pool much more slowly.



A float helps swimmers. Have you ever wondered how hard it is to swim if you stand the float up?

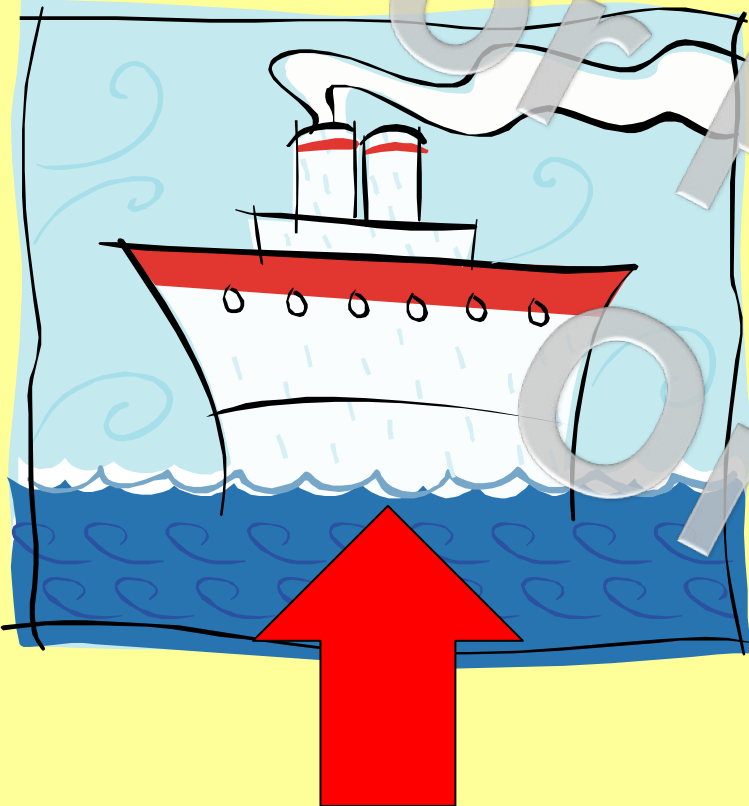


Swimmers can wear special suits that help to reduce the amount of water resistance.

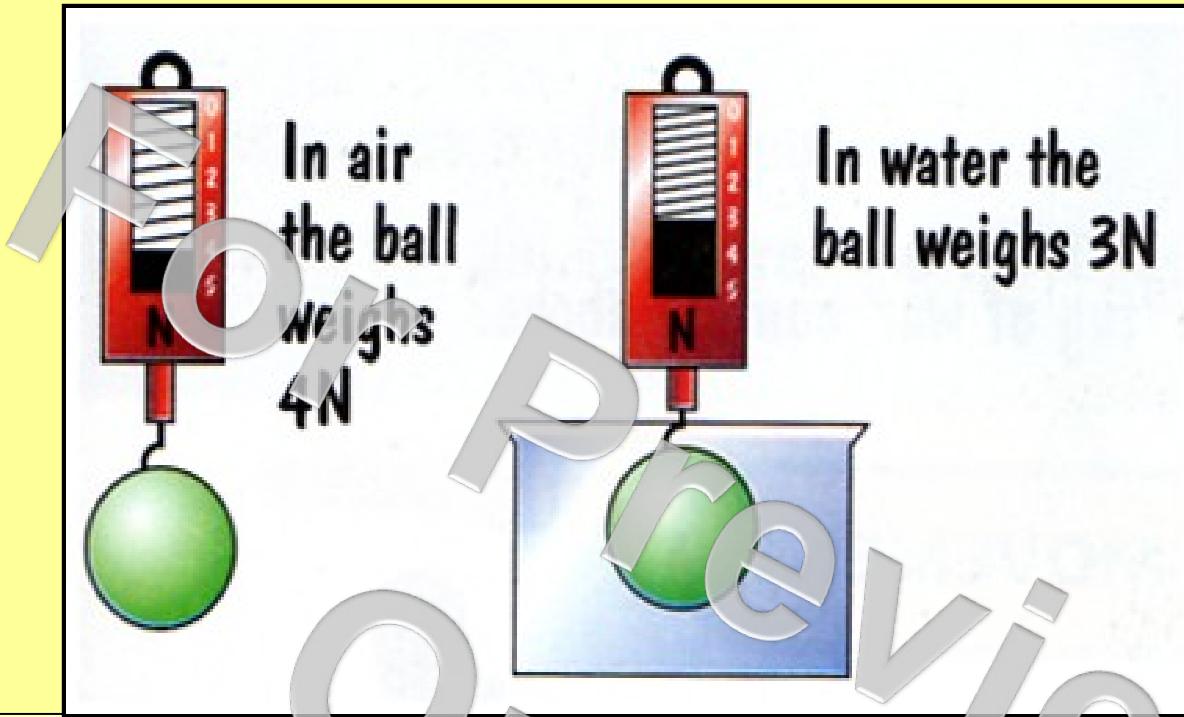




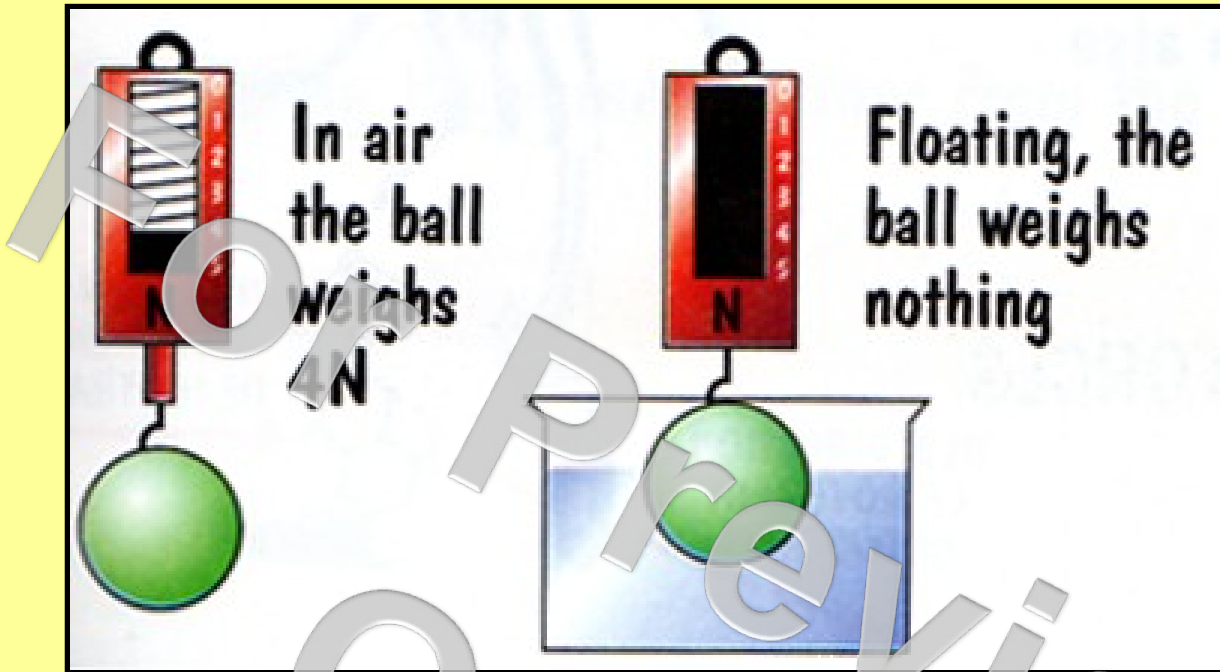
# Upthrust



Up thrust is a force that pushes an object up in water. This effect makes the object lose weight.



A forcemeter is used to weigh a ball, firstly in air, and then in water. The weight of the ball goes down when it is put into the water. This is because the water pushes up the ball, making it weigh less. This is upthrust in action.



When the ball floats, the forcemeter is zero. This happens because the weight of the ball acting downwards (gravity) is balanced by the force acting upwards (upthrust).



Have you ever noticed that when you climb out of water it is easier to start with. As more of your body leaves the water it gets harder. This is because there is less upthrust as you get more and more out of the water!



On a boat, the force of upthrust is the same as the force of gravity. The larger the surface area, the greater the force of upthrust. Boats are built of special shapes and materials to make sure they float.