

Which is easier to do?



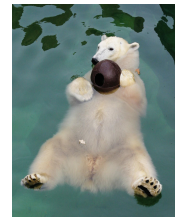
Water exerts an upward force that helps support you when you do a handstand.

Buoyancy - is the ability of a fluid to support an object floating in or on the fluid.

The particles of a fluid apply a force in a upward force which is opposite to the force of gravity.



- Buoyancy is measured in Newtons (N)



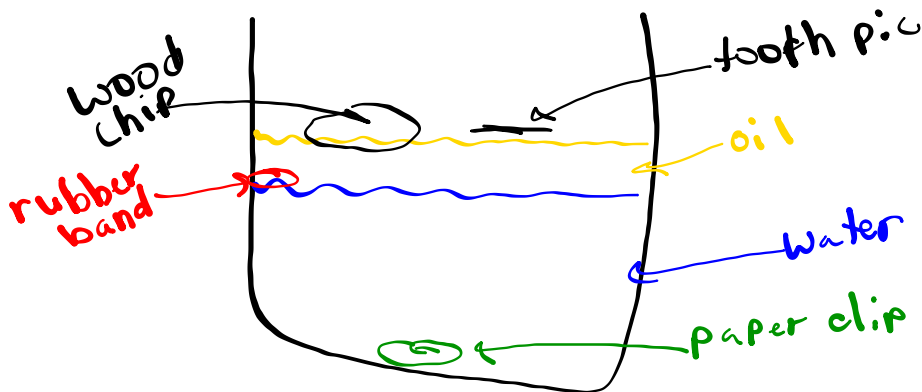
Recall Gravity - is a natural force that causes an object to move toward the center of the earth.

Floating occurs when an object does not fall in air or sink in water, but remains suspended in fluid.

Displace - To move something out of the way. Example) A solid object can displace water out of a container.

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Need Oil, water see through jar, wood chip, toothpick, paperclip

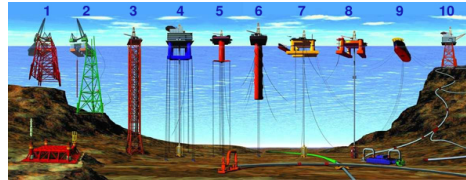


Oil is on top of water (So oil is less dense than water)

Rubber Band and oil

↓
more
dense

↓
less
dense



How can people or oil rigs float in water if their density is greater than water?

Water can support objects that have densities greater than water, as long as the weight of the object is spread over a large enough area.

Average Density - total mass divided by total volume

ex) Ships can be built of steel (density of steel is 9.0 g/cm^3) as long as they have large, hollow hulls. A large hollow hull ensures the density of the ship is less than the water.

ex) Fish have an air bladder - a sack full of air.

The fish's depth depends on how much air is in his sack. As the amount of air decreases, the fish sinks. As the amount of air increases, the fish rises closer to the surface. This depth control structure has been adapted in the submarine.

