

# Operation Float

The hull is the bottom of the ship. Navy ships are made of iron metal, called steel. Hulls are regularly cleaned and coated with special paint that stops things growing on the hull and helps the ship move smoothly through the water.

There are three basic shapes of hull.

Which one do you think would be the most stable and help the ship carry the greatest load?

## HULL SHAPES



Round bottom hull



Flat bottom hull



V-shaped hull

CAN YOU SPOT  
THE STABILISING  
FINS ON TE MANA?



Navy ships have V-shaped hulls which lets them cut through the water and move faster. You can see HMNZS Te Mana's here.

## SHIP BALLAST

Ballast is extra weight added to the inside of a ship to increase stability. Navy ships use salt water pumped into ballast tanks at the bottom of the ship to make sure the ship doesn't lean over to one side as they use up fuel or bring on supplies. HMNZS Te Mana has seven salt water ballast tanks in its hull.

## SHIP KEELS

A ship's keel is the main back bone of the ship running down the middle of the hull. Extensions are added to this or to the hull to help with stability. Some are fin shaped and called stabilising fins. Stabilising fins move up and down to stop the ship rolling from side to side, like fins on a fish.



## CHALLENGE



# Operation Float



## YOU WILL NEED

- Aluminium foil rectangle
- Weights
- Container of water
- Heavy object to drop in

## YOUR CHALLENGE

1. Shape your foil rectangle into a ship that will take the most weight.
2. Make a foil ship that will take the most weight and can stand a large wave made by dropping a heavy object into the water next to the ship.

The ship that holds the most weights and stays afloat wins!